

INTERNATIONAL HANDBOOK ON SOCIAL
POLICY AND THE ENVIRONMENT

International Handbook on Social Policy and the Environment

Edited by

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Introduction

Tony Fitzpatrick

MAPPING THE AGENDA

Humans are incredibly adept at solving problems: ingenious, imaginative, resourceful, cooperative. It is not simply about individuals, of course. Over the centuries we have developed political and social systems conducive to problem-solving. In a liberal society the ‘separation of powers’, designed to respect the sovereign authority of ‘the people’ and ensure that political control is dispersed and decentralized, allows institutions to make mistakes and to learn from one another. In a democracy the civic culture is one conducive to active citizenship, critical reflection and protest, mutual trust, public debate and an ethos in which people accept responsibility for their lives and social environments confident in the knowledge that they are the ones ultimately in charge of both. In an era when some commentators have begun to envy the strong, technocratic, weight-carrying muscles of China’s authoritarian capitalism, the nimble, interlocking fingers of liberal democracy still possess the resources best able to cope with collective problems.

But humans are incredibly stupid at allowing so many problems to develop in the first place and worsen to such a point that the species often seems to flirt unnecessarily with danger, speeding like reckless teenagers to the edge of a cliff in order to throw the brakes at the last second and experience the thrill of a disaster narrowly averted. It is not simply about individuals, of course. Over the centuries we have developed political and social systems conducive to problem-creating. Liberal societies undermine themselves by investing too much power in monodimensional forms of decision-making and authority, including over-powerful states, anti-social markets and social class hierarchies. The separation of powers has been an ideal, but not always the reality, and lacking the openness, transparency and accountability they need, institutions often exhibit a blind determination to keep moving along an established, familiar direction no matter what. And democratic cultures are subverted by vested interests. Politicians and newspapers are able to shape public opinion with frustrating ease; corporations and celebrities are adept at inserting themselves into cultural streams and grafting themselves into the social identities of millions. Mesmerized by the interests of a few, people may be distracted just enough for long enough to ignore the escalation of the dangers they face.

In short, Winston Churchill's quip about Americans – that they can always be counted on to do the right thing, but only after exhausting all the other options – might apply equally to humanity itself. During the infancy of the species this may not have mattered too much. Arrows and spears have little impact beyond those they injure and kill. But we are now equipped with much more than arrows and spears. From the First and Second World Wars, to the Cuban Missile Crisis, to the financial crashes of 1929 and 2007–08, the last century has been peppered with events that affected the lives of countless millions. And this is not said merely with the wisdom of retrospect. Many people knew in advance that imperialist tensions were mounting, that the post-Great War settlement was a recipe for future instability, that the nuclear arms race and Cold War were dangerous, and that debt bubbles could not keep inflating forever. It is as if, instead of spotting the iceberg at the last minute, the *Titanic* spent hours merrily steaming towards the damn thing, trusting it to be a mirage that would vanish when the time came.

Why do we so often speed towards the edge? Whenever we played football at school, I – invariably picked to go in goal – was often the amused witness to a common spectacle, where about a dozen children would swarm around the ball instead of spreading themselves across the field to work together. In seeking individual glory, rather than observing the mundane requirements of teamwork, each player was making a minute contribution to a situation that in the aggregate was deeply irrational. In short, this was a collective action problem in which individuals, by pursuing what appears to be a reasonable and rational course of action *qua* individual, create conditions which undermine the good of everyone. Knowing that disaster is ahead may not, by itself, divert enough people towards alternative courses of action. We so easily become passive bystanders, witnessing a crash in which we are also the willing participants.

And in the century to come? Can we utilize the best of our social and political systems? Can we allow the better angels of our nature to triumph over the drooling idiot that also squats inside there? Can we develop better collective action solutions?

Environmental issues, and climate change in particular, are central to the political, social, economic and moral challenges of the twenty-first century. Outside the saloon bar mentality of those who think that it is all a Eurocratic power grab, everyone knows this. But, as has just been said, knowing and doing are not the same thing. We could have spent the last quarter-century doing much more. The solutions to ecological degradation are actually less drastic than either conservatives (of right and left) fear or radicals hope. But how much easier it has been to still the alarm clock, settle back into the pillow, feign a cough for Mum and get a free day off

school. Everyone does it. If no one else is willing to make an effort, why should you be any different? You need to conserve your energy, anyway. You've got football tomorrow.

I say 'are less drastic' but this is in truth a moving target. The earlier you spot the asteroid heading your way, the less you have to do to divert it. The longer you delay, the more severe and urgent the action needed to avoid a collision. Those who strive the hardest to preserve the status quo are only ensuring that it cannot be preserved. But before radicals and romantics delight in the prospect of starting civilization all over again on a blank sheet of paper, the delay makes it more likely that those who were deniers and delayers only yesterday will, by tomorrow, be urging crisis management solutions that are highly authoritarian. The newest converts can make the worst zealots.

Yet whatever form it takes, social policies will be central to the conditions which our children and grandchildren will face. This is quite simply because social policies occupy a central position in modern societies. In the United Kingdom (UK), 30 per cent of gross domestic product (GDP), or about two-thirds of government spending, is directed towards welfare services. Some European countries spend more and some spend less. This means that much of what we are asked to vote for during elections concerns social policies. It may well be the case that some on the political right are using post-2008 austerity to dismantle the welfare systems – that, ironically, conservatives initiated back in the late nineteenth and early twentieth centuries – with which they have never been comfortable. But even if Facebook ends up running our hospitals, Amazon ends up running our schools, and arrogant banks, multinational corporations and equity firms end up running our economies (sorry: as if that last one could ever happen!), these will still be social policies, albeit with 'the social' defined largely in terms of profit, profit and more profit.

To date, governmental social policies have done little to register the challenge of climate change beyond the redesign of some buildings and the development of certain emergency procedures; flooding, transport and housing stock retrofitting are areas where agendas are converging to some extent. True, some countries are more advanced than others but I do not think it is yet possible to present a map of 'green welfare systems' in a manner any way equivalent to the kind of cross-national comparisons of social policies that began to appear in the 1960s and 1970s.

The research literatures are gathering pace, though. The Joseph Rowntree Foundation has run a 'Reconciling Environmental and Social Concerns' programme and some interesting work has been done by the New Economics Foundation, among others (including the Economic and Social Research Council and the Natural Environment Research Council).

In academic circles publications and research projects have been slowly emerging (Huby 1998; Cahill 2001, 2010; Cahill and Fitzpatrick 2002; Fitzpatrick and Cahill 2002; Fitzpatrick 2011a, forthcoming; Aldred 2011; Gough and Meadowcroft 2011). And most social policy textbooks will now offer some mention of the environment and global warming. This is still very much virgin territory, however. The urgency that climate change presents conflicts with the glacial slowness of social research design, field-work and dissemination. There is no consensus, in other words, and only a kind of stuttering momentum.

This book is offered as a contribution to that field of scholarship and research, as one more step on the road to some kind of clarity. It does not offer a one-stop shop for those new to the subject. If you do want more of a textbook then you should read Fitzpatrick (2011a). Instead, these chapters attempt to make original but hopefully accessible contributions to the research base. As such, coherence in the themes, concepts and methods of the chapters is less important than their immediacy and relevance to the social and ecological circumstances within which we now find ourselves. These are the topics that some important researchers think are important. A synopsis follows at the end of this chapter.

DEFINING THE PROBLEM

First of all, let us wrestle with the key terminology. Environmentalism is concerned with the natural environment and so would have a legitimate role to play even if global warming did turn out to be an Islamo-Eurocratic-Communist conspiracy to prevent the deniers from thinking all of the wonderful thoughts they think. In the nineteenth century Henry David Thoreau and William Morris offered, respectively, right-wing and left-wing takes on society and nature many decades before climate science became mainstream. The climate includes the atmosphere, hydrosphere, land surface, biosphere and cryosphere. Variability is therefore a persistent feature of our climate for the simple reason that all of these spheres interact, driven ultimately by solar activity which is itself variable. There is no such thing as a non-changing climate. However, when we refer to contemporary climate change we are referring more to the rapid global warming created by human activities pouring greenhouse gases (GHGs), particularly carbon dioxide (CO₂), into the atmosphere and oceans. 'Climate change' and 'global warming' mean more or less the same thing, then. When relevant, this book also refers to broader environmental issues of resource depletion and management.

Unfortunately, most of the fifth report of the Intergovernmental Panel

on Climate Change (IPCC) is not due to be published until after this book has gone to press, but the basics have been clear for many years now. In pre-industrial times there were 280 parts of CO₂ for every million molecules of dry air. By 2013 this had risen to 400 parts per million. Compared to pre-industrial times, it means we have already experienced an average rise in global temperatures of at least 0.8°C, with another 0.6°C almost certain to happen whatever we do and an additional 0.6°C after that also very likely. This may not sound like much, especially to Britons who can experience widely varying temperatures on a typical day. But in terms of climate these temperatures matter significantly: 2°C of warming is widely regarded as the upper limit beyond which global warming becomes dangerously unmanageable.

According to the IPCC (2007: 48) the health status of millions of people, especially in developing countries, is going to be affected through increases in malnutrition, diarrhoeal and infectious diseases, and cardio-respiratory diseases due to higher concentrations of ground-level ozone in cities. Furthermore, the warming we have already experienced has led to increasing and disastrous incidents of hurricanes, floods, wildfires, droughts, deforestation, species extinction and heatwaves, all of which particularly affect the poorest. At 1.5–2°C of warming these will certainly be joined by severely rising sea levels, irreversible ice sheet loss, mass species extinctions, larger and more frequent droughts and famines, rainforest collapse, coral reef devastation, acidic oceans and mass ecological migration as levels of potable water and crop yields decline.

Weighty stuff. So where, secondly, might social policy come into the picture (see Fitzpatrick 2011b: Ch. 3)? In addition to what has been said above – about the centrality of social policies to modern societies – both environmentalism and social policy are concerned with well-being. The latter has been receptive to the idea that well-being cannot be measured in terms of or ensured by rising standards of living. Beyond a certain point, ‘quality of life’ matters more. One hope is that this realization will inspire a social politics different to the economic liberalism of the last 35 years and offer either a new kind of capitalism or even post-capitalist possibilities. Environmentalists from Thoreau and Morris onwards have long championed this kind of ethos, associating well-being with ‘being well with and for the natural world’.

Furthermore, one of the roles played by social policies over the last 100 years has been to offer collective security against collective risks and uncertainties. Jim and Jan know there is a 25 per cent chance of an individual becoming seriously ill. They could insure themselves separately and individually, but in a private system where the priority of firms is to make a profit, a large part of the risk is passed to individual policyholders (in

the form of higher premiums and restricted conditions for making claims) and if they attract insurance at all high-risk individuals may only receive coverage which is inadequate and/or highly expensive. But pooling their premiums (or contributions) in a social insurance scheme coverage can be universal, relatively cheap (with the state as guarantor) and inclusive. Thus Jim and Jan both gain, even if neither of them becomes ill, because they have a firmer base of security from which to plan their futures. Whether and to what extent a similar scheme of mutual security can be extended to climate change is yet to be seen.

Yet if there are potential synergies between environmentalism and social policy there are also various hurdles. Modern welfare institutions developed under and according to the expectation that economic growth would continue indefinitely. Developed as a settlement within the capitalist drive for affluence, the welfare state sought legitimacy in its capacity to promote growth and provide some stability to the boom-and-crash hysterics of free markets. The same businessman who complains about taxes and bureaucracy would complain even more if their consumers died through lack of spending power during economic downturns. But the labour movement saw an opportunity here also: to moderate and even socialize capitalism against a background of always rising affluence. It is easier to make a case for progressive public spending when annual GDP and productivity growth is high enough to ensure that the private sector does not lose out. When growth faltered in the 1970s the tensions between public and private were exposed to an extent that has never faded – albeit in some countries (like Britain) more than others (such as Germany).

If, due to climate change, our measurement and entire conception of growth, development and progress need to change, then what are the implications for social policy? There are several versions of a ‘low-carbon economy’, of course, but only the most ‘greenwashed’ of them advance a business-as-usual agenda. Can welfare systems adapt to, or indeed even shape, new realities? Can those dedicated to distributive justice learn to be less reliant on calculating which portion of GDP growth can be redistributed? How can we raise carbon taxes without the regressive effects of such taxes hitting low-income households the hardest (the very people who tend to emit the least amount of carbon in the first place)? How, then, can we anticipate and insure ourselves against climate-related uncertainties? We need long-term resilient and adaptive systems, to be sure. Yet what does that mean?

These are difficult questions and only the dogmatic insist that the answers to them are nonetheless easy. What seems clear is that ecosocial policies will be as different to the social policies of today as those are to the social policies of the nineteenth century. This claim may turn out to be

wrong. Perhaps today's combination of deregulated markets, governance by and through corporations and financial institutions, widening social inequalities, the privatization of public goods and shrinking state support is about to deliver the utopia its neoliberal advocates imagine it has spent the last four decades already delivering. But if not, then not only will we continue to require welfare systems that restrict, regulate and reshape market forces, but we will need environmental systems that merge with and enhance the social agenda. Thus, while they must evolve from the past, measures suited to the decades ahead cannot simply replicate the social protections of the past. The seeds of the future are scattered everywhere around us and although we must identify and nurture the most important – and with some urgency too – the garden is so vast across time and space that the maps of the gardener are always simplistic by comparison. Few visionaries in the 1880s could have anticipated a world dominated 70 years later by jets and cars, television and movies, artificial satellites and nuclear power, Cold War superpowers and nuclear weapons.

Major challenges lie ahead, in other words. If we are to meet those challenges, we need to develop conceptual frameworks and research priorities that dovetail with developments in other disciplines. This means updating ourselves on the state of existing research and relevant debates. To this end, *The International Handbook on Social Policy and the Environment* brings together two dozen experts across a range of subjects to present summaries of their recent research, their views of recent policy developments and notions of what ought to happen next. Some of the chapters are theoretical and some are empirical but many allow one to inform the other. The chapters do not speak to the same agenda, nor do the contributors agree with one another about everything, but some fascinating themes and synergies are present nonetheless.

SYNOPSIS

Part I: Justice and Poverty

In Chapter 1 André Schaffrin offers a comprehensive overview of the relationship between climate change and social policy, looking at the potential conflicts between them and the opportunities which exist to align welfare and climate mitigation goals. He analyses the costs of mitigation and discusses the concept of green growth as a potential way to integrate the principles of economic growth, environmental preservation and social equality. It is in this context that he focuses upon two debates: 'green jobs' and energy inequalities in the housing sector. Schaffrin then discusses major

differences in the ways various welfare regimes relate to issues of environmental justice and green growth. Overall, he finds that much depends on the specific design of climate mitigation instruments and on how these are integrated into social policy systems and economic structures. For instance, social democratic and (to some extent) conservative nations are those most capable of achieving green growth due to their support for skills and technical innovation, and their combination of flexibility and security. Furthermore, whether climate policies create social injustices and problems is likely to depend upon both pre-existing levels of inequality and the welfare state's capability to accommodate the necessary changes. Schaffrin therefore anticipates and critiques many of the questions and debates with which we engage throughout the rest of this book.

Milena Büchs, Nicholas Bardsley and Sylke Schnepf examine climate change mitigation in terms of distribution and fairness in Chapter 2. Which groups bear the highest burdens – or receive the greatest assistance – from mitigation policies and how does this relate to their contribution to emissions? It is already well established that general carbon taxes are likely to have regressive impacts, placing higher relative burdens on poorer than on richer households; and it is often argued that these effects can be reversed, through rebate schemes or equal per capita carbon allowances, for instance. But does this hold for all types of emissions, for example domestic energy and transport? And what role do household characteristics other than income and household size play in the distribution of benefits and burdens? Büchs, Bardsley and Schnepf provide an overview of mitigation policies and examine potential distributional implications across different emission domains. Their analysis is based on a dataset of household CO₂ emissions derived from UK expenditure data. It shows that mitigation policies that only target home energy emissions are least equitable from a distributional point of view, not only in terms of differences among income groups but also in relation to other household characteristics.

In Chapter 3, Tony Fitzpatrick offers a conceptual approach to similar questions of fairness, distribution and poverty, before reviewing a range of empirical evidence drawn mainly from the UK. What implications may climate change have for UK rates of poverty? To what extent might poverty constitute a hindrance to climate adaptation and mitigation efforts? The chapter critiques the capabilities approach and favours one more firmly grounded in a notion of resources. Since exclusion from resources is often what drives spatial and temporal forms of poverty, it can be expected that without clear principles of justice to ensure the fair distribution of and access to 'socio-natural resources' (energy, food, land, air, water), emerging types of 'ecosocial poverty' will worsen in the coming decades. The chapter then reviews data from three areas – housing, transport and air pollution –

in order to substantiate this claim. It concludes by offering an ecosocial definition and theorization of poverty as it is increasingly manifesting itself in this era of rapid climate change.

Part II: International Developments

Much of the rest of the book looks beyond UK data, beginning with Chapter 4. Erik Gawel and Wolfgang Bretschneider follow through on the above notion of resources being both social and natural by analysing water and energy services in Germany, a country generally thought to exemplify a conservative approach to social policies. They consider two questions. What does affordability mean? What role do affordability problems play in Germany's water and energy sectors? They examine the strengths and weakness of what is called the conventional affordability ratio (CAR), a widely used measure of affordability. They offer a model that basically distinguishes between ability to pay and willingness to pay, and which highlights the shortcomings of the CAR and those of its alternatives, the potential affordability approach and the residual income approach. There is no ideal way of measuring affordability, they conclude. The chapter ends by considering the main social policy alternatives to rising energy and water prices, given the need to conserve natural resources while protecting the most vulnerable. These include: income transfers (to help households cope with rising prices), social tariffs (reducing utility charges for certain groups), increased household efficiencies (in appliances such as 'white goods') and better information (perhaps assisted through the installation of smart technologies). Gawel and Bretschneider's preference is for solutions which do not adversely affect the market allocation of scarce resources through price distortions.

Because social democrats have long envied the Scandinavian welfare states, and since those countries are often portrayed as 'environmental pioneers', what lessons can be learned from their attempts to integrate social policy and environmental policy? In Chapter 5, Anders Branth Pedersen and Helle Ørsted Nielsen review the evidence which, in many cases, is surprisingly rare. They explore the implications of green taxes for levels of inequality in Scandinavia and propose that no conclusive picture emerges due to the complex relationships between prices, revenue recycling, tax reforms and environmental improvements. However, they do offer some general conclusions. For instance, some green taxes (on water and electricity) are more regressive than others (on cars); rural households are more adversely affected than urban ones; and measures to reduce air pollution will typically benefit the poorest the most. Crucially, Pedersen and Nielsen highlight the extent to which politics and governance matter.

Through careful design of the tax system the most vulnerable groups can be protected and may even benefit. Green taxes are therefore neither automatically regressive nor progressive; what matters is the egalitarian intent (or otherwise) of the tax reformers and policymakers.

Michael Briguglio, Maria Brown and Ian Bugeja investigate, in Chapter 6, the extent to which European environmental non-governmental organizations (ENGOS) have or have not been institutionalized by political and policymaking systems, the reasons for this and whether such cooption has been a reasonable price to pay. They find that ENGOS are often characterized by an ideologically moderate form of environmental politics. This may or may not lend them influence within government institutions and other relevant agencies, though the effect is to sever them from the more radical and idealistic aspects of the ecological movement. This might deprive them – and the rest of us – of the ‘holistic’, root-and-branch thinking which we need. In particular, the need to rethink the social and economic contexts of social policy and the nature of capitalism itself.

Moving beyond Europe, Judith Cherni explores the impact of the Washington Consensus on Latin America in Chapter 7. Market deregulation and liberalization have significantly affected agricultural practices, with consequences for both the quality of life and ecological well-being. For instance, in order to make a country attractive to inward investment, environmental controls and regulations have been loosened and demoted down the list of priorities. Social conditions in Latin America have been similarly ignored in the rush for export-driven profits and it is no surprise that local people and local economies have suffered accordingly, often characterized by increased poverty. Genetically modified (GM) monoculture has been a particular villain here. The fertility and sustainability of the land is sacrificed in order to speed up the pace of production; and farmers become dependent on corporations producing GM organisms, such as Monsanto. The results include a loss of biodiversity and natural habitats, soil erosion, desertification and water contamination; multinationals become dominant, food production is compromised and local communities are displaced. Ill health is another consequence, therefore, and so Cherni spends some time on a case study of Ituzaingó in Argentina. Yet before we stereotype the people affected merely as passive victims, Cherni also presents evidence about the concerted acts of resistance which inhabitants have initiated in order to try and regain control of their lives and communities.

In Chapter 8, Yasuko Kameyama offers a concise overview of environmental policies and social policies in post-Second World War Japan, highlighting the considerable extent to which these have not been subject to integration or cross-fertilization. Economic prosperity was prioritized

in the post-war era (which Kameyama calls the ‘expansion stage’), partly in order to fund social welfare programmes, which caused ecological problems such as pollution. During those decades very little emphasis was given to environmental values per se, and there was barely any such thing as a ‘green movement’. In the later ‘contraction stage’ – from the late 1980s onwards – the Japanese economy and welfare system had to adapt to a period of sluggish growth, one not conducive to systematic consideration of environmental issues. However, the increasing prominence given to women, young people – facing a less certain future than their parents had – and NGOs, non-profit organizations and various citizens groups has arguably altered social and ethical norms at a grassroots level in ways that may portend change. It is the new stage – following the earthquake and tsunami of 2011, and the subsequent national soul-searching about nuclear power – which may herald a consequent shift in social values. With nuclear energy becoming less popular, many are advocating alternative forms of energy production, including renewables. Debates about this for the future direction of social policy are in the early phases but this is one in which civil society organizations and citizens’ associations are taking a lead. Kameyama therefore ponders whether Japan is entering into a new ‘sustainability stage’.

In Chapter 9, Karen Bell challenges what she sees as the continued economic consensus, before defending the thesis of the ‘degrowth’ movement against its main criticisms. If this argument holds, then a central pillar of and justification for capitalism begins to topple, she argues. Although ‘green growth’ is better than unsustainable growth we need to value the social and ecological imperatives that capitalism largely ignores. Growth is all too often presented as a solution to the very problems created by growth. Since a proper understanding of well-being associates it with the fulfilment of basic needs, we ought to reimagine our social and environmental priorities. But what would this imply? Are there any practical examples upon which we can draw? Bell draws upon recent data to suggest that Cuba has achieved a high level of social and ecological well-being. She attributes its success to (among other policies):

- decentralized energy systems;
- free universal provision of healthcare, education and social services;
- free use of community facilities;
- localized production and consumption;
- low-cost public transport;
- minimal packaging and advertising;
- rent caps;
- restricted car ownership.

Bell considers the extent to which these policies are consistent with capitalism. Though some capitalist systems are preferable to others, she argues that only a socialist alternative to the commodifying, competitive and profit-obsessed characteristics of capitalism will suffice.

In Chapter 10, Julie MacArthur explores the social economy in Canada and the extent to which this can and does provide an alternative to the neoliberal orthodoxies of Canadian governance. Inspired and driven by a different set of principles, processes and objectives, the diverse organizations that make up the social economy have long been championed by those seeking to break the dominance of both states and markets over civic life. To what extent, though, can they facilitate ecological sustainability? She argues that while the social economy may serve the goals of sustainability, some aspects of it also serve the anti-state 'gap-filling' requirements of neoliberalism. Only a political and transformationalist approach, therefore, will allow the potential of the social economy to be realized. This agenda is required, given how far Canada currently is from realizing the kind of social and environmental values which we urgently need. MacArthur then maps the scope and scale of, and diversities within, the Canadian social economy, focusing on three sectors – forestry, food production and energy – and relating these to issues of profit, people and power. She concludes that while the social economy has a great deal of potential – and some actual achievements – only coordination and systematic changes to the public policy regime is likely to effect real change. A 'revolution by stealth' is unlikely.

Finally, in Chapter 11, Karen Hussey draws on Australian data to investigate the extent to which the use of market mechanisms within environmental policy conflicts with both long-term social justice issues relating to human rights and shorter-term equity issues regarding the allocation and use of natural resources. Using Australia's national water policy reforms as a case study, she explores the opportunities, limitations and possible consequences of a shift towards market-based instruments. The implications of water markets and pricing for rural and urban communities, and the extent to which Indigenous interests have been accommodated in Australia's flagship water policy, are given particular attention. Hussey concludes that, though they bring actual and potential benefits, market mechanisms raise important issues concerning equity, fairness and justice.

Part III: Making and Implementing

The book then focuses upon various themes relevant to the business of making and implementing policy and social reforms. For instance, earlier chapters have underpinned the importance to social policy of new issues,

such as energy policy and the energy efficiency of buildings and residences. But who should have the authority to make decisions about these and other domains? Should decision-making power be centralized or devolved? What role has the European Union (EU) played in developments to date? How much policy integration is in evidence? Elin Lerum Boasson and Jørgen Wettestad offer an analysis of EU policymaking in Chapter 12, looking at the underlying mechanisms and the extent to which a ‘policy coherence’ has or has not emerged. They explore four developments: the emissions trading system, energy renewables, carbon capture and storage, and energy efficiency in buildings – in terms of different types of integration:

- Functional interaction, when policymakers emphasize actual or potential intersections between policies.
- Bargained interaction, or the strategic links that actors establish in order to steer policy development in desired directions.
- Institutional interaction, where the character of historically dominant policies influences the approach that policymakers take in new areas.
- Persuasion interaction, when actors with a high status in one area introduce that policy’s characteristics into another policy area.

Boasson and Wettestad reach the conclusion that the level of interaction and integration is actually quite threadbare, despite EU rhetoric which often points in the opposite direction. There are some examples of good strategic focus and policy coherence, but fewer than we have been led to expect.

There are considerable difficulties in combining the social and ecological agendas at a global and transnational level too. The language of cross-national and multi-sectoral partnership is commonly heard and certainly easy to invoke, but in practice there are numerous organizational and procedural obstacles which have to be surmounted, many of which derive from familiar problems within policymaking and implementation of power imbalances, economic resources and political conflicts. Magnus Boström illustrates this with reference to multi-stakeholder organizations in Chapter 13. He outlines the meaning of the multi-stakeholder approach and critiques its potential for reconciling social and environmental interests. He observes that there are three principal challenges with which the various agencies and actors must grapple if that potential – and thus social and environmental justice – is to be realized. The first concerns the cultural and ‘cognitive’ separation between the social and the environmental. The second looks at pre-existing power asymmetries among the participating stakeholders. Finally, he discusses participatory challenges which arise

when taking globally spatial and temporal dimensions into account. Boström concludes his chapter by considering the crucial role that capacity building and empowerment must play if the goals of social and environmental sustainability are to be more fully and effectively embedded within multi-stakeholder relations and practices.

In Chapter 14, Carolyn Snell and Sarah Brooks-Wilson trace one ‘big idea’ – sustainable development – into the interstices of education policy and reform, investigating how and why the term is taken up across differing nations, governments and establishments. Focusing upon England and Wales they provide a case study of the effects of educational projects and some of the barriers faced by schools and teachers. They found that despite (or perhaps because of) its holistic, wide-ranging remit, sustainable development is not integrated into all aspects of the learning experience. It also competes for time and attention in an educational environment buffeted by as many political and financial pressures as pedagogic ones. In short, innovation and leadership at a local level cannot substitute for coordination across the sector; coordination that may be inimical to the neoliberal preference for market-oriented, laissez-faire choice. Snell and Brooks-Wilson thus illustrate successfully the opportunities and constraints facing those seeking to translate abstract concepts into practical, down-to-earth projects that not only educate but will hopefully inspire young people to make the changes that they, and we, need sooner rather than later.

Part IV: Alternative Visions

The final chapters are more theoretical in their attempts to understand what is at stake in the agenda presented to us by the ecological challenges of the twenty-first century. To what extent must social policy researchers and commentators revisit the fundamental concepts upon which their discipline rests? To what extent have we lost sight of first principles, and how do those principles enable us to respond to and shape the social, economic and ecological dilemmas that loom before us?

Hartley Dean clarifies the basis upon which humans may claim social rights to natural resources in Chapter 15. In thinking about the relation between humanity and nature, he starts by contrasting an anthropocentric, Genesis conception in distinction to an ecocentric, Gaia conception. There follows a series of taxonomies which, layered on top of one another, are designed to subvert that distinction and draw out some fundamental repertoires – the political and moral ‘logics’ – which underpin debate about the natural world, humanity’s role within it and the significance of social policy in mediating their interaction. Dean finds value in elucidating Marx’s concept of *Stoffwechsel* which captures the symbiotic,

metabolic interrelationship of the social and the ecological. The well-being of each is the condition for the well-being of the other, an ‘equilibrium’ that capitalism undermines by separating and setting them against one another. Healing this rift therefore requires a mode of production that is not based upon market exchange, exploitation, profits and commodification. At its best, social policy looks through the capitalist looking-glass to post-capitalist forms of association, but only through the substantive decommodification of labour, land and human services can the radical and critical energies of social policies be renewed. Climate change provides the stage upon which battles are being revived between those who make capitalist markets the alpha and omega of our social and natural worlds and those who seek new ways of thinking about and organizing social rights.

Hovering above debates about social policy and environmental policy are some very large ontological and ethical questions. In Chapter 16, Tony Fitzpatrick contrasts two philosophies which attempt to understand what we mean by ‘nature’. If we claim that humans are woven into and interdependent with the rest of nature, then presumably we should try to understand what we mean by ‘nature’. One philosophy is thoroughly teleological, exemplified by Aristotelianism. The other is non-teleological and is exemplified by Epicureanism. The chapter offers a close reading of Aristotle’s teleological reasoning as articulated in his physical, metaphysical, biological and ethical accounts. It proposes that distinguishing between those aspects (the physical and metaphysical) which, at best, have been made redundant by modern science or, at worst, were always problematic, and those which still attract support (the ethical, in particular) is less easy than Aristotelians imagine. A teleological approach underestimates the role played in human affairs by luck and contingency; it relies upon a strict anthropocentric distinction between humans and non-humans; and it encourages an attitude of fate, submission and deference. The chapter concludes by contemplating whether Epicureanism could provide a more convincing foundation for social and environmental philosophy and ethics.

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PART I

JUSTICE AND POVERTY

1. The new social risks and opportunities of climate change

André Schaffrin

INTRODUCTION

At the outset of the twenty-first century, modern welfare states face major challenges. Demographic change puts public pension and healthcare systems under pressure as the number of older persons rises compared to the working-age population. Global financial crises and budgetary deficits highly limit social policy and require structural reforms and retrenchment of benefits. Governments seek to deregulate the labor market in order to reduce labor costs and to increase competitiveness of local businesses on increasingly globalized markets. In this numeration, international scholars agree, global climate change is one of the most challenging threats for humankind (IPCC 2001, 2007; Stern 2007). However, its impact on social policy and public welfare is complex.

This chapter reviews and evaluates recent social science scholarship on the relationship between climate change and social policy. It provides an overview of both potential conflicts of climate change mitigation (hereafter: climate mitigation) efforts and social policy but also the opportunities to align welfare and climate mitigation goals within public policymaking. In addition to a discussion of the general risks and potentials for public welfare induced by climate mitigation efforts, the review focuses on the two strongest themes in current research: (1) the creation of ‘green jobs’; and (2) energy inequality in the housing sector.

The vast majority of climate researchers agree that the dangers of global warming are real and the atmospheric concentration of greenhouse gases will continue to rise if major efforts for the mitigation of climate change fail or are delayed. ‘Climate change is the most intractable collective action challenge in human history, being inherently global, extremely long term, technologically demanding, and replete with distributional difficulties, among countries, people, and generations’ (Wolf 2012: 777).

For some time, the implications of climate change for social policy have received only minor attention in social science research. In 2008 a symposium of social policy and environmental scholars discussed the

relationship of social policy and climate change (Gough et al. 2008). Gough et al. propose to conceptualize public policy efforts towards climate change mitigation within the framework of new social risks. Certainly, the risks induced by climate change are substantially complex and different from traditional social risks: the impact of climate change is collectively unpredictable which means that developments and outcomes are global, long term and highly uncertain (Gough et al. 2008). While vulnerabilities of traditional social risks such as unemployment or poverty are directly visible and the population is immediately affected, risks related to climate change are diffuse, indirect, and have a substantially longer time horizon. For example, rising sea levels are predicted to become highly critical within the next 50 years, but are hardly influential today.

As a new social risk, both global warming itself and policy efforts towards its mitigation have implications for existing social policy arrangements in the near future (Gough et al. 2008). Direct risks of climate change such as rising temperatures, increasing droughts and floods, heat waves and extreme weather situations affect health, employment, housing and economic prosperity and thus the associated welfare programs. Indirect risks are created by climate mitigation policies, by competing for public resources and shifting costs to the population: 'To make matters worse, many policies that make sense from an environmental perspective, such as heavy taxes on fossil fuels, hurt the poor disproportionately. Thus a clash between environmental policy and social policy looms' (Gough et al. 2008: 334).

Climate change mitigation policies (hereafter: climate policies) influence public welfare through two mechanisms: (1) they create direct and immediate costs which require resources that could be used for other policy domains such as social policy, and affects economic growth; (2) they can affect inequality depending on the distribution of these costs across different social groups.

The first mechanism centers on the question of how resources should be distributed between current and future social risks. With respect to climate change, the pressing question is whether costs of climate mitigation exceed potential future costs of climate change adaptation and negative consequences of climate change (IPCC 2007; Stern 2007). This focus on today's action to secure future welfare is embedded in the more general discussion of sustainability (Barbier 2011; Glemarec and de Oliveira 2012; Huang 2012; Saikku et al. 2008; Seghezze 2009; WCED 1987). As economic development, social equity and environmental preservation are interdependent, securing future generations with the same resources and chances for development requires an accommodation of all three goals. Today, economic growth in advanced, industrialized countries ensures the

standard of living and social welfare for their populations but also creates global social inequities, dramatic resource exploitation and environmental pollution. In turn, environmental degradation and rising levels of inequality may create a challenge for the long-term economic development (Lawn 2009; Pearce et al. 1989). Within this dilemma, current research explores to what extent 'green' jobs created by climate mitigation efforts allow a more sustainable pathway for economic growth or whether the transformation of the energy sector constitutes a challenge for economic prosperity and social equity.

The second mechanism refers to the social distribution of the costs of climate mitigation. A bulk of climate policy targets individual consumer behavior, in particular with respect to energy use, travel and housing. Depending on their set-up, climate policies contain distributional effects and thus create winners and losers within society (Serret and Johnstone 2006). Incentive-based climate policies to reduce greenhouse gas (GHG) emissions often contain the risk of regressive effects, putting a higher burden on already disadvantaged segments of society (Hertwig 2005; Hinnells 2008; Sardianou 2007; Serret and Johnstone 2006; Snodin and Scott 2008; Soderholm and Pettersson 2008; Steg 2008; Wall and Crosbie 2009). While high-income groups, with their large carbon footprint, are only mildly affected by changes in prices, low-income groups, whose overall consumption is already low, cannot cope with additional costs (Sefton 2002; Snodin and Scott 2008; Wall and Crosbie 2009). The resulting social inequity pertains to the redistributive efforts of existing social policy arrangements. I will present the example (that has received most research attention) of inequality in energy consumption within the residential housing sector and the associated risk of a new 'energy poverty'.

The remainder of the chapter is structured as follows. First, the basic characteristics of social policy and climate mitigation are discussed. The following section analyzes costs of climate mitigation and discusses the concept of sustainable development and green growth as a potential way to integrate economic growth, environmental preservation, and social equality. Next is a review of research on the implication of climate mitigation policies for the labor market and in particular the creation of 'green jobs'. The issue of environmental justice and implication for the debate of the distributive effects of climate mitigation is discussed next. I then outline how climate policies affect the distribution of energy costs in the housing sector and the associated risk of 'energy poverty'. The penultimate section discusses major differences in the way different welfare regimes affect environmental justice and green growth. I conclude by identifying unresolved questions and new opportunities for research in this emerging field.

THE RISKS AND OPPORTUNITIES OF CLIMATE POLICIES

Key Characteristics of Social Policy

Social policy aims to provide social security and mitigate social inequalities. The domains addressed by social policy in developed welfare states cover the individual life course, starting with child care, family support and education; moving on to programs addressing unemployment, poverty and sickness; and ending with pension and care for the old-aged. Even though welfare states in advanced, industrialized nations share these general goals, comparative welfare state research has shown that countries vary considerably in the historical development and institutional design of social policy arrangements (see Abrahamson 1999 for a literature review). The most widely used characterization of welfare states goes back to the work of Gosta Esping-Andersen who proposed a typology of three worlds of welfare: the social-democratic, the conservative and the liberal welfare regime. The social-democratic welfare regime embraced by the Scandinavian countries (Esping-Andersen 1990) is characterized by universal social rights and high benefit levels. This creates a high level of independence of individuals from their status in the labor market, what Esping-Andersen calls de commodification (Brady et al. 2009; Castles and Obinger 2007). In contrast, social policy in liberal countries such as the UK and the US has its basis in means-tested programs with lower overall benefit levels. As a result, these countries are characterized by a smaller middle class and higher levels of social inequality and poverty (Hölsch and Kraus 2006; Korpi and Palme 1998). Conservative welfare states in Central Europe traditionally also provide higher benefit levels; however, welfare programs are mainly organized around income-associated contributions and benefits which results in a reproduction of market inequalities. While this typology has been revised and extended in a number of ways, it remains an insightful illustration of how countries have developed different institutional arrangements for addressing similar problems in accordance with their cultural background and existing distributions of power resources. What unites all these welfare regimes is that they mainly draw on public spending, so that the generosity of social policies depends on economic growth and public budgets. The current financial crisis illustrates how dependent social rights provided by the welfare state are on economic prosperity and resulting public resources.

The institutional configuration of welfare regimes and how it affects the labor market and social inequalities is important for understanding the implications of climate change mitigation for social policy. Before I turn

to this relationship I will also outline the key characteristics of climate mitigation.

Key Characteristics of Climate Mitigation

Climate mitigation refers to the global reduction of human-induced GHGs (carbon dioxide, methane, nitrous oxide, sulfur hexafluoride) in order to avoid global warming extremes. The major emissions come from carbon dioxide produced by fossil fuel usage for electricity, industrial production and manufacturing, transportation and agriculture (IPCC 2007). Emission targets have been set to keep the global temperature rise to 2°C compared to pre-industrial levels by international treaty, the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), while 37 industrialized countries and the European Union (EU) agreed to adopt policies on the national level to meet these targets. Policy instruments can be of varying shape, ranging from traditional pollution control (regulative instruments or command-and-control) to voluntary or market-based instruments (for example carbon taxes, emission trading schemes, feed-in tariffs) (Bomberg 2007; Busch et al. 2005; Jordan et al. 2005; Tews et al. 2003). Climate policy efforts in the advanced, industrialized countries commenced in the early 1990s, culminating (to date) in 2005 when the Kyoto Protocol entered into force. Most active are European countries, which have passed an impressive number of policies and demonstrated intensive leadership on climate mitigation since 2005 (Schaffrin 2012; Schreurs and Tiberghien 2007; Wurzel and Connelly 2011).

Researchers on climate mitigation agree that there are three basic principles of greenhouse gas reduction: efficiency, sufficiency and substitution (e.g. Ehrlich and Holdren 1971; Kaivo-oja and Luukkanen 2004; Kaya 1989; Linz 2004; Malaska 1971). Sufficiency refers to the amount of resources that is reduced by lower demand for goods (Linz 2004). In general, emissions decrease if lower amounts of material goods are produced. In this vein, it was economic recession in Eastern European countries after 1990 and global financial crisis which most effectively reduced carbon emissions in developed countries. Climate policies based on the principle of sufficiency are either caps on emissions, or try to increase energy or carbon prices thereby introducing disincentives for intensive energy consumption.

Efficiency concerns the productivity of natural resources to produce material goods or energy or, in other words, the ratio of what amount of natural resources are needed to create a certain product (Linz 2004). Efficiency gains high net benefits since less natural and financial resources are needed to produce a certain good. Climate policies stimulating energy

efficiency most often support research and development in energy-efficient technologies and set up support schemes reducing transition and transaction costs introducing, for example, eco-labels.

Substitution in the context of climate mitigation refers to the replacement of fossil fuels by renewable energies. Renewable energies not only reduce carbon emissions but also solve the problem of energy dependency on oil, gas or coal imports. This means that policies on substitution also stimulate retrenchment in energy production from traditional sources and, thus, automatically challenge the interests and lobbies of industries based on traditional fossil fuels.

Empirical research indicates that sufficiency, efficiency and substitution are most effective when combined (Linz 2004; Scherhorn 2008). Increasing energy efficiency only reduces total carbon emissions if the efficiency gains are higher than the rise in production or consumption levels (e.g. Scherhorn 2008; Sterner and Damon 2011). GHG mitigation by energy efficiency is also limited by technical restrictions. For example, even the most efficient coal-based power plants still produce GHG emissions. In a similar vein, renewable energy production only reduces GHG emissions if it really substitutes and does not just add to existing capacities of high-carbon energy sources.

COSTS OF CLIMATE MITIGATION

The Uncertainties in Cost Calculations of Climate Mitigation

As outlined in the introduction, one approach to determine the risks of climate mitigation for social policy is to look at the costs for public welfare. Since climate change is global and long term, cost calculations have to address benefits and costs in all segments of society for current and future generations. Costs and benefits of climate mitigation on social welfare today have to be evaluated against the background of assumed future costs and benefits of climate adaptation as well as negative consequences of climate change (Bowen et al. 2012; Stern 2007). Future generations' costs depend on climate developments; costs on current accounts depend on climate mitigation's success in rendering climate change innocuous. In fact, maintenance of the status quo is by no means neutral but shifts the costs of climate mitigation for current generations towards costs of climate adaptation for future generations (Bowen et al. 2012). In the following, costs and benefits of climate mitigation for current generations will be compared with costs and benefits induced by negative effects of climate change. The factor that makes this calculation most difficult is the global nature

of climate change. Thus adaptation costs do not necessarily impact most severely on those countries which have the highest potential for reductions in GHG emissions.

Uncertainties in climate change

First, even though there is wide scientific consensus that climate change exists, there remains a high level of uncertainty regarding the point in time when the consequences come into effect. These uncertainties make it difficult to predict thresholds of when impacts of climate change become harmful or problematic (Pearce et al. 1989). For example, a marginal rise in sea level within a short period of time has large impacts if a critical threshold is passed. One source of uncertainty and failure to predict changes accurately lies in the non-linear character of the process of climate change, which assumes that once a tipping point is reached larger climatic changes become irreversible and persistent. This process is amplified by self-enforcing mechanisms such as the larger amounts of GHGs released from the melting Russian and Greenland permafrost tundra area. Second, not only costs but also benefits from impacts of global warming on the regional level, such as the exploitation of natural resources under the melting Arctic, need to be included into the cost calculation (Caulfield 2004; Duhaime and Caron 2006). Third, calculation of climate change developments depends on a variety of uncertainties in social and economic factors, in particular the extent to which rising populations and growing economies in the developing world will be associated with highly carbon-intensive living standards, as established in the developed world (Carfi and Schiliro 2012; EBRD 2011). Social policies are important determinants of these social and economic factors and thus impact on climate change. For example, one of the most effective measures to mitigate carbon emissions has been the one-child policy in China.

Uncertainties in climate mitigation

As the development of climate change itself is uncertain, so is the impact of existing attempts towards its mitigation. Climate policymaking has to be analyzed with respect to its political feasibility, its technical effectiveness and its social implications. Existing policymaking towards climate mitigation has focused on the politically more feasible options of increasing energy efficiency and stimulating renewable energies, as opposed to measures promoting sufficiency. Evidence on the effectiveness of this strategy is mixed. First, energy efficiency mostly produces net benefits since investments in new technologies reduce energy input costs. What remains uncertain in the calculation is whether climate policies can successfully promote energy efficiency measures, or whether rebound effects

in consumption behavior jeopardize emission reductions. Second, costs for renewable energy systems depend on technological innovation and improvement (Carfi and Schiliro 2012; Kikuchi 2011; Laurent-Lucchetti and Leach 2011), the energy mix and the availability and prices of conventional energy (Doman 2004), mobility of labor (EBRD 2011; Guivarch et al. 2011) and respective policy instruments. Research has cast doubt on the widely held assumption that scarcity in conventional energy resources will ‘naturally’ move the market towards a wider adoption of renewable energies since it can be shown that coal reserves will meet global energy demand for another century (International Energy Agency 2012; van Ruijven and van Vuuren 2009). Verbruggen and Al Marchohi (2010) also argue that ‘observed peaks in oil production in nearby years will result from politically imposed limits on carbon emissions, and are not caused by physical lack of oil resources’ (p. 5572).

Besides their technical effectiveness, climate policies are evaluated with respect to their economic and social implications. As outlined above, even though sufficiency measures are considered to be most effective to reduce GHG emissions, they are the least used. The main reason, besides their low popularity within the electorate, is their potential to reduce economic growth (Dresner and Ekins 2006; Laurent 2011). However, the respective policy design, for example carbon taxes versus carbon caps, matters greatly for climate change mitigation and welfare costs (Paltsev et al. 2009; van Asselt and Biermann 2007) (see the section below on ‘Distribution and Climate Mitigation in the Housing Sector’). It is important to note that climate change policies do not only create social costs but can also provide benefits in fields of public policy: climate mitigation increases energy security, reduces energy imports (European Commission 2008) and improves public health by reducing pollution levels (e.g. Groosman et al. 2011; Rive 2010).

Furthermore, international coordination is needed to effectively avoid greenhouse gas emissions where energy is cheapest (e.g. Pearce et al. 1989) and to equalize marginal abatement costs across firms, sectors and countries (EBRD 2011). However, the international agreement to reduce global GHG emissions is highly uncertain given the political development of the last decade (den Elzen et al. 2009).

The Costs of Climate Mitigation and the Discussion on Sustainable Growth

As seen from the previous section, due to the complexity and the uncertainty of the process, it is difficult to determine whether costs for climate mitigation today are compensated by the benefits that are achieved for future generations. While the long-term cost–benefit analysis of climate

mitigation is difficult, social science scholarship has made a contribution in showing how the design of climate policies and their interaction with social policies affects the level and distribution of societal costs.

Climate mitigation policy is highly interdependent with social policy and economic growth. In the long term, economic growth and public welfare are likely to benefit from climate mitigation efforts as rising sea levels and extreme weather situations constitute a threat to individual well-being as well as to the economy (Lawn 2009; Pearce et al. 1989). In the short term, however, climate mitigation policies impose restrictions and abate costs on local industries during the period of transition, with risks for major reductions in economic competitiveness and economic growth, and potential reduction in employment. As economic prosperity is a precondition for the benefits of existing welfare programs, this can have implications for social security and inequality. Arguably, climate mitigation policies creating benefits for future generations might threaten current generations' well-being under these circumstances (Aaheim 2010; Laurent-Lucchetti and Leach 2011). Furthermore, economic growth creates the means for intensive and generous social policy, but is also an engine of massive resource exploitation and GHG emissions. Consequently, costs for public welfare are lowest when all three aims (economic growth, social welfare and climate mitigation) are reached.

Sustainability

The most prominent debate on this issue is the concept of sustainability and green growth which has been put forward by the Brundtland Report in 1987 and at the 1992 United Nations Conference on Environment and Development in Rio (Barbier 2011; Glemarec and de Oliveira 2012; Huang 2012). Sustainability, or the concept of sustainable development, is defined as a 'development that meets the needs of the present without compromising the ability of the future generations to meet their own needs' (WCED 1987). In contrast to the 'limits to growth' paradigm (Meadows et al. 1972)¹ which sees economic growth, environmental preservation and social welfare as inherently conflicting domains, the more recent development of the concept claims that these three aims can be achieved simultaneously (Barbier 2011; Glemarec and de Oliveira 2012; Kikuchi 2011). As a consequence, the concept demands the integration of environmental and social externalities into decisions on capital investments (e.g. Halle 2011; Pearce et al. 1989; Wapner 2011).

Green growth

The concept of green growth takes the idea of sustainability but puts economic development at the center of the focus interpreting it as a

precondition of environmental preservation and public welfare (Halle 2011). It is defined as ‘fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies’ (OECD 2011: 9). Hence, it is strongly related to the more general perspective on the green economy, green capitalism and the concept of ecological modernization which assumes ‘that major environmental problems can be solved within the current industrial/economic development trajectory without radical social or political change’ (Beder 2006: 93). It is argued that energy efficiency and renewable energy bear a great potential to stimulate economic growth and enhance public welfare in developed countries which have recently struggled to establish higher growth rates (Bowen and Fankhauser 2011; Goods 2011). In terms of sufficiency measures, what is needed is not zero growth per se but, as Jänicke (2012: 13) phrases it, ‘shrinkage – “degrowth” – for resource-intensive processes and products and radical growth in environmental and resource-saving technologies and services’. Smart policies are needed to promote green jobs and investments in renewable energy and energy efficiency (Carfi and Schiliro 2012; Glemarec and de Oliveira 2012; Kikuchi 2011) and, thus, to shape markets in a way that ensures both environmental preservation and social welfare.

EMPIRICAL EXAMPLE 1: THE PROMISES AND PITFALLS OF GREEN GROWTH

We’re in a competition all around the world, and other countries – Germany, China, South Korea – they know that clean energy technology is what is going to help spur job creation and economic growth for years to come. (Barack Obama, 44th President of the United States of America, May 6, 2011, remarks at Allison Transmission Headquarters, Indianapolis, IN, quoted from Morris et al. 2012: 2)

Kyoto would impose huge costs on Americans, especially the poor [and] proponents [of Kyoto] favor handicapping the American economy through carbon taxes and more regulations. (Senator James Inhofe’s 2003 statement to the US Senate quoted from Brewer 2012: 9)

As discussed in the previous section, the question is whether green jobs have the potential to solve the major problem of sustainability providing environmental preservation, economic growth and social welfare. Green growth might be interpreted as a chance but also as a threat for net employment, as suggested by the quotes above. In this section, green jobs will be characterized and their impact on growth and net employment will be evaluated.

What Makes a Job a Green Job?

Definition

Green jobs have been defined by the green products they are linked with (Morriss 2011; Pearce and Stilwell 2008). The question is whether to count only manufacturing jobs that are directly working on the technology or whether to include employment from the whole production cycle in the definition of green jobs (Goods 2011; Janardhan and Fesmire 2011; Scott 2011). In fact, most of the green jobs, especially those serving energy efficiency, are in traditional industries (Stilwell and Primrose 2010; Worldwatch Institute 2008). Furthermore, we might also think of indirect efforts to increase awareness and change behavior, such as environmental education or natural appreciation (Eren et al. 2010: 7–9 in Goods 2011). A broader definition of green jobs then would include the relative impact of jobs on environmental preservation in comparison to the status quo (Pearce and Stilwell 2008). Furthermore, green jobs can be categorized not only by their contribution to environmental quality but also by how fair payments, social security and the opportunities for training and promotion are provided (Bill et al. 2008; Giradet et al. 2009). Taking all these arguments together, Crowley (1999: 1017) suggests three categories of green jobs: (1) ‘light green’ jobs which are more reactive and short term and only avoid major environmental damage while increasing economic growth; (2) ‘mid-green’ jobs with an intermediate-term perspective, following an integrative approach with the aim to green industry; and (3) proactive and long-term ‘deep green’ jobs with the major aim to preserve nature and transform the economy (see also Giradet et al. 2009; Goods 2011).

Characteristics

Major fields of green jobs in the context of climate change are renewable energy production, energy efficiency in industrial processes, housing (for example retrofitting) and technical appliances, biofuels production and reforestation, recycling, as well as public and non-motorized transport (Giradet et al. 2009; IPCC 2007). In general, green jobs demand a high range of skills and education level from, for example, engineers and planners to installers and other workers (Janardhan and Fesmire 2011; Kikuchi 2011). However, even though green jobs are established in a number of sectors, it does not mean that their characteristics are equal to more traditional jobs. The service sector plays a more important role during the phase of economic transition towards a low-carbon industry than does manufacturing, since green employment demands a high degree of strategic planning and training abilities (Becker and Shadbegian 2009; European Commission 2009). As a consequence, manual workers are more

vulnerable to increasing job insecurity due to higher demand for qualifications in advanced technologies (Pearce and Stilwell 2008).

Theoretical Expectations

The concept of green growth has been a widely adopted practice to create green jobs. During the global financial crisis starting in 2007, governments worldwide dedicated about 16 percent (US\$522 billion) of the total stimulus packages to green investment and tax cuts (Barbier 2011; Bowen and Fankhauser 2011; Giradet et al. 2009). In order to determine the effects of green growth on net employment it is necessary to ask whether the numbers of green jobs that are created exceed the jobs lost by climate mitigation.

Pro-green growth

Some arguments suggest a positive effect of green jobs on net employment. In the short term, net employment should increase due to the higher labor intensity of low-carbon technologies (Fankhauser et al. 2008). In the medium term, employment effects are rather low, since efficiency gains in the development of new technologies allow less use of human capital. Renewable energy systems, once they are installed, demand less maintenance and, thus, a smaller workforce than conventional energy production. In fact, green employment is likely to drop if the major transformation towards a low-carbon economy is completed and a new infrastructure is established (European Commission 2009; Kikuchi 2011). In the long term, effects on net employment should be positive, since new technologies stimulate additional innovation in other sectors and branches in 'a process of technology diffusion, adaptation and experimentation' (Fankhauser et al. 2008: 426; see also Jänicke 2012). Supply from renewable energy systems is highly decentralized and unstable, depending on climatic conditions such as wind and solar radiation. Wider adaptation and innovation of electricity transportation (for example, high-voltage direct current – DC – transmission), distribution (for example, smart grids) and storage (for example, batteries for electric cars, or pump-storage) is necessary and should create more innovation and growth (European Commission 2009). Following these arguments, predictions for green jobs are quite optimistic, projecting growth rates highly outperforming traditional sectors. Estimates for the US, for example, predict a rise in green jobs from about 0.5 percent in 2008 to 10 percent of total employment growth within the next 30 years (Roach 2009). For Europe, predictions of net employment estimate gains of 0.18 percent for all energy demand-side sectors, from energy efficiency improvements of 15 percent by 2020 (European Commission 2009).

Contra green growth

Despite these projections, there are also doubts about the potential of green jobs to increase net employment. The major argument is that investment in green jobs, such as for renewable energy production, is not cost-effective due to higher labor costs and lower productivity (Frondelet al. 2010). Thus, renewables demand much higher financial support than conventional energy in order to be competitive on the market (Glemarec and de Oliveira 2012). Policies promoting renewables in the energy sector tend to ‘crowd out’ private investments (Frondelet al. 2010; Stilwell and Primrose 2010) and constrain public investments in other sectors (Frondelet al. 2010; Kikuchi 2011; Lehr et al. 2008; Morris et al. 2012). For example, estimates reveal a \$46 667 taxpayer cost per job in wind power, compared to \$1959 for oil and gas, in the US in 2012 (Steil et al. 2012). With respect to exporting industries, Morris et al. (2012: 1) even argue that ‘[g]overnment investments in clean energy are unlikely to produce net increases in employment in the long run, in part because pushing home-grown technologies at taxpayers’ expense offers no guarantee that the eventual products ultimately won’t be manufactured somewhere else’ (see also Lawn 2009; Lehr et al. 2008). However, as argued earlier, it seems that these effects vary with the design of the respective regulation (Kikuchi 2011; Stilwell and Primrose 2010).

Evidence on Green Growth

Policies promoting renewable energy systems and energy efficiency are often justified by additional benefits in economic growth and net employment. There are arguments supporting this thesis, but also major doubts about the potential of green jobs to produce economic growth and net employment, as seen in the previous section. Evidence supporting or rejecting these arguments is based on either formal modeling or econometric methods, and is rather mixed.

Trends and growth rates

Taking only highly innovative climate-friendly technologies such as energy efficiency and renewable energies (and not traditional green jobs in, for example, pollution control) (Jänicke 2012), we find impressive worldwide even non-linear growth rates (Glemarec and de Oliveira 2012; Global Wind Energy Council and Greenpeace International 2008). Green jobs in the EU can now be estimated at up to 3.5 million (*Environment Business Magazine* 2000). In the US renewable energy and energy efficiency sector, 9 million jobs have been created by 2007 (Giradet et al. 2009; for solar power see also Hamilton 2011). Some studies also suggest that green jobs were

more robust than conventional employment during the global financial crisis starting in 2007 (Stilwell and Primrose 2010). Others cannot find differences in productivity and employment growth between conventional sectors and green industry (Becker and Shadbegian 2009), or simply argue that green growth is far too weak to have a substantial economic impact (Davenport 2011; Menegaki 2011). Studies looking at the net employment effect of these developments in green jobs report rather inconclusive findings.

Efficiency

Energy efficiency is a key factor for economic growth, where financial gains from energy saving can be directly invested to increase innovation and productivity. Pearce and Stilwell (2008) and Scott et al. (2008) report a positive effect of energy efficiency measures on net employment in Australia and the US using economic modeling.

Sufficiency

Studies with a focus on sufficiency measures such as carbon taxes predict negative effects on net employment. For example, literature on shifting income-based taxes to carbon taxes using formal modeling struggles to project a positive effect on net employment (Goulder 1995).

Substitution

Employment effects of renewable energies are most controversial. For example, Apergis and Payne (2010) found a substantial effect of renewable energy consumption on gross domestic product. In contrast, results from panel analysis reveal no effect from renewable energy consumption on growth and only a short-term impact on employment in Europe (Menegaki 2011).² With regard to climate policies, Lehr et al. (2012; and Lehr et al. 2008) find a positive and robust effect of the German feed-in tariff and subsidy for renewable energy systems, controlling for variation in exports, fossil fuel prices and domestic investment in renewable energy sources where increasing export is more important than domestic investments (see also Becker and Shadbegian 2009; Jänicke 2012 on the role of export for green growth). In contrast, Böhringer et al. (2012) demonstrate a significant direct effect of absolute employment from the German feed-in tariff but negative net employment due to job losses in other sectors. However, there is evidence for a strong indirect effect of climate change policies on net employment, creating large numbers of green jobs in related industries other than renewable energy production (Fankhauser et al. 2008).

Overall, there are studies revealing a positive employment effect of climate mitigation policies in EU countries (e.g., Ragwitz et al. 2009), and

studies presenting results of a negative effect (e.g., Küster et al. 2007). One explanation of these differences lies in the respective timing. As argued above, several studies (BEI 2003; Fahl et al. 2005; Hillebrand et al. 2006; Pfaffenberger 2006) found a positive short-term effect but a negative medium- and long-term impact of climate mitigation policies on net employment. The question is whether innovation in green technology is able to spread across sectors to stimulate further investments and innovation in other sectors (Glemarec and de Oliveira 2012). In fact, it seems green growth in general is slowing down, facing realities of international competition including massive overproduction and increased international competition in solar power between Germany, the US and China (Scott 2011). The reason is a decline in venture capital investment, uncertainty over tax rates and incentives, and short-sighted public investments (Scott 2011; Victor and Yanosek 2011). Thus, as Victor and Yanosek (2011) argue, the question should not be whether or not climate mitigation policies should support green growth, but how public investments can do so most effectively (Sterner and Damon 2011).

DISTRIBUTIONAL JUSTICE IN LIGHT OF CLIMATE MITIGATION

A second field at the intersection of climate mitigation and social policy that has received much attention in social science research is the question of how the burden of climate mitigation is distributed among different population groups. Even though climate mitigation might induce only marginal absolute costs, if they disproportionately affect vulnerable groups of society it might threaten major achievements of social policy in the reduction of poverty, social exclusion and income inequality. In order to adopt policy instruments to overcome these problems, it is necessary to clarify how to conceptualize a just distribution of costs. The conceptual basis here is the notion of environmental justice (Ikeme 2003; Klinsky and Dowlatabadi 2009; Pye et al. 2008).

Definition

Following Ikeme (2003: 200), environmental justice is a ‘broad, overarching concept encompassing all justice issues in environmental decision-making’, with two basic principles: distribution and procedure (see also Klinsky and Dowlatabadi 2009; Pye et al. 2008). First, distributional justice focuses on equality in outcomes and is based on a consequentialist philosophy. In this tradition, ‘the society simply identifies desirable social goals, for example the maximisation of aggregate welfare, [and]

insists that agents in the society ought deliberately to seek and realise an aggregate of them' (Ikeme 2003: 196). These social goals depend highly on what exactly is understood in society as equality in outcome, and might be very different depending on a variety of factors (Klinsky and Dowlatabadi 2009). For example, principles might only focus on minimum needs (the minimum standard or basic need approach) (Malthus 1798; Marx 1875; Smith 1776), on equal opportunities at initial allocation (meritocracy) (Konow 2001; Nozick 1974), or on total equality with means distributed equally across all segments of society (the total equality approach) (Ikeme 2003; Le Grand et al. 1976; Stymne and Jackson 2000). Second, procedural justice in the tradition of deontological paradigm based on Kant's categorical imperative focuses on equity in procedures and processes rather than on equality in outcome (Bina and La Camera 2011; Ikeme 2003). This approach postulates the importance of every human being's basic rights based on a morality of action. It also means that actions are considered as just when they conform with given rights, independently from the potential consequences of those actions. One famous application would be the "basic human rights" principle. Equity in this sense refers to the representation of all affected groups within the decision-making process (Klinsky and Dowlatabadi 2009; Pye et al. 2008).

Development history

The following definition of environmental justice includes both procedural and distributional justice of environmental impacts, decision-making and policy outcome:

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no population, due to policy or economic disempowerment, is forced to bear disproportionate share of the negative human health or environmental impacts of pollution or environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies. (US Inst Med 1999)

This definition is a result of a long history and debate having their origin in the environmental justice movement during the 1980s in the USA. The reason has been that ethnic minorities and deprived residents were found to be disproportionately affected by hazardous facilities and toxic releases (Konisky 2009; Martuzzi et al. 2010). The argument was based on both procedural as well as distributional reasoning. On the one hand, unpopular projects were located in poorer areas with less opposition from

the population (Konisky 2009). On the other hand, from the perspective of equality in outcomes, even though all relevant groups were integrated in the planning process of toxic facilities, economic mechanisms of the housing market were leading to lower rents nearby. In consequence, lower-income groups disproportionately live in areas exposed to unhealthy environments since they cannot afford to live somewhere else (Ikeme 2003; Konisky 2009).

Current and future generations

More recently, environmental justice became highly salient in the debate on the justification of international policy and burden sharing within the Kyoto agreement of global warming. Climate change is predicted to have large impacts on future generations; the poor, elderly and children being most vulnerable to, for example, heat waves or increasing food prices (Caney 2009; Casillas and Kammen 2010; Klinsky and Dowlatabadi 2009). In contrast, policies to prevent major changes in world climate bear the risk of causing environmental injustice for current generations (Bina and La Camera 2011). From the distributional perspective of environmental justice, climate policy is considered as just if it leaves future generations no worse off than current generations without threatening equalities (or worsening inequalities) in outcomes within the current generation (Caney 2009). Besides the aim to accomplish climate mitigation, public policies should strive toward equity in procedures and processes as well as equality in outcomes (Pye et al. 2008).

Application

Evidence for current generations points to a 'double inequity' where 'wealthier people are less affected by environmental burdens and also consume more resources than poorer people' (Meyer and Liebe 2010: 42; see also Pye et al. 2008). In contrast, least-well-off segments of society are also the most vulnerable to regressive effects of climate policies. To accomplish a minimum standard of environmental justice for current generations would mean to design climate mitigation policies in a way that the least-well-off are not worse off in terms of social outcomes such as income inequality, health, poverty and social exclusion (minimum-need approach), but to target social groups with higher levels of consumption and emissions (polluter-pays approach) (Klinsky and Dowlatabadi 2009; Pye et al. 2008). In the following section, it will be discussed whether policy instruments meet this minimum standard or whether they increase inequalities on the cost of vulnerable segments of society.

EMPIRICAL EXAMPLE 2: DISTRIBUTION AND CLIMATE MITIGATION IN THE HOUSING SECTOR

The second question of this chapter concerns distributional effects of climate mitigation. This question is highly relevant in the residential sector, which has a great potential for GHG emissions mitigation and is one of the major targets of international climate policies (Achtnicht 2011; Casillas and Kammen 2012; IPCC 2007). GHG emissions in the housing sector account for 30–40 percent of all sectors combined (Aswathanarayana et al. 2010; Hinnells 2008), and increased by 12 percent from 2000 to 2010 (Dresner and Ekins 2006; estimate for the UK). Housing is essential to everyday life. Housing conditions highly influence well-being, social integration and health issues (Grosche 2010). In this sector, climate mitigation and social policy are most directly in conflict. On the one hand, social policy aims to secure access to energy and to enable equity among different income groups in terms of general comfort and affordability of housing. On the other hand, climate policies in the housing sector are most effective if they stimulate energy conservation. Social assistance on housing and heating, for example, increases not only comfort but also households' energy usage and GHG emissions. Therefore, it is important to acknowledge the need for policy instruments which are socially just and effective in terms of climate mitigation. These policies have to address patterns of inequality in household energy consumption which are discussed below.

Energy Poverty in the Housing Sector

From the public welfare perspective, energy issues in the residential sector strongly influence public health (for example, winter mortality), social security and poverty (for example, social housing) and pensions (for example, private real estate investments and rents). Energy consumption, however, is essential for general comfort, well-being and health. In this respect, the issue of fuel or energy poverty which has gained more relevance during recent decades reflects inherent inequalities in household energy consumption. Energy poverty is an issue which has been discussed in the UK since the early 1980s and has become even more important with increasing energy prices and the additional burden of climate policies. Several studies show an increasing trend in energy poverty since the early 2000s in the UK (Heyman et al. 2011; Saunders et al. 2012). Estimates predict that 40 000 households enter energy poverty for every 1 percent rise in energy prices (Walker 2008; Walker and Cass 2007). Energy poverty is increasingly acknowledged as a problem in developed countries (e.g. Buzar 2007; Healy 2003b; Healy and Clinch 2004; Santamouris et al. 2007).

Definition

Early attempts define energy poverty as households which spend more than 10 percent of their income on electricity and heating in order to keep their dwelling adequately warm (Boardman 1991; Dresner and Ekins 2006; Hamza and Gilroy 2011; Harrison and Popke 2011; Healy and Clinch 2004; Heyman et al. 2011; Powells 2009). This definition has been strongly criticized as being vague in its determination of vulnerable households. For example, whether someone spends 10 percent on household energy not only depends on whether the person is poor or rich, but more so on the respective housing conditions, size of the dwelling or house, and other factors of consumption (Bradshaw and Hutton 1983; Hamza and Gilroy 2011; Harrison and Popke 2011; Powells 2009). Buzar (2007) suggests a definition which takes aspects of social exclusion into consideration, defining energy poverty as ‘the inability to heat the home up to a socially-and materially-necessitated level. A household is considered energy poor if the amount of warmth in its home does not allow for participating in the lifestyles, customs, and activities which define membership of society’ (p. 9). Other definitions focus on those groups with arrears in energy bills, or living in energy-inefficient buildings (Laurent 2011).

Determinants and impacts

Despite the critique and variation in definitions of the concept, this issue stresses concern for persistent and serious inequalities in energy consumption and affordability among socio-economic groups. Potential factors influencing energy poverty are: changes in financial resources, developments in energy prices, and energy efficiency of the dwelling’s heating system and the building itself (Goodman et al. n.d.; Healy 2003b; Healy and Clinch 2004; O’Sullivan et al. 2011). All three factors are disproportionately linked to general poverty, isolation, social exclusion and ill health (Harrison and Popke 2011; Healy 2003b), resulting in fuel debt, disconnection from the electricity or gas grid, and inequality in payment terms (Powells 2009). Especially important from the social policy perspective is the health issue. Cold damp homes, excess winter morbidity and, thus, chronic cold exposure triggered by energy poverty show a strong link to mental health, respiratory and cardiovascular health problems, chronic obstructive pulmonary disease, exacerbation of arthritic and rheumatic symptoms, accidental hypothermia particularly among older people, and even excess winter mortality (Healy 2003b; Healy and Clinch 2004; O’Sullivan et al. 2011; Ormandy and Ezratty 2012; Powells 2009; Walker 2008; Walker et al. 2006).

Risk-groups

Most at risk of fuel poverty are those who spend most of the day at home and are already highly vulnerable, having less financial means or already suffering from chronic ill health (Bonney et al. 2007). Healy and Clinch (2004) report the highest risk (44.8 percent of the households) of energy poverty as being among long-term ill and disabled in Ireland. Other groups at risk of energy poverty are families with young children, lone-parent households, low-income groups, the unemployed, older people, and those separated, divorced or widowed living in single-person dwellings (de Bruin et al. 2011; Healy and Clinch 2004; Heyman et al. 2005; O'Sullivan et al. 2011; Ormandy and Ezratty 2012; Santamouris et al. 2007). The situation for residents vulnerable to energy poverty and depending on social assistance becomes even worse, since energy prices constantly rise while social transfers stagnate in most developing countries (Goodman et al., n.d.).

Energy Poverty and Social Policy

Social policies address traditional social risks of poverty, social exclusion and ill health. With respect to energy policy, they compensate for the lack in financial means to afford comfortable and adequate dwellings, higher energy consumption on electricity and heating fuel, and energy efficiency measures. With energy poverty comes poverty and lack of financial capabilities, and with it comes ill health, higher per capita spending on energy, less comfortable living conditions, and less overall consumption for lower-income households. In fact, higher-income households' dwellings are characterized by larger space occupied per household and per capita, higher standards of insulation, higher temperature set points and higher energy consumption, but lower costs of heating and electricity per person and per unit of space (Santamouris et al. 2007).

Most social policy in the housing sector is based on the principle of 'minimum in needs' as discussed in the previous section, on 'Distributional Justice in Light of Climate Mitigation' (for an overview on housing policies in EU27 countries see Appendix 1.1). Housing policies can take a variety of forms. Some countries provide direct income subsidies to low-income households which also include a utility cost allowance (for example the Low Income Home Energy Assistance Program in the US, or the Wohngeld living allowance under the German Social Security Code) (Harrison and Popke 2011; Wolf et al. 2010). Other countries have special energy tariffs for low-income households (in France, Italy, Belgium and Spain). Fuel poverty is also affected by the extent to which governments promote the insulation of dwellings occupied by low-income households, both through the enforcement of regulations for the private market and

through standards provided in public housing arrangements (for example, the US Weatherization Assistance Program; the Energy Performance Certificate and the Warm Front Scheme in the UK) (Grosche 2010; Harrison and Popke 2011; Ormandy and Ezratty 2012).

Apart from that, there is almost no consideration of any attempt to reduce energy consumption or increase efficiency within low-income households (Grosche 2010; Wright 2004). One exception is the German initiative on energy efficiency in households, Stromspar-Check (www.stromspar-check.de) (Kopatz et al. 2010). In contrast, as Grosche (2010) notes, regulation on German living allowances even encourages higher consumption of household energy, since the full costs are covered and living in a least-cost dwelling which mostly lacks high efficiency standards is a precondition to enter the program (Grosche 2010). This and the fact that German housing allowances support highly inefficient, low-quality dwellings conflicts with the major aim of climate policy mitigation to reduce household energy consumption. This shows that climate policy aims and social policy aims are not aligned in current policy arrangements even though, in the field of energy poverty, investments in energy-efficient appliances and educational measures on energy-efficient utilization of resources could provide benefits for both goals.

Energy Poverty, Climate Mitigation and Distributional Justice

As discussed in the previous section, there are patterns of inequality in household energy costs among income groups. Santamouris et al. (2007) describe a U-shaped type of distribution with the peaks of energy consumption per square meter at the lowest and the highest income groups. Higher-income households do indeed have high overall consumption levels, larger dwellings, a greater number of electrical appliances and fewer residents per unit of space. In contrast, lower-income households live in highly inefficient dwellings and consume much more on energy in absolute terms than higher-income households in order to keep their dwellings warm and comfortable (Campbell 1993; Santamouris et al. 2007).

The aim of social policies and measures of climate mitigation should be to provide comfort and a minimum standard of living for the energy-poor while at the same time stimulating energy conservation by both lower- and higher-income groups. In fact, these policy domains might be conflicting. As seen in the previous section, social policies mainly focus on the income side of energy poverty to allow for increased energy consumption and, thus, rising GHG emissions, but neglect other solutions such as improved insulation or micro-generation (Bradshaw and Hutton 1983; Grosche 2010). In contrast, even though Article 3 of the United Nations

Framework Convention on Climate Change states that ‘Parties should protect the climate system on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities’ (IPCC 2001: 145–6), the general focus of climate policies is on GHG emission reduction, and negative consequences on equity and social justice play only a minor role (see Appendix 1.2 for a list of climate policy instruments in the residential sector of EU27 countries) (Feng et al. 2010; Roberts 2008a). From a distributional justice perspective, higher household energy consumption of lower-income households is justifiable since it is needed to afford a certain level of comfort. However, energy consumption of higher-income households is not necessarily a need but a luxury good. The question is whether domestic regulation on GHG emissions affects these inequalities in needs of energy consumption, or whether its effects are only marginal. In the following, different mechanisms influencing household energy consumption and measures for climate mitigation will be elaborated.

Measures of sufficiency and energy inequality

Sufficiency in climate mitigation in the residential housing sector is targeted by taxes, caps or metering which aim to reduce household energy consumption. Taxes on energy and carbon are one of the central strategies for targeting energy consumption. In terms of emissions reduction they are evaluated as highly effective instruments (Dresner and Ekins 2006; Laurent 2011). However, a rise in energy taxes constitutes a different burden for various income groups. Thus, taxes are seen as highly regressive due to the inelasticity of energy prices in rural areas, and for specific social groups such as the poor, old-aged or youth (Blonz et al. 2012; Feng et al. 2010; Hertwig 2005; Hinnells 2008; Sardanou 2007; Snodin and Scott 2008; Soderholm and Pettersson 2008; Steg 2008; Verde and Tol 2009; Wall and Crosbie 2009). Low-income households already operate at the bottom level of energy consumption and simply cannot afford further energy reductions without falling into energy poverty or dramatically reducing other necessary goods such as food or clothing (Goodman et al. n.d.). However, several studies found that carbon or energy taxes are less regressive if revenues are used to increase social benefits, tax credits or even investments in energy efficiency in energy-poor homes (Gough et al. 2008; Pye et al. 2008; Verde and Tol 2009). In this vein, taxes are used to stimulate energy efficiency in higher-income households, whereas the energy poor are compensated by, for example, lower social contributions or lump-sum payments financed by the tax revenues (Dresner and Ekins 2006; Laurent 2011). Furthermore, Pye et al. (2008: 35) state that ‘in a reasonably wealthy society with small income disparities, distributional

impacts of environmental taxes can be expected to be less problematic than in societies with a large income inequity and poverty problems'.³

Cap-and-trade measures such as the European Union Emissions Trading Scheme are a direct regulation of pollution abatement combined with a market mechanism where the amount of GHG emissions per industry is set to a maximum, including trading obligations of emissions rights below this threshold. These instruments are perceived to have a regressive effect since additional costs increase prices for services and goods which disproportionately affects lower-income households if no compensation is provided (such as under the cap-and-dividend scenario) (Blonz et al. 2012; Pye et al. 2008). The crucial question is whether these emission allowances are allocated for free (grandfathering) which might result in lower electricity bills or lower prices for services and goods, or whether allocation is on a revenue basis (for example, auctioning) where the revenue is used for compensation by either equal lump-sum payments or more focused by social transfers to the most vulnerable (Parry and Williams 2010). However, the compensation method matters highly with the cap-and-dividend-option (social transfers) being more progressive but also more costly, whereas the reverse effect is found when revenues are used to fund a proportional income tax cut (Blonz et al. 2011; Parry and Williams 2010). In addition, Druckman and Jackson (2008) see cap-and-trade as providing UK energy companies with an incentive to focus on poor households with lower levels of GHG emissions.

Smart-metering is an essential tool to inform customers about their energy consumption behavior and potential for energy conservation (Hamza and Gilroy 2011). In cases of energy poverty, however, household consumption is already set to a minimum and the potential for energy conservation is only marginal. Another option to keep energy consumption to a minimum is pre-metering, where a certain level of energy consumption is set in advance. This option is predominantly chosen by lower-income households to be able to calculate their energy bills more effectively. As O'Sullivan et al. (2011) demonstrate for New Zealand, lower-income households are systematically disadvantaged by this option. However, the authors conclude, '[i]t is not the prepayment meter device itself that causes most of the problems . . . but the way in which prepayment meters are regulated, priced, and marketed' (p. 739).

Measures of efficiency and energy inequality

As described above in the section on 'The Risks and Opportunities of Climate Policies', energy efficiency is a tool which provides a 'double dividend' of saving energy and the climate while providing a solution to bring households out of energy poverty and increase health impacts (Healy

2003b; Heyman et al. 2011; Tonn and Peretz 2007). Estimates of energy efficiency improvements of 20 percent reduction in energy consumption and 60 percent reduction in carbon emissions (in the UK) are promising and might even represent underestimates (Davies and Oreszczyn 2012; Dresner and Ekins 2006; Healy and Clinch 2004; Tonn and Peretz 2007). Despite these obvious advantages, there are also a number of obstacles and market imperfections which prevent the wider adoption of energy efficiency measures in buildings.

Rebounded energy consumption

As also discussed above, gains from energy efficiency only occur if levels in energy consumption remain stable. Several studies show that with increasing energy performance the level of energy consumption also rises in order to increase general comfort to a certain threshold temperature for the energy-poor (Hamza and Gilroy 2011; Heyman et al. 2011). This process, known as the 'rebound effect', highly challenges the goal of emissions reduction (Davies and Oreszczyn 2012) if, for example, the modern lifestyle choices demand more (less-efficient) single units (Boardman 2007) or an increased number of technical appliances (Hamza and Gilroy 2011). As O'Doherty et al. (2008: 660) show for Ireland, a 'house built in the period since 1997 is likely to have 23% more energy-saving features than a house built before 1900, but it also has the potential to use 4.3% more energy'.

Costs of acquisition

Following the argument on the rebound effect of energy efficiency, higher-income households adapt towards sufficiency measures (for example, tax on energy) and increasing energy prices by using more efficient appliances and living in highly efficient dwellings, while retaining or even increasing their living standard (Hertwig 2005; Hinnells 2008; Mills and Schleich 2009; Soderholm and Pettersson 2008; Steg 2008). As O'Doherty et al. (2008: 660) show: '[n]ewer and more expensive homes are more likely to have more energy-saving features, but are also more likely to have more appliances'. This is a choice that lower-income households do not have, as even the smallest investments in insulation measures and energy-efficient appliances, such as fridges or washing machines, bear higher short-term costs of acquisition than products of lower quality (Bladh and Krantz 2008; Sardanou 2007; Soderholm and Pettersson 2008). Consequently, increasing energy costs lead to lifestyle cutbacks in electricity and overall consumption behavior of lower-income households, with negative effects on their well-being (Snodin and Scott 2008; Wall and Crosbie 2009). This issue both highly reduces achievements in GHG mitigation and increases inequalities in energy consumption.

Initial choices

Whether or not certain investments are undertaken depends highly on the initial choices of the type of dwelling. Residents of old houses with low efficiency standards also have to face higher investments in insulation, or long-term losses in inefficient energy consumption (Campbell 1993). The general rule applies: the higher the income, the better and more (energy-) efficient the housing (Mills and Schleich 2009; O'Doherty et al. 2008).

Tenant–landlord problem

The tenant–landlord problem basically describes the mismatch between the tenant's interest in low utility costs and comfort housing through proper insulation, and the landlord's reluctance to undertake investments in insulation. Since the landlord has to carry the costs but does not benefit from insulation and energy efficiency, privately rented dwellings are more likely to lack even lowest insulation and efficiency standards (Druckman and Jackson 2008; Roberts 2008a, 2008b) This issue is of major concern in the context of energy poverty, since lower-income residents mostly live in rented dwellings (Campbell 1993; Grosche 2010).

Information and incentives

Climate policies aim to provide information and financial incentives for investments in energy efficiency. Measures such as information campaigns, energy auditing and eco-labels raise awareness of the environmental impact of energy conservation, decrease transaction costs, and inform about long-term savings from investments in energy-efficient appliances and insulation (Achtnicht 2011; Healy and Clinch 2004; Owens and Drifill 2008). Whether households choose to take higher long-term maintenance costs into account, or make initial investments in housing innovation and efficient appliances for the kitchen, heating or cooling, is influenced by their awareness and level of information about available technologies; their motivation (based on dwelling characteristics, for example dwelling tenure; social networks; approximate duration the household members are planning to live in the dwelling); and their means (the household's economics; payback time of initial investments) (Steg 2008). However, high initial costs of respective investments confine this option to households with sufficient financial resources (Healy and Clinch 2004; Keirstead 2007).

Mandatory performance standards

Mandatory performance standards for energy-using products are more regulative, setting an obligation on energy efficiency improvements. As Pye et al. (2008: 34) argue, these policies may 'be regressive where lower income households are assumed to have higher discount rates, resulting in

lower future benefits from lower operating costs'. However, as Huber et al. (2011) point out, public support schemes for retrofitting measures increasingly play a role for community-based insulation projects. With respect to the landlord–tenant problem, standards on energy efficiency and insulation force landlords to improve dwellings, and provide long-term energy savings not only for those who are able to afford these initial investments. However, since the landlords' economic motivation is to increase property values in the future real-estate market, renting prices will also increase and might compensate for gains from energy efficiency and insulation measures (Huber et al. 2011).

Supplementary measures

Even though energy efficiency measures have a high potential for GHG mitigation, their application is not straightforward given mainly financial obstacles to investing in efficient technologies. Thus, supplementary measures such as low-interest loans, grant schemes or public investment programs such as the Low Carbon Buildings Programme in the UK are needed, to increase insulation standards but also to fund single installations in households and large-scale developments in the public and charitable sectors (social housing etc) (Huber et al. 2011).

Measures of substitution and energy inequality

Policies on substitution aim to promote renewable energy systems. The capital investment problem describes the situation that home-owners differ from tenants by having the advantage to provide upfront investment in small-scale energy production technologies like, for example, solar thermal or photovoltaic systems in order to produce their own electricity (for self-use, or for sale, or for heating purposes) (Walker 2008). Measures on substitution in the housing sector provide incentives and loans for investments in small-scale renewable energy installations for a subgroup of the population: higher-income households with sufficient financial means (Faiers et al. 2007; Sardanou 2007; Schelly 2010; Walker 2008; Welsch and Kuhling 2009). More precisely, someone must be able to afford the investment of, for example, a photovoltaic installation, and must own a house as a minimum condition. Energy costs for these households drop nearly to zero, realizing direct returns (taking interest costs into account) (Walker 2008).

Renewable energy support schemes

Apart from information campaigns and education measures which have been discussed in the previous section, support schemes for solar water heating systems and micro-generation projects are the most widely used policy instruments. As has been discussed earlier, these technologies are

still highly innovative and so the economies of scale needed for public investment schemes or tax incentives – to improve the attractiveness of those technologies – are not yet in place (Mills and Schleich 2009; Walker 2008). Thus, public support schemes ensure benefits for higher-income households in order to promote renewable energy systems, even though the upfront capital investment of households is still substantial (Walker 2008). The regressive character of these policy instruments lies in the fact that subsidies and grants are financed by either taxpayers or consumers (Hoffman and Johnson 2005; Johansson and Turkenburg 2004). One such example is the most successful climate policy instrument to promote renewable energy production, the Feed-in Tariff, which ensures high benefits for owners of private renewable energy installations (for example, solar cells). Energy traders allocate the costs of these higher tariffs to the electricity bills of all consumers and, thus, increase the absolute and long-term energy price (Walker 2008). More clearly, it is lower-income households who cannot afford investments in renewable energy installations but partly pay for these indirect subsidies through higher energy prices (Saunders et al. 2012; Walker 2008).

Energy poverty

Despite these more regressive effects, micro-generation also has to be considered as a chance for reducing energy poverty in social housing. If publicly financed, these measures have the potential to offset household energy costs (Saunders et al. 2012). Saunders et al. (2012: 86) argue that renewable energy installation ‘achieves improved outcomes for those on low incomes when facilitated through a third party local energy organisation’.

INTERNATIONAL VARIATION OF SUSTAINABILITY AND THE ROLE OF THE WELFARE STATE

In the previous section on distributive justice, citing green growth and environmental justice as crucial elements of sustainable development, I referred to many case studies. However, some authors have criticized empirical analysis in this area, for example the United Nations Environment Programme (UNEP) Green Economy Scenario, for relying too heavily on global estimates and neglecting international differences in conditions, which facilitate or hinder green growth and environmental justice in advanced, industrialized nations (Victor and Jackson 2012). Out of many factors, including public environmental concern, support of interest groups as well as geography, it seems that characteristics of the national economy and the welfare state play a dominant role determining countries’

capacity and willingness to balance economic growth with social and environmental goals (Winkler et al. 2007). For example, governments in countries where financial resources are scarce and a larger share of the electorate suffer from energy poverty would certainly have difficulties in legitimating climate policy instruments which further increase household energy costs. By contrast, renewable energy might be discussed as a means to reduce energy prices and to address the issue of energy security in countries with high energy imports, vulnerability toward negative consequences of climate change, and a national patent structure which highly stimulates technological innovation and green employment.

Clearly, 'more wealth gives countries greater capacity to reduce emissions' (Winkler et al. 2007: 695). In fact, binding national targets for GHG emissions reduction have been set relative to the countries' economic strength under the EU Effort Sharing Agreement (No. 406/2009/EC) (Stephenson and Boston 2010). As discussed earlier, wealth and economic growth provide the financial means to afford ambitious climate policies and social well-being, but this in itself does not guarantee green employment or environmental justice. In contrast, the welfare state's core idea is to address social risks induced by market failure, such as poverty or sickness (decommodification) (Esping-Andersen 1990). In this matter, the welfare state might contribute mechanisms to support green employment and accomplish environmental justice via three mechanisms:

1. The specific setting of social policy in a country is based on social principles of justice which might serve as a benchmark for policy instruments in other domains in order to accomplish environmental justice.
2. Given the redistribution effected via income, education and labor-market policies, social policy shapes vital capabilities (financial resources, human capital) needed in order to accomplish green growth.
3. Social policy in general has a direct impact on outcomes such as poverty and income inequality.

In the following, I will discuss how welfare state arrangements provide principles, support capabilities and increase social problems in order to consider how more sustainable solutions to mitigate climate change might be developed.

Social Principles Influencing the Design of Climate Policy Instruments

Major principles in social policy are either universal or based on assumptions of status or basic needs (stratification) (Esping-Andersen 1990).

Similar principles are discussed with slightly different terminology in the literature on environmental justice (see the discussion above). The principle of basic needs is covered by the term 'preferential treatment based in needs' (Klinsky and Dowlatabadi 2009). The understanding of environmental justice following an assumption of 'equity' or 'equal burdens' is of almost universal character (Klinsky and Dowlatabadi 2009). 'Equal entitlements' is clearly a status-based principle (Klinsky and Dowlatabadi 2009). The underlying principle highly determines the actual design and potential outcome of respective (social or climate) policies. Instruments based on equity or universality are designed to avoid inequalities, whereas policies following the principle of basic needs only consider potential effects on the weakest segments of society. Furthermore, policy instruments can be following market principles, or be constructed in order to balance market failure and individual exposure to market risks (decommodification) (Esping-Andersen 1990).

Social principles might be linked to climate policies in two ways. First, they strongly influence welfare state outcomes such as income inequality or poverty rates and, thus, national capabilities and social problems (see the discussion below). Second, social principles might serve as a social standard which serves as a benchmark for policy instruments in other policy fields. Thus, in the ideal case, climate policies should apply the same social standards and principles as social policy (Gough et al. 2008). However, whether standards and principles dominant in the sector of social policy are considered by the design of instruments on climate mitigation remains an open question.

Welfare State Factors Influencing Capabilities

Welfare states increase national capabilities to establish green growth by providing a highly skilled labor force, establishing labor protection and labor market flexibility, and supporting the middle class by means of income distribution.

Education of workforce

Green growth requires a highly skilled workforce and structural conditions that facilitate technological innovation. Therefore, the welfare state is important because it provides higher education and community development which 'appear[s] critical to organizing the societal adjustments associated with CC [climate change]' (Gough et al. 2008: 333). In addition, as Winkler et al. (2007: 698) state, even 'basic education is essential for mitigation purposes . . . Education may raise public awareness of climate change, which may induce individual behavioural changes. It may also contribute to building expertise in climate change issues'. Thus, depending on social

principles and the generosity of the welfare regime, countries should vary in their ability to address the demand of the green jobs market for higher numbers of educated and skilled workers. Green growth can be more or less successful in countries depending on the national education regime and its public support (European Commission 2009).

Labor market regulation

The capability of labor markets to stimulate green growth obviously depends upon the relative importance of carbon-intensive industries in the country concerned, but also upon existing labor market regulations. A study by Guivarch et al. (2011) shows that costs for climate mitigation are relatively low in countries with flexible labor markets, but rise strongly with high labor market stability created through employment protection in coordinated market economies. As labor market regulations constitute an important form of social policy (e.g., Ebbinghaus and Manow 2001), supporting green growth can be challenging in countries with strong employment protection. A potential way to balance growth and social security is promoted by the European Commission (2009) with its idea of 'flexicurity', which is defined 'as a policy strategy that attempts, *synchronically and deliberately*, to enhance the flexibility of labour markets, work organizations and labour relations, on the one hand, and employment and income security, notably for weaker groups in and outside the labour market, on the other' (European Commission 2006: 77; see the original work of Wilthagen and Rogowski 2002). Whether flexicurity is a viable policy strategy to promote growth in low-carbon industries without challenging social security, is a question that future research needs to answer.

Redistribution and support for the middle class

Households account for one-third of overall energy consumption (Aswathanarayana et al. 2010; Hinnells 2008). As discussed above in the example of the housing sector, climate change mitigation requires financial investments, for example in housing insulation, energy-efficient appliances and small-scale renewable energy installations. While many countries provide subsidies for some of these investments, individual households mostly need to contribute a substantial share themselves. Accordingly, individuals need to be in a financial situation which allows them to do this. Thus, the main target group for these energy-conserving strategies is the middle class (Faiers et al. 2007; Jänicke 2012; Sardianou 2007; Schelly 2010; Walker 2008; Welsch and Kuhling 2009). Welfare states supporting the middle class and reducing income inequality by means of redistributive social policy arrangements are more likely to have a wider basis of households who can afford investments in energy-conserving practices.

Social Inequalities and Poverty at the Intersection of Climate and Social Policy

Generally, welfare states aim to reduce poverty and social inequalities, although different welfare regimes are known to put a different emphasis on the universality of social rights. As this chapter has shown in the section on energy poverty, climate mitigation can increase poverty and inequalities in financial means. Whether climate policies challenge accepted risks of poverty and inequality obviously depends on their pre-existing levels and the welfare state's response to the increased burdens put on vulnerable populations through climate mitigation. For instance, in countries with already high levels of poverty and inequality, and residual welfare measures, the negative consequences of climate policy can create social problems that require a change in the design of these policies, or the set-up of new social policies, which address this problem. On the other hand, in countries with low levels of poverty and inequality as well as generous social rights, cost increases through climate policies might hardly be noticed, and be compensated in existing welfare programs, for example minimum income schemes (Pye et al. 2008). Hence, poverty and inequality are crucial since they strongly determine energy poverty (Harrison and Popke 2011; Healy 2003b). As discussed above, lower-income groups have proportionally higher risks of inadequate housing, seasonal mortality and housing-related sickness (Bonnetfoy et al. 2007). Thus, a welfare state's ability to reduce general poverty and inequality in incomes influences the social problems affecting the distributional impacts relevant to climate policy instruments.

National Variation in Social Principles, Capabilities and Social Problems among European Welfare Regimes

The previous sections have discussed the various points at which climate policy and social policy intersect. It has been argued that how this interaction plays out will often depend on the specific set-up of welfare state policy. Therefore, in this section, I put forward a scheme for understanding how different welfare regimes (as regards principles of environmental justice, capabilities for green growth, and social problems) may move towards a green society.

Table 1.1 describes differences between welfare regimes (columns) in social principles, capabilities and social problems (rows). The columns distinguish between the classical four European welfare regimes suggested by Esping-Andersen (1990): the social democratic (Denmark, Norway, Sweden, Finland), liberal (Ireland, United Kingdom), conservative

Table 1.1 Welfare regimes, social principles, capabilities and social problems

	Social democratic	Conservative	Liberal	Mediterranean
<i>Social principles</i>				
Universal	X			
Status-oriented		X		
Basic needs			X	X
<i>Capabilities</i>				
Education	High	Moderate	High	Low
Flexicurity	Highly flexible, highly to moderately secure	Less flexible, highly to moderately secure	Highly flexible, less secure	Low to moderately flexible, moderately secure
Middle class	High	High	Low	Low
<i>Social Problems</i>				
Poverty	Low	Low	Moderate	High
Inequality	Low	Low	Moderate	High

(Austria, Belgium, France, Germany, the Netherlands) and Mediterranean (Portugal, Italy, Spain, Greece, Cyprus, Malta) welfare regimes (for a detailed discussion on typologies of welfare regimes see Abrahamson 1999; Arts and Gelissen 2002; Bonoli 1997).

Social democratic welfare regime

In these countries, the universal principle enables high capabilities for green growth but a strong emphasis on environmental justice, while facing low social problems in terms of poverty or inequality. High levels of public spending on primary and secondary education has led to high enrollment in tertiary education and thus produces a highly skilled labor force (Bonoli and Reber 2010; Iversen and Stephens 2008; Winkler et al. 2007). Flexibility of the labor market is high, with the lowest rates and share in long-term unemployment in Europe (de Beer and Schils 2009; European Commission 2006). At the same time, income security varies, from least average losses in income due to unemployment in Denmark to moderate levels in Sweden (de Beer and Schils 2009; European Commission 2006). Universal social rights sustain a strong middle class who can afford to invest in energy efficiency and renewable energies (Bergh 2007; Brady et al. 2009). Furthermore, the universal orientation of the welfare state has created the lowest levels of poverty and income inequality in Europe (e.g.,

Castles and Obinger 2007; Headey et al. 1997; Jesuit and Mahler 2010). Thus, mild increases in energy costs provide a relatively small risk to low-income households.

Conservative welfare regime

Welfare policy in countries of the conservative regime is based on status and contribution-based social rights, which accomplish a moderate level in capabilities for green growth and low social problems to establish climate mitigation policies in line with environmental justice (Hölsch and Kraus 2006). Support for education and a highly skilled workforce is moderate (Winkler et al. 2007). Labor market policy supports moderate employment protection, with average loss in income due to unemployment similar to that of the social democratic countries (de Beer and Schils 2009; European Commission 2006). Flexibility of labor turnover in the conservative countries, however, is lowest among the welfare regimes, with a high share of long-term unemployment and long average unemployment duration (de Beer and Schils 2009; European Commission 2006). Hence, generous social assistance broadly supports a moderate middle class, while decreasing rates of poverty and inequality (Headey et al. 1997; Hölsch and Kraus 2006).

Liberal welfare regime

Ireland and the UK are characterized by moderate capabilities to support green growth: that is, education, flexicurity and a middle class. The principle of basic needs in combination with high social problems should provide the ground for a climate mitigation approach which, at least, considers its distributional impact on the least advantaged groups of society. More specifically, support for education is moderate and still substantial (Winkler et al. 2007). The labor market is highly flexible with a low share of long-term unemployment and a moderate (average) unemployment duration (de Beer and Schils 2009; European Commission 2006). Given high average income losses due to unemployment, income security is substantially lower in liberal countries than in the social democratic or the conservative welfare regime (de Beer and Schils 2009; European Commission 2006). In general, support for medium-income groups is comparatively weak in liberal countries, with larger proportions of the population experiencing material insecurity (Hölsch and Kraus 2006). Welfare state literature has shown that universal welfare programs lead to lower levels of poverty and inequality than means-tested programs that are just targeted at the poor, as found in the liberal welfare regime (Headey et al. 1997; Hölsch and Kraus 2006; Korpi and Palme 1998). Accordingly, the relatively high levels of poverty and social inequality that exist in Ireland and the United Kingdom make it

more difficult to address higher energy costs and the ability of households to invest in energy conservation.

Mediterranean welfare regime

These countries have the least capabilities for green growth and the highest social problems in relation to environmental justice. Support for education is moderate (Eurostat 2010). Flexibility is moderate (Spain, Portugal) to low (Italy) when considering long-term unemployment rates and average employment tenure (European Commission 2006). Unemployment replacement rates and perceived security in Mediterranean countries reveal moderate support of the welfare regime for employment security (European Commission 2006). Furthermore, less generous social assistance regulations and social rights with a means-tested focus provide low levels of economic security (Hölsch and Kraus 2006). There is lower support for the middle class, and social inequality and poverty are even higher than in the liberal countries (Abrahamson 1999).

Summary

Clearly, the welfare state is only one among several factors that determine how easy a transformation towards a green economy is. It is a key factor in the mitigation of negative implications of climate policy such as fuel poverty or unemployment. However, the discussion above sheds some light on how welfare states might influence green growth and support environmental justice in the design of climate mitigation policy. There are some indications for a link between welfare states and climate mitigation efforts, namely the provision of principles, capabilities, and for social problems. But there can be different approaches to the same problem. On the one hand, given the universal principles of social rights and high capabilities for green growth in the social democratic countries, it seems that social problems need not constitute an insurmountable hurdle to the accomplishment of environmental justice in climate mitigation policy. By contrast, in the liberal regime social problems play a dominant role as regards the distributional impacts of climate instruments on the least advantaged. In fact, energy poverty is considered to be a substantial issue in these countries when designing climate mitigation policies, since low standards of insulation and energy efficiency increase social problems, resulting in rather high levels of seasonal mortality (Healy 2003a, 2003b; Monbiot 2006; Santamouris et al. 2007). Furthermore, a similar situation is found in countries of the Mediterranean regime, where social problems are considerable. The combination of means-tested programs, higher poverty rates and lower standards for insulation or efficiency provokes a high proportion of households suffering from energy poverty, health issues and excess

winter mortality (Healy 2003a, 2003b; Huber et al. 2011; Monbiot 2006; Santamouris et al. 2007). In these countries, growth-related capabilities are rather low, which may prevent extensive climate mitigation policies from being adopted. For conservative welfare states the story is less clear. There is a lot of variation between countries with this regime, for example in housing and efficiency standards, energy poverty and excess winter mortality (Healy 2003a, 2003b; Huber et al. 2011; Monbiot 2006). However, Germany is a highly innovative market economy with a strong share in technically skilled personnel and a substantial record in climate mitigation policies and green growth (Jänicke 2011, 2012). However, energy poverty or discussions on energy prices only play a marginal role in public debate so far. Thus welfare regimes might not primarily influence the extent to which targets are achieved, but more the way they approach the topic and how they handle negative implications for social inequality and poverty.

CONCLUSION

Climate change imposes threats for public welfare and economic growth for future generations. Though climate mitigation aims to reduce these threats, it bears the risk of increasing social inequalities and abatement costs for current generations. Thus, climate mitigation can be in conflict with the welfare state's intentions to provide social security and mitigate social inequalities. However, climate mitigation does not necessarily diminish achievements in social policy and economic growth, and can also be an opportunity for new employment and environmental justice.

This chapter has provided an overview of the various links between climate mitigation and social policies. Aligning economic growth, environmental preservation and societal well-being has been identified as the major challenge for current and future societies. With the increasing global and long-term nature of climate change, the need to link economic, environmental and social goals becomes even more urgent. Two questions are directly linked to that matter and have been investigated in this chapter: (1) What are the costs of climate mitigation for current generations? (2) How are the costs of climate mitigation distributed among different segments of society and across welfare regimes? More specifically, the chapter focused on two empirical examples. The first example investigates the cost question, focusing on the impact of green jobs on net employment. The question was whether new emerging jobs in the domains of energy efficiency and renewable energies outbalance job losses in traditional sectors and conventional energy production. The second empirical example is related to the question of distribution. I investigated the distributional impact of

climate mitigation policy on energy inequality and energy poverty in the housing sector, considering basic argumentation of environmental justice. The question is whether climate policy instruments influence inequalities in energy consumption of lower- and higher-income households. Finally, the chapter discussed how a country's ability to reach public welfare, environmental preservation and economic growth is determined by welfare state arrangements.

The answer to these questions is: it depends on the specific design of the climate mitigation instruments and its integration within social policy arrangements and economic structures. With respect to the first question on green jobs, most studies found a short-term effect on net employment, whereas the long-term success of climate policies depends on the ability of new technologies in the energy sector to stimulate wider innovation in other sectors. This stimulation in green growth is very much bound to long-term commitments but is also highly dependent on export orientation, flexibility of the labor market, and on the ability to provide a highly skilled and trained labor force. As discussed in the previous section, it seems that especially countries of the social democratic regime and, partly, the conservative welfare regime (for example, Germany and the Netherlands) are highly capable in producing green growth due to their support for highly skilled personnel, the ability to create technical innovation, and their flexible but at the same time highly secured labor markets.

With respect to the second empirical example, the question is whether climate policies create environmental justice problems. The answer is: yes they can, if they rely on certain policy instruments. Whether or not these policy instruments trigger substantial social problems depends upon both pre-existing levels of inequality and the welfare state's capability to accommodate the necessary changes. A social policy response is only one way to solve this problem. Alternatively, climate policies can be designed to avoid this problem. Whether or not climate mitigation policies are designed in a just way and integrated into social policy tradition might depend upon social principles and problems determined by the existing welfare regime. It seems that countries of the liberal and the social democratic welfare regimes are the most likely to accept the potential threat of climate mitigation policies increasing issues of energy poverty and inequality.

This chapter provides an attempt to systematize the link between social policy and climate mitigation, presenting two applied empirical examples. At this point it is hard to determine how climate mitigation policies will affect employment, poverty and social inequalities. The evidence is limited, due to the high complexity of the new field of climate mitigation, which is long term in character, including a large variety of factors of local, national and global scale, and where most policies have just kicked in. Clearly, the

effect will vary across countries and a number of factors will influence this effect. Thus, further research should focus on international variations in the more complex interaction of social policy with other social factors. For example, production regimes and the dominance of industrial key sectors in national economies might play a major role, independent from social policy arrangements. Varieties of capitalism (Hall and Soskice 2001), ownership structures (Callaghan 2009), political support for respective policies and parties (Amable 2003), and effective market rules including state capacity to implement them (Winkler et al. 2007), should highly determine governmental ability to integrate environmental, economic and social goals in new policies of climate mitigation. Furthermore, while green growth and fuel poverty are issues that clearly exist, more attention should be paid to effects. The question is: will these changes be big enough to have a significant influence on societal well-being?

NOTES

1. For an intense discussion and a revival of the 'limits to growth' argument see Lawn (2009).
2. For a detailed review see Apergis and Payne (2009, 2011) and Öztürk (2010).
3. For a detailed discussion on energy taxes see also Büchs et al. (2011), and Chapter 2 by Büchs et al. in this volume.

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APPENDIX 1.1

Table A1.1.1 *Housing and heating allowances in EU27 countries*

	Belgium	Bulgaria	Cyprus	Czech Republic
A 25% share of housing costs is included in the minimum standards. If the actual housing costs exceed the 25% share of housing costs, additional benefits (e.g. housing or rent allowance) can be granted.	Subsidies for installation, moving house and rent exist; also an entitlement to a heating allowance (max. €300 per year), is provided to persons who belong to the following categories: <ul style="list-style-type: none"> 1st category: the beneficiaries of the preferential scheme of the sickness and invalidity insurance whose household income does not exceed the income limits for the 2nd category. 	Heating: incomes lower than the differentiated minimum income for heating have the right to targeted heating allowance. The differentiated minimum income for heating is determined as a percentage of the guaranteed minimum income according to the category of persons. The differentiated minimum income for heating is another category of income,	Social welfare services: <ul style="list-style-type: none"> Up to €171 for heating purposes (€85 for a child with disabilities; €128 for a two-person household; €171 for a household with more than two persons). Up to €598.01 of Rent Allowance (calculated based on 50% of the basic needs allowance). 	Housing Allowance is paid to an owner or a tenant of a flat who is registered as a permanent resident, provided that 30% (in Prague 35%) of the household income is not sufficient to cover housing costs, and at the same time this 30% or 35% of family (household) income is lower than relevant normative housing costs. The amount of the Housing Allowance for a calendar month

- 2nd category: low-income households whose annual gross taxable income does not exceed €16 306.33, increased by €3018.74 for each dependent person.
 - 3rd category: persons benefiting from a collective settlement of debts who are unable to cope with their heating bills.
- giving rise to heating allowances basically differentiated according to family status.
- Housing: Persons whose income for the preceding month is less than 150% of the differentiated minimum income have a right to targeted monthly allowance for payment of rents for municipality lodgings.
- Up to €598.01 of allowance for mortgage interest deriving from a house loan and installment (calculated based on 50% of the basic needs allowance).
 - is calculated as the difference between the normative housing costs and the family's decisive income multiplied by a coefficient of 0.30 (in Prague 0.35).

Source: Missoc Comparative Tables Database 1 July 2012, XI: Guaranteed Minimum Resources.

Table A1.1.2 Housing and heating allowances in EU 27 countries

Denmark	Estonia	Finland	France	Germany	Luxembourg
Individual housing benefit is granted after an objective calculation based on the housing expenditure, the income of the household, the area of the dwelling and the composition of the household, including the presence of children.	Subsistence benefit: no separate allowances. Upon determination of the entitlement to and amount of benefit, housing expenses are taken into account within established limits.	There are separate statutory housing allowances. Housing costs are taken into consideration in determining the amount of the housing allowance.	Means-tested housing allowances granted to tenants and home-buyers in order to reduce their housing charges. The amount depends among other things on the resources, the family situation, the place of residence, the rent, and the number of children or dependent persons.	Assistance towards living expenses / needs-based pension supplement in old age and in the event of reduced earning capacity: costs for adequate housing and heating are completely covered. Basic security benefits for jobseekers: actual housing and heating costs are covered to the full amount if these are reasonable. The reasonable character is generally based on the local conditions.	Where rent is due for an occupied flat the difference between the rent paid and the amount corresponding to 10% of the guaranteed minimum income is granted in addition.

Source: Missoc Comparative Tables Database 1 July 2012, XI: Guaranteed Minimum Resources.

Table A1.1.3 Housing and heating allowances in EU27 countries

Malta	Poland	Portugal	Romania	Slovakia
<p>An Energy Benefit to alleviate water and electricity bills is paid: to the head of household who is in receipt of one of the following non-contributory social benefits: Social Assistance, Special Unemployment Benefit, Non-Contributory Age Pension, Carers' Pension, Disability Pension or a Pension for the Visually Impaired, Supplementary Allowance or Children's Allowance, as long as the means of the family, as calculated in order to qualify for such Supplementary Allowance or Children's Allowance.</p>	<p>A person or a family can receive Special Needs Allowance for housing or heating costs. The amount depends on the decision of the Social Assistance Centres.</p>	<p>No housing and heating allowances.</p>	<p>Heating Energy Allowance depending on monthly average net income per family member/individual. The general amount varies between 90% of the heating invoice for a family with a monthly average net income per family member lower than €35 and 5% of the heating invoice for a family with a monthly average net income per family member between €138 and €177. The general amount is increased with 10% for an individual. There is a special amount of 100% for Social Aid.</p> <p>Natural Gas Allowance depending on monthly average net income per family member/individual. The general amount varies between €59 for a family with a monthly average net income per family member lower than €35 and €4.26 for a family with a monthly average net income per family member between €121 and €138.</p>	<p>Housing Benefit is an integral part of the Benefit in Material Need.</p>

Table A1.1.3 (continued)

Malta	Poland	Portugal	Romania	Slovakia
<p>This assistance will also be awarded on humanitarian grounds, subject to a needs test.</p> <p>Recipients of social assistance who pay rent for their place of residence are entitled to a rent allowance of €1.16 per week.</p> <p>A subsidy on telephone bill of €0.84 per week is also paid to persons over 60 years of age.</p>			<p>Solid Fuel or Oil Allowance depending on monthly average net income per family member/individual. The general amount varies between €12 for a family with a monthly average net income per family member lower than €35 and €3.59 for a family with a monthly average net income per family member between €121 and €138 with a special amount of €13 for Social Aid.</p>	

Source: Missoc Comparative Tables Database 1 July 2012, XI: Guaranteed Minimum Resources.

Table A1.1.4 Housing and heating allowances in EU 27 countries

	Slovenia	Spain	Sweden	The Netherlands	United Kingdom
A tenant in non-profit housing, in committed rental housing to the level of non-profit rent or in a living unit intended for the temporary solution of persons at social risk, is entitled to Subsidised Rent if his/her income and the income of persons stated in the contract of lease does not exceed the level of their Minimum Income increased by 30% of their established income and by the amount of rent.	<p>Housing allowances amounting to €525 per year aimed at easing the cost of the rent when the beneficiary fulfills the following conditions:</p> <ul style="list-style-type: none"> ● to be entitled to a non-contributory old-age or invalidity pension; ● to lack home ownership; ● not to be a relative on the third degree of the owner; ● no heating allowances. 	<p>Costs for adequate housing are covered.</p>	<p>In principle no housing allowances. Housing cost should be covered by the granted amount. In certain cases a person may be eligible for rent allowance. Whether a person is eligible for rent allowance depends on his/her income, rent, assets and age. A person can only apply for rent allowance if his/her rent is maximum €631.73 per month and no less than €200.70 for persons older than 23 years of age. If one is younger than 23 years the maximum is €348.99. If a person chooses to live in an expensive dwelling when a less expensive dwelling is available, he/she is not eligible for rent allowance.</p>	<p>Housing Benefits: means-tested, tax-financed social assistance scheme to help people in and out of work who are on a low income and who need help to meet their rent liability. Benefit paid through local authority (municipality).</p> <p>Council Tax Benefit: means-tested, tax-financed social assistance scheme to help people on low incomes meet up to 100% of their liability to contribute to the cost of local authority services. Benefit paid through local authority (municipality).</p> <p>Winter Fuel Payment: an annual lump sum payment to people over the women's state pension age to help with their winter fuel bills. €249 for those up to age 79, or up to €374 if aged 80 or over.</p> <p>Cold Weather Payment: €31 paid automatically to people receiving specified means-tested benefits when the average temperature where the claimant lives is recorded as, or forecast to be, 0°C or below over seven consecutive days during the period from 1 November to 31 March.</p>	

Source: Missoc Comparative Tables Database 1 July 2012, XI: Guaranteed Minimum Resources.

APPENDIX 1.2

Table A1.2.1 Detailed overview of national climate policies in the housing sector

	Insulation		Heating		Lighting/appliances		Renewable energy
	Education and outreach	Economic	Administrative	Education and outreach	Economic	Education and outreach	
AT klima:aktiv program	Third-party financing for efficiency investment	Energy-efficient housing program	Energy consulting for households; quick-check online household energy efficiency calculator	Heating costs accounting; federal promotion of extraordinary efficiency in buildings; energy taxes	Promotion of energy efficient electronic products, the Group of Energy Efficient Appliances (GEEA); consumer guide to energy efficient-products	Energy Taxes	Energy efficient housing programs (subsidies); financial incentives for rural biomass energy generation; Green Electricity Act
BE	Fiscal deduction to promote energy efficiency; implementation of EU Energy Performance of Buildings Directive (EPBD);		Fiscal deduction to promote energy efficiency; tax deduction for investments in energy efficiency and renewable energy		Energy consumption labeling of new appliances; electric appliance labeling	Fiscal deduction to promote energy efficiency	Fiscal deduction to promote energy efficiency; tax deduction for investments in energy efficiency and renewable energy

<p>subsidies for passive house construction and low energy renovation</p> <p>Building retrofit subsidies: PANEL programme</p>		<p>Energy Labeling</p>	<p>Tax exemption for renewable energy use; Act on the Promotion of the Use of Renewable Energy Sources</p>
<p>Energy grants for residential buildings</p>	<p>Building code</p>	<p>Promotion of energy-efficient electronic products, the Group of Energy Efficient Appliances (GEEA); Decree on Notification on the Origin of Electricity</p>	<p>Tax subsidies for power production based on renewable energy sources</p>
<p>Implementation of EU Energy Performance of Buildings Directive (EPBD)</p>	<p>Energy tax overhaul</p>		

Source: IEA (2010), only national policies.

Table A1.2.2 Detailed overview of national climate policies in the housing sector

	Insulation		Heating		Lighting/appliances		Renewable energy	
	Education and outreach	Economic	Education and outreach	Economic	Administrative	Education and outreach	Economic	Administrative
DK	Energy labeling of smaller buildings; thermal building code revision	Implementation of EU Energy Performance of Buildings Directive (EPBD)	Promotion of energy savings in buildings		Heat Supply Act	Promotion of energy efficient electronic products, the Group of Energy Efficient Appliances (GEEA)	Net metering for small-scale PV	
DE	CO ₂ building restructuring program; KfW housing modernization program	CO ₂ building restructuring program	Blue Angel Ecolabel	CO ₂ building restructuring program	Energy Conservation Ordinance	Promotion of energy efficient electronic products, the Group of Energy Efficient Appliances (GEEA)	KfW program producing solar power; KfW build ecologically program	Green Power

FR	Implementation of EU Energy Performance of Buildings Directive (EPBD)	Tax credit for energy-saving and renewable energy equipment	District heating classification	Promotion of energy efficient electronic products, the Group of Energy Efficient Appliances (GEEA)	FACE program; renewable energy feed-in tariffs; tax credit for energy-saving and renewable energy equipment
HU	National energy saving program: financial assistance for energy conservation in residential buildings	EIOP subsidies; national energy saving program		Efficiency labeling for household appliances	Structural Funds for Environment Protection and Infrastructure Operative Program (EIOP) subsidies

Source: IEA (2010), only national policies.

Table A1.2.3 Detailed overview of national climate policies in the housing sector

	Insulation		Heating		Lighting/appliances		Renewable energy
	Economic	Administrative	Education and outreach	Economic	Administrative	Education and outreach	
SE	Energy Declaration of Buildings Act – incentives for investment in lower-energy buildings		Energy-efficient home consumer campaign	Energy, carbon and sulfur dioxide taxation; grants for residential heating conversion		Promotion of energy efficient electronic products, the Group of Energy Efficient Appliances (GEEA)	Renewable energy investment support program; guaranteed power purchase contracts; grants for solar heating
UK	Energy tax increases; implementation of EU Energy Performance of Buildings Directive (EPBD);	Decent Homes	Community Energy Saving Program	Reduced VAT for energy-saving materials	Building Regulations Part L	Market Transformation Program	Low Carbon Buildings Program; Microgeneration Strategy

reduced
value-added
tax (VAT) for
energy-saving
materials;
Warm Front
Scheme;
Landlords'
Energy Saving
Allowance

ES

Remove Plan
for electric
appliances

Remove
Plan for
electric
appliances

Feed-in tariffs
for small scale
co-generation/
renewable
electricity
production
Quota obligation
and certificate
of origin trading
system

PL

Source: IEA (2010), only national policies.

Table A1.2.4 Detailed overview of national climate policies in the housing sector

	Insulation		Heating		Lighting/Appliances		Renewable Energy
	Education and outreach	Economic	Administrative	Economic	Administrative	Education and outreach	
IR National Greenhouse Gas Abatement Strategy		New house grants; implementation of EU Energy Performance of Buildings Directive (EPBD)	Warmer Homes Scheme	New house grants		Energy Awareness Week	National Greenhouse Gas Abatement Strategy; new house grants
NL Compass		Energy tax increases; implementation of EU Energy Performance of Buildings Directive (EPBD)	Compass		Energy performance standard for buildings	Promotion of energy efficient electronic products, the Group of Energy Efficient Appliances (GEEA)	Regulatory energy tax; regulatory energy tax increases; market penetration strategy for energy efficiency appliances

Source: IEA (2010), only national policies.

Table A1.2.5 Detailed overview of national climate policies in the housing sector

	Insulation		Heating		Lighting/appliances		Renewable Energy		
	Economic	Administrative	Education and outreach	Administrative	Education and outreach	Economic	Administrative	Economic	Administrative
IT	Implementation of EU Energy Performance of Buildings Directive (EPBD)						Reorganization of energy sector regulation	Financial Law 2007	
LU		Framework Law		Framework Law; regulations on gas-fired heating installations	Energy efficiency labeling	Electricity tax		Reglement Grand-Ducal	Framework Law
PT			National system for energy and indoor air quality certification of buildings	Regulations on HVAC systems in buildings	Energy efficiency requirements for appliances		Energy efficiency requirements for appliances		

Source: IEA (2010), only national policies.

2. Unequal emissions – unequal policy impacts: how do different areas of CO₂ emissions compare?¹

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INTRODUCTION

It is increasingly clear that radical policies to mitigate anthropogenic climate change (hereafter ‘mitigation policies’) are urgently required as its impacts are already threatening food security, damaging ecological systems and creating new social inequalities, for example related to severe weather events. Such impacts are set to worsen and contribute to mass migration, resource conflicts and other catastrophic outcomes if greenhouse gas emissions from human activities continue to accelerate. An important element of mitigation policies will be to reduce the combustion of fossil fuels, and thus the release of carbon dioxide (CO₂), the greenhouse gas which contributes the most to current warming.

From a social policy perspective, an important question is how mitigation policies can be designed such that unjust distributional effects are, so far as possible, avoided. This requires proportionality in terms of people’s financial capacities as well as in terms of their relative contribution to emissions. This is important both from a fairness perspective and for the public acceptability of such policies. Acceptability is likely to influence the likelihood that governments adopt them, as is borne out by the available policy research (Bristow et al. 2010).

Such policies are unlikely to be implemented without a new global agreement on climate change mitigation. The current United Nations Framework Convention on Climate Change (UNFCCC) process would only implement such an agreement by 2020 at the earliest under the ‘Doha Gateway’ set up at the latest Conference of the Parties (COP) meeting (Ritter and Casey 2012). This tortuous and hesitant process contrasts sharply with the urgency of emissions cuts pressed by leading scientists (Anderson and Bows 2008; Hansen et al. 2013). It is nonetheless useful to analyse the range of policy instruments which could be used to reduce CO₂ emissions, for example to reduce the likelihood that uncertainty about

policy instruments and their distributional implications contributes to inaction.

Carbon taxes are generally perceived to be regressive, that is, putting larger burdens on poor than on rich households relative to their income, because this is a general feature of taxes levied on consumption (Johnstone and Serret 2006; Metcalf and Weisbach 2009). While several previous studies (AEA and Cambridge Econometrics 2008; Boyce and Riddle 2007; Defra 2008) have shown that regressive effects can be reversed through equal per capita carbon trading schemes, or schemes in which revenues from mitigation policies are redistributed to the population, others have questioned the fairness of these schemes (Posner and Weisbach 2010: Ch. 6; Starkey 2008). In particular, they highlighted the possibility that some groups in society might have higher emissions due to ‘structural circumstances’ rather than ‘expensive tastes’ (Dworkin 1981a, 1981b; Starkey 2012: 15).² For example, a need for higher spatial heating use obtains for the elderly and for those living in colder areas. From a social policy perspective, this is relevant in several ways: firstly, which household characteristics other than income are important for the responsibility or ‘need’ for emissions? If there are groups with higher emission ‘needs’, would this justify additional support to these groups, for example in the form of infrastructure investment or financial compensation to cope with the cost of emission reduction? We address these questions by examining potential distributional implications of mitigation policies, considering a range of household characteristics whilst controlling for income and household size.

Further, much is currently underexplored about how emissions vary with characteristics across domains, as most relevant studies usually just focus on one area of emissions. If emission domains are compared, descriptive analysis tends to be applied that does not control for income or other factors (e.g. Brännlund and Nordström 2004; Defra 2008; Feng et al. 2010; Halvorsen 2009; Hassett et al. 2009; Klinge Jacobsen et al. 2003; Labandeira and Labeaga 1999; White and Thumim 2009). A comparison of emission domains is also important for examining questions such as how the regressiveness of carbon taxes differs and whether equal per capita rebates reverse regressiveness equally for all areas. By directly comparing potential distributional implications within one analysis, one can be more confident of separating out what is really distinctive about an emissions category, as variation arising from differences in data sources and time periods is avoided.

The chapter is structured as follows. The next section provides a brief overview of mitigation policies and debates around distributional implications. We then describe the data and methods applied. The following

section examines and compares potential distributional implications of different hypothetical mitigation policies. Here we focus on a simple £100 per tonne of carbon tax scheme and a ‘tax and rebate’ scheme which redistributes the entire tax revenue on a per capita basis. A final section concludes and discusses limitations.

BACKGROUND: MITIGATION POLICIES AND DISTRIBUTIONAL IMPLICATIONS

In economic terms, climate change is market failure caused by anthropogenic greenhouse gas emissions, which are ‘negative externalities’ (costs falling on third parties to transactions) arising from production and consumption. Hence governance is required to reduce emissions, usually seen as intervention by a national government. Here, one can distinguish traditional regulation from economic instruments (Helm 2005). For many commentators, economic instruments are an essential part of policies to reduce greenhouse gas emissions because they offer increased flexibility and scope, and hence cost-efficiency, over a purely regulatory, ‘command-and-control’ approach. However, economic instruments are sometimes criticized because they put a price on a commons, the Earth’s atmosphere. That is, they create property rights over a previously unowned gift of nature which was, in principle, freely accessible to all. Another point of contention is that some rich people will be able to maintain their high-carbon lifestyles as they are able to pay a higher price for their consumption. However, within schemes that set a strict overall cap on emissions this will not be possible for the generality of the rich, for the bulk of emission reductions would need to be based on a cut-back of their consumption, which is disproportionately responsible for emissions. In short, we acknowledge considerable ethical concerns about, and potential shortcomings of, market-based mitigation policies. However, it is plausible that they form part of any viable plan to avoid dangerous climate change, since emissions cannot be regulated away overnight.

Carbon taxes and cap-and-trade schemes are the two main classes of economic instruments discussed. Both effectively put a price on emissions, creating financial incentives to switch to low-impact lifestyles and production methods. The key difference between the two is that environmental taxes – often termed ‘Pigouvian taxes’ – levy a charge on environmentally damaging activity, whereas cap-and-trade works by fixing the amount of the activity. For example, suppose less petrol needs to be sold in order to reduce the emissions that its burning causes. A tax would be raised on sales, in the expectation that the resulting price increase would reduce consump-

tion. The price increase will equal at most the value of the tax. However, it is uncertain how consumers respond to the tax: will they substantially reduce their consumption of petrol or will they just pay a higher price? The resulting reduction in emissions is thus unknown. In contrast, the cap part of cap-and-trade would limit the annual amount of petrol available to the economy, whilst the resulting price increase would depend on the level of consumer demand.

Mitigation instruments can apply at different levels of economic activity: up-, mid- or downstream in the chain of production running from natural resource extraction down to the end user. An upstream scheme would apply a tax or emissions cap to the production and/or import of fossil fuels into the economy, thus achieving broadest coverage whilst minimizing the number of actors included in the scheme and the related administrative costs. Examples are the proposals for upstream carbon taxes (Hansen 2009), cap-and-dividend (Barnes 2003), cap-and-share (AEA and Cambridge Econometrics 2008; FEASTA 2008), the Kyoto2 scheme (Tickell 2008), or Sorrell's upstream trading scheme that fits around European Union Emissions Trading Scheme (EU ETS) (Sorrell 2010). A mid-stream scheme would apply to companies outside the primary energy sector producing goods and services. The largest existing cap scheme, the EU ETS, is an example, which broadly applies to energy-using installations above a certain size. Downstream schemes apply to individuals, and in some variants businesses, who would have carbon accounts and trade permits themselves (Defra 2008; Fleming 2007).

Within cap-and-trade schemes, options exist as to how emission permits are allocated, all of which have different distributional impacts. Initial carbon budgets can be allocated to the participants in the scheme free of charge, through auctioning or through a mix. For example, in the EU ETS, permits have largely been given away for free to companies in the participating sectors, depending on their previous and estimated future emissions. This approach is called 'grandfathering'. It is widely believed that this leads to windfall profits for companies as they will pass the opportunity cost of using a permit onto customers, or sell a considerable volume of their allocated permits. In other words, grandfathering is likely to have regressive effects (Shammin and Bullard 2009; Sijm et al. 2006). In contrast, auctioning the permits makes the polluters pay whilst the distributional effects depend on the capabilities of the targeted industries to pass on the costs and the availability of alternatives to these goods for consumers. Furthermore, auctioning emission permits to the participants creates a revenue stream for the permit seller.

The seller of auctioned permits in mid- or upstream schemes is usually assumed to be a national government, but permits could also be allocated

initially to citizens or trusts, who then sell to the audited companies. Examples of this alternative approach include the cap-and-share, and cap-and-dividend schemes. The differences between schemes with initial allocation to governments and these approaches are very important, but beyond the scope of this chapter.³ We focus here on the capacity of the revenue to counterbalance possible regressive effects of mitigation policies, rather than the institutional details underlying its allocation.

Distributional Implications

Regressivity is a general feature of taxes on consumption, and therefore one would expect carbon taxes to be regressive. This expectation also carries through to various types of cap-and-trade schemes. Overall, the literature on the distributional effects of mitigation policies confirms this prior view (e.g. Dresner and Ekins 2006; Metcalf and Weisbach 2009; Parry 2004; Serret and Johnstone 2006). However, there are exceptions to this rule depending on the source of pollution that is targeted and how the revenue arising from the policy is used. We will review results from previous studies on carbon taxes, before discussing the ways in which revenue from mitigation policies can be used and their distributional implications.

There is a general consensus that taxes on home energy use are regressive if the revenue from those taxes or charges is not redistributed to the citizens (Baranzini et al. 2000; Barker and Köhler 1998; Dresner and Ekins 2006). The effects of such taxes, covering electricity and heating fuels, are particularly regressive because home energy use is relatively evenly distributed across income deciles (at least in industrialized countries), as shown below in the 'Results' section. This means that low-income households spend much higher shares of their income on home energy than richer households (Dresner and Ekins 2006; Druckman and Jackson 2008; Wier et al. 2005).

Schemes which put a price on carbon emissions further upstream, for example through a tax on total carbon emissions or a cap-and-trade scheme that applies only to those who introduce fossil fuels into the market, have an effect not only on downstream energy prices but also on all other goods and services due to the higher price of the energy used in their production. Since overall expenditure including that on consumer goods generally increases less than proportionally with income (see, for example, ONS 2009: Table A9, for the UK case), upstream mitigation policies are therefore likely to have additional regressive effects. These will be substantial because indirect emissions comprise around half of UK households' overall emissions (52.9 per cent in our study).

The results are more varied when it comes to carbon taxes on transport or motor fuels. Several studies state that motor fuel taxes place higher

burdens on middle-income households than on poor or rich households (Blow and Crawford 1997; Poterba 1990). For the UK, Dresner and Ekins (2004) found that taxes on motor fuels or vehicles have progressive effects considering the whole population, but regressive effects amongst motorists (see also Klinge Jacobsen et al. 2003; Tiezzi 2005).

Some studies compare the distributional effects of mitigation policies for different domains such as home energy and transport. For example, Barker and Köhler (1998: 398) provide regressivity ratios separately for taxes on home energy, petrol and total CO₂ emissions for 11 EU countries including the UK; Hassett et al. (2009) examine the distribution of tax burdens over income groups separately for CO₂ taxes on direct and indirect emissions in the United States; and Wier et al. (2005) compare the distribution of burdens from an upstream CO₂ tax to one on direct energy only over income groups for Denmark. Klinge Jacobsen et al. (2003) compare impacts of a motor fuel and home energy tax for Denmark using Gini coefficients and distributions over different household groups but without controlling for income. These studies find that taxes on home energy emissions are more regressively distributed than taxes on transport emissions. However, they concentrate on distribution over income, and do not consider the role of other household characteristics.

The literature summarized above shows that if the revenues from carbon taxes or carbon trading schemes are not earmarked for redistribution to citizens, they are highly likely to have regressive effects, with the possible exception of schemes that only include transport emissions. But the distributional outcomes of mitigation policies crucially depend on how the revenues are used and distributed. Revenues arise, for example, through carbon taxes or if emission permits within trading schemes are (partly) auctioned. Three options for redistributing revenues are salient in the literature, though such options could also be combined in different proportions.

The revenue can be used to finance measures that further reduce greenhouse gas emissions or support behavioural adaptation, as proposed by Tickell (2008). For example energy efficiency measures through home insulation programmes, investments into renewable energy or public transport subsidies, training and research and development (R&D) can be supported. The distributional effects depend on who is benefiting from those programmes. For example, means-tested home insulation schemes like the Warm Front programme in the UK benefit low-income households, and subsidies for public transport currently primarily benefit low-income urban households. Policies that aim to expand renewable energy, in contrast, can have regressive effects if they work through financial incentives to (already wealthy) homeowners (for example, see Monbiot 2010 on the distributional implications of the feed-in tariffs for solar electricity).

The revenue from taxes or auctions under cap-and-trade schemes can be partly or fully redistributed to the population and/or industry by reducing other existing taxes. This is frequently discussed in the environmental economics literature as the 'double dividend' hypothesis. This proposes that environmental taxes generate dual benefits. Whilst the tax creates incentives to reduce the activities which give rise to negative externalities, the revenue generated can be 'recycled' for any other purpose, including the reduction of taxes on income or capital, which are often portrayed as discouraging economic activity by mainstream economics, or value added tax (VAT) which is regressive. If the entire revenue is earmarked to decrease or remove other taxes, the tax reform is termed 'revenue neutral', meaning that the costs of the new source of revenue are completely compensated through the reduction of other taxes or charges. However, one problem with the double dividend hypothesis is that the revenue from green taxes should decline over time if the tax is working, for example if carbon emissions are reduced from present levels. If this is the case, total government revenue would be shrinking, creating a need to increase other types of taxes.

Studies on the effects of reducing social security contributions, taxes on income or VAT so far show mixed results, demonstrating that distributional implications of such measures cannot be generalized but depend on the specifics of the existing tax and benefit system and the double dividend reforms introduced. For example, the German 'eco-tax' involved a reduction of the contribution to pension insurance. This increased regressive effects as the reduction mainly benefited middle-income households but disadvantaged low-income, unemployed and pensioner households (Bach et al. 2002; Bork 2006). Conversely, studies on the reduction of income tax in the US report progressive effects if taxes on low incomes are reduced more than those on higher incomes (e.g. Grainger and Kolstad 2008; Metcalf 1999; Metcalf and Weisbach 2009). Labandeira et al.'s (2009) study of a revenue-neutral reduction of VAT in Spain as a compensating mechanism also showed progressive effects. A second option is for the revenue to be returned to citizens by increasing specific social security benefits, for example, child benefit or means-tested benefits such as tax credits or income support. With this option, regressive effects can be considerably reduced or even reversed, as several studies have demonstrated (Baranzini et al. 2000; Dresner and Ekins 2006; Ekins and Barker 2001; Ekins and Dresner 2004).

A final option is to return the revenue from mitigation policies directly to individuals or households as a lump sum. There is a substantial literature discussing this option (Barker and Köhler 1998; CEC 1992; Dinan and Rogers 2002; Ekins and Barker 2001; Parry 2004; West and Williams 2002). In the United States, a 'carbon tax and 100 per cent dividend'

proposal has recently been promoted by climate scientist James Hansen (2009). An equal per capita rebate or free allocation of emission permits (which is distributionally equivalent) is also integral to personal carbon trading (PCT) (Defra 2008), cap-and-share (FEASTA 2008) and cap-and-dividend proposals (Barnes 2003). Under PCT, individuals receive equal per capita tradable carbon allowances. Under cap-and-dividend, an independent climate trust would auction off the permits to upstream fossil fuel producers or importers and redistribute equal per capita rebates to the citizens. Under cap-and-share, an independent trust would allocate each citizen with an equal share of the nation's emission permits which they can then sell via banks or post offices. Fossil fuel producers or importers would have to buy the permits to cover the carbon content of the products that they intend to sell on the market.

Studies which examined the distributional effects of equal per capita permit or rebate schemes usually conclude that this option has strongly progressive effects on average when applied to total or direct emissions (AEA and Cambridge Econometrics 2008; Barker and Köhler 1998; Defra 2008; Dinan and Rogers 2002; Parry 2004; Starkey and Anderson 2005). This means that low-income households will gain more (or lose less) financially as a share of their income than high-income households. For example, in a cap-and-share or cap-and-dividend scheme, any individual who consumes less than the average per capita allocation will gain from the rebate or revenue (AEA and Cambridge Econometrics 2008; Boyce and Riddle 2007). As low-income households usually generate relatively low emissions, they may gain financially from the scheme. Even if gains were equal across the income distribution, they would be larger as a share of income for poorer than for richer households. If poorer households gain more in absolute terms than richer households, the distributional effect will be strongly progressive in relative terms.⁴ However, questions have been raised regarding the fairness of equal per capita schemes as they are not taking into account higher 'needs' for emissions that some people in society may have (e.g. Posner and Weisbach 2010: Ch. 6; Starkey 2008, 2012). Whilst a discussion about a distinction between needs and wants when it comes to emissions goes beyond this chapter, our analysis of relationships between a whole range of household characteristics and emissions will help identify those with higher emission needs which may need to be addressed through complementary policies.

Furthermore, the studies outlined above estimate effects of mitigation policies either within a single area or for total emissions. There are no studies we are aware of that compare the distributional implications, taking a range of household characteristics into account, of per capita rebate schemes for different areas of emissions. Do equal per capita schemes

reverse regressiveness in all areas? What are potential implications for different types of households arising from equal per capita schemes related to different areas of emissions? We will examine these questions below.

DATA AND LIMITATIONS

Data

For the UK there is currently no representative CO₂ emissions dataset at the household level available. Research on the distribution of emissions across households thus relies on other data sources to estimate household emissions. In this chapter, we convert rich information on households' expenditure into CO₂ estimates. Our household expenditure data derive from the UK Living Costs and Food Survey (LCF) for the years 2008 and 2009 and its predecessor, the Expenditure and Food Survey (EFS), for the years 2006 and 2007 which, merged, provide us with a total household sample size of 24 446. The LCF/EFS is an annual survey, covering detailed information on expenditure for a large number of consumer items and services according to the UN Classification of Individual Consumption According to Purpose (COICOP) and a range of socio-economic variables. We convert households' expenditure into CO₂ emission estimates using the following methods.

For home energy we use Tables 2.2.3 and 2.3.3 of the Quarterly Energy Prices statistics by the Department for Energy and Climate Change (DECC 2011a, 2011b) which provides us with information on annual domestic electricity and gas prices per kWh, including standing charge and VAT, for three payment methods and each electricity and gas region. Since the LCF/EFS includes variables on payment method and region, we can estimate units of energy consumption separately for piped gas and electricity. In addition, our home energy CO₂ estimates include emissions from heating oil, bottled gas, and coal and wood which comprise 9.8 per cent of the UK households' home energy CO₂ emissions estimate. Here we use Sutherland⁵ tables to convert expenditure into units of consumption.

For transport we estimate litres of motor fuel (petrol and diesel) consumed using AA statistics (AA 2006–2009) of monthly motor fuel prices for each government region. For public transport we estimate kilometres travelled employing information on average annual passenger miles for train, tube, bus and coach journeys from the National Travel Survey (NTS) for Great Britain (DfT 2011: Table NTS0305) and the Northern Ireland Travel Survey for Northern Ireland (DRDNI 2011: Table 3.1). Flight emissions are estimated by approximating flight kilometres by merging

information from the LCF/EFS survey on the number of person flights per household within the UK, Europe and outside Europe with average mileage for flights to these destinations calculated using the NTS and the International Passenger Survey.

DECC CO₂ conversion factors (DECC and Defra 2011) provided for different fuels and modes of transport are then applied to units of home energy and litres of motor fuels consumed, as well as kilometres travelled by mode of transport, to estimate CO₂ emissions. To estimate indirect emissions, we use the Resources and Energy Analysis Programme (REAP) database which provides estimates of total CO₂ emissions arising from consumption by UK households of 56 COICOP categories in 2006 (Paul et al. 2010). These data are employed to generate CO₂ per pound expenditure factors for 50⁶ consumption categories which we apply to household expenditure to estimate emissions. Expenditure data for 2007–2009 are deflated to 2006 prices using Consumer Price Index statistics for each of the consumption categories. For further details see Büchs and Schnepf (2013a).

Limitations

Estimating emissions based on household expenditure is limited in several ways. Firstly, the data available to us in the LCF/EFS and external statistics cannot account for some of the heterogeneity of emissions in the ‘real world’. For example, neither the LCF/EFS or the DECC home energy price statistics provide information on the tariff that a household is subscribed to; for public transport tickets and flights, the provider of the service and type of ticket (first or second class, reductions for pre-booking or railcards) are unknown; and for other consumer items we have no information on brands. This might also lead to a slight overestimation of emissions by rich people because they might, on average, purchase more expensive products even though the actual product might have similar or even lower emissions. Choosing high-profile brands, for example, may often involve ‘paying for the name’, in which case cheaper products may involve equivalent emissions. Local organic produce from the farmers’ market will tend to be more expensive compared to that from a supermarket, shipped round the world and cooled over long periods, but less emissions intensive (Girod and De Haan 2010). However, due to a lack of detailed data on embedded emissions of individual goods and services, the estimation of the size of this effect remains limited.

Another limitation results from the ‘infrequency of purchase problem’. The LCF/EFS collects expenditure data through a survey, with interview questions covering quarterly or annual expenditure for more infrequent

purchases such as electricity and gas bills, cars, season tickets and package holidays. However, some more frequent expenditure items are only collected through two-week diaries kept by each household member. For all these expenditures, some aspects of the data will be affected by the infrequency of purchase problem. For some items we can estimate the extent of the problem: for example, we know that, based on the two-week diary, only 1.2 per cent of households have an expenditure on flights, whilst 41 per cent of households state in the survey that they had at least one flight in the past 12 months (consequently, we use the survey, not the expenditure data, to estimate flight emissions). Furthermore, according to the LCF/EFS, 18.2 per cent of households with a vehicle have not purchased any petrol during the diary window whilst data from the National Travel Survey indicate that only around 0.1 per cent of households with a vehicle have not driven their vehicle within the last year.

For our transport CO₂ estimate this problem most clearly affects motor fuels and public transport which contribute 74.3 per cent of our total transport CO₂ estimate (the rest deriving from flights for which we use the survey's interview-based measure) and 16.2 per cent of our total UK household CO₂ estimate. For home energy, the problem is less relevant, with expenditure on heating fuels collected through the diary such as oil, bottled gas, coal, wood and peat contributing only 2.6 per cent of total emissions, prepayment electricity only used by 15 per cent of households, and gas prepayments by 12.2 per cent of households with access to mains gas. All indirect CO₂ emission estimates are based on diary data. Whilst proportions of households with zero expenditure can be high for individual categories, none of the households has zero expenditure on the sum of items that are included in indirect emissions (see Table 2.1).

Does the infrequency of purchase problem affect our analysis? All previous studies using expenditure data for estimating CO₂ emissions implicitly or explicitly (Defra 2008: 13) assume that CO₂ estimates based on diary data provide unbiased estimates of population mean values, as zero expenditure from infrequently purchased items should be compensated by expenditures higher than the actual consumption rate of those households who stock up during the diary period. However, measures of dispersion and inequality such as standard deviation and Gini coefficients are likely to be overestimated (especially so for subcategories such as motor fuels and possibly flights⁷). For this reason, we use ratios of mean emissions comparing different income quintiles rather than the Gini coefficient for examining emissions inequality and distributional implications of mitigation policies. Below, we present ordinary least squares (OLS) regression results. Since there will be measurement error affecting the dependent variable, standard errors of coefficients are likely to be inflated.

Table 2.1 Mean and median annual household CO₂ emissions in tonnes, % of total emissions and % of households not having emissions, by emission area

	Median CO ₂ , tonnes	Mean CO ₂ , tonnes	Standard error mean, tonnes	% of total CO ₂ emissions	% of households without emissions
Home energy total, of which:	4.48	5.11	0.03	25.3	5.7
Gas	2.35	2.49	0.02	12.3	22.8
Electricity	1.84	2.09	0.01	10.4	8.1
Other home energy	0.00	0.53	0.03	2.6	93.2
Transport total, of which:	2.97	4.40	0.04	21.8	15.2
Motor fuels	1.60	2.38	0.03	11.8	36.4
Flights	0.00	1.13	0.02	5.6	59.0
Public transport	0.00	0.89	0.02	4.4	50.2
Indirect total, of which:	8.69	10.67	0.08	52.9	0.0
Indirect home energy and motor fuel emissions	2.23	2.60	0.02	12.9	9.0
Food	1.33	1.53	0.01	7.6	0.7
Catering/hotels	0.69	1.11	0.01	5.5	11.6
Cars & repairs	0.05	0.4	0.01	2.0	39.5
Recreation	0.33	0.77	0.03	3.8	3.7
Clothing	0.23	0.66	0.01	3.3	32.6
Furniture, appliances, tools	0.13	0.67	0.01	3.3	32.1
Personal care	0.17	0.38	0.01	1.9	12.3
Other indirect	1.53	2.54	0.03	12.6	0.0
Total	17.13	20.18	0.13	100.0	0.0

Note: Estimation of emissions is based on the LCF/EFS 2006–2009, sample size 24 446 households in the UK.

RESULTS

CO₂ Emissions in the UK by Emission Category

Table 2.1 shows mean and median household CO₂ emissions for our pooled sample. Median UK total household emissions are 17.1 tonnes of CO₂ per year whilst the mean is 20.2 tonnes, showing a positively

Table 2.2 *CO₂ emissions and inequality*

	1	2	3	4	5	6
	Mean	Median	CV	Mean CO ₂ low income	Mean CO ₂ high income	20:80 ratio
Total	20.18	17.13	72.42	11.47	30.94	2.70
Indirect	10.67	8.69	86.69	5.79	16.84	2.91
Home energy	5.11	4.48	77.97	3.97	6.32	1.59
Transport	4.40	2.97	113.21	1.70	7.79	4.57

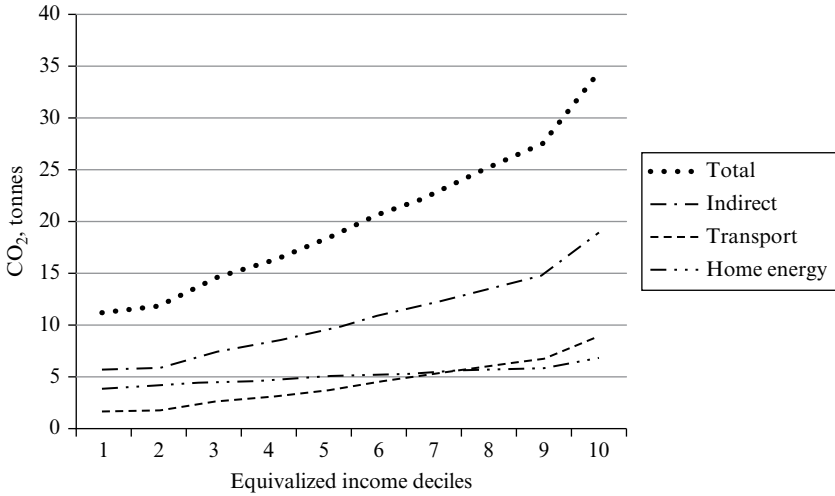
Note: CV = coefficient of variation. Column 4 shows mean emissions for the lowest income quintile, based on equalized income. Column 5 shows mean emissions for the highest income quintile. Column 6 shows the ratio of mean emissions of the top and bottom income quintiles.

skewed distribution. Home energy emissions constitute 25 per cent of total emissions, and transport 22 per cent, including flight emissions that contribute 6 per cent on average to households' total emissions (equating to 1.3 flights per household). The remaining 53 per cent consist of indirect emissions incorporated in other goods and services.

Inequality of Emissions

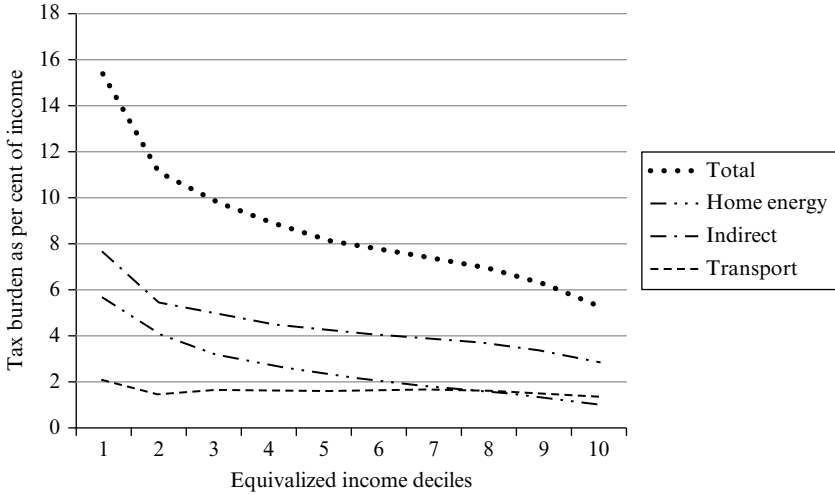
We know from previous research that emissions are unequally distributed across UK households (see the section above on 'Mitigation Policies and Distributional Implications') but how does this compare for different areas of emissions? Table 2.2 shows measures of variation and inequality for home energy, transport, indirect and total emissions. The coefficient of variation (CV), which is the ratio of the standard deviation to the mean, is a standardized measure of the dispersion of a variable. Total, home energy and indirect emissions show similar levels of dispersion with CVs of 61.8, 63.5 and 66.8, respectively, whilst transport emissions are more dispersed with a CV of 102.2. However, since the CV is affected by the infrequency of purchase problem, it is likely to be inflated, particularly for transport emissions. Column 4 shows mean emissions for households in the lowest income quintile, which can be compared with mean emissions for households in the highest income quintile in column 5. Since sample sizes are fairly large, with almost 4900 households per quintile, we can assume that these mean figures are not substantially influenced by infrequency of purchase. Column 6 shows the ratio of mean emissions for the highest and lowest income quintiles, demonstrating that transport emissions are most unequally distributed, and home energy emissions most equally distributed.

Figures 2.1 and 2.2 graph the distribution of emissions over equalized



Note: Sample size 24446.

Figure 2.1 Distribution of annual household emissions over equalized income deciles



Note: The 1st and 99th percentile of the income distribution are excluded to reduce bias from income outliers. The tax burden relates to carbon taxes of £100 per tonne, expressed as a percentage of annual disposable household income.

Figure 2.2 The distribution of annual CO₂ tax burdens over equalized income deciles

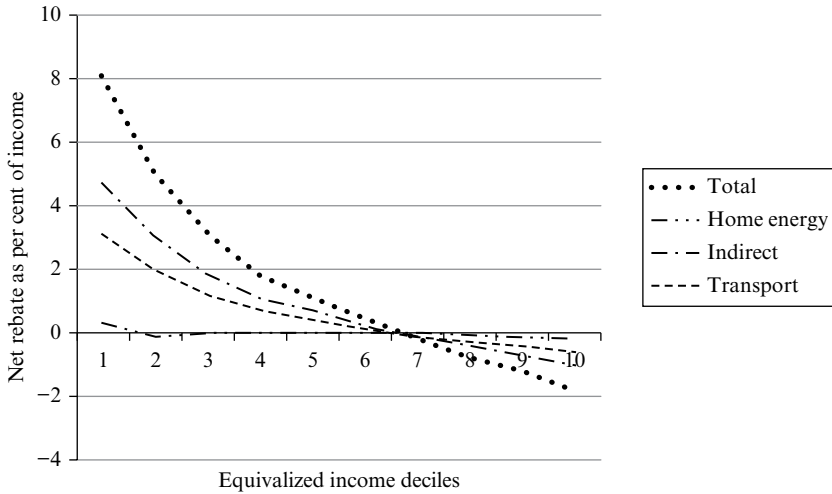
income deciles, confirming that emissions in all areas are unequally distributed and increasing with income. The 25 per cent of households with the lowest incomes only emit 11 per cent of all transport emissions, 14 per cent of indirect and 15 per cent of total emissions, whilst the richest 25 per cent emit 42 per cent, 38 per cent and 37 per cent respectively. However, for home energy, the poorest 25 per cent emit 20 per cent of all emissions, whilst the richest 25 per cent emit 30 per cent.

This illustrates the very large contribution that richer households make to overall emissions. If all households restricted themselves to CO₂ emissions equal to those of the poorest 25 per cent, average UK household emissions would decrease from 20.2 tonnes to about 12.1 tonnes and total annual UK household emissions from 513 million tonnes to 306 million tonnes. If achieved by 2020, and compared to a baseline of 586 million tonnes in 1990 (DECC 2012), this would equate to a reduction by 48 per cent to the 1990 baseline; much more drastic than the currently envisaged reduction of 20 per cent by 2020 that the European Union is subscribed to. Thus, there are clearly potentially serious issues over fairness if low-income households are penalized by mitigation policies.

Distributional Implications of Mitigation Policies

To quantify potential distributional implications, we first calculated the tax burden from a hypothetical tax of £100 per tonne of carbon dioxide emission. The tax burden is expressed as a proportion of equivalized household income. Figure 2.2 suggests that taxes are regressive for all emission domains, apart from transport where they appear to be nearly neutral. Households in the lowest equivalized income decile would lose an estimated 6 per cent of their income from emissions taxes on home energy, 8 per cent for indirect, 2 per cent for transport and 15 per cent for taxes on total emissions. This compares to 1 per cent, 3 per cent, 1 per cent and 5 per cent, respectively, for households in the highest equivalized income decile.

As discussed above, it is assumed in the literature that the regressiveness of carbon taxes can be reversed, for example by redistributing the tax revenue to the population on a per capita basis. To estimate distributional implications we estimate 'net rebates'. This is achieved by subtracting the tax burden from the rebates that each household received (based on the number of adults, and possibly children, in a household) and expressing this as a proportion of disposable household income. The net rebates necessarily have a mean of zero. Figure 2.3 shows the estimated distributional outcome of such a scheme and suggests that regressive effects can indeed be reversed for total, indirect and transport emissions, whilst the income effects seem very marginal for home energy emissions across the income



Note: The 1st and 99th percentiles of the income distribution are excluded to minimize bias from income outliers. The net rebates are calculated by subtracting the CO₂ tax to be paid by each household from their equal per adult allocation of tax rebates. The net rebate is expressed as a percentage of annual disposable household income.

Figure 2.3 The distribution of net allowances from a carbon tax and rebate scheme, % of disposable income

distribution. It is striking that relatively large net financial gains⁸ for the lowest income groups can be achieved by carbon tax and rebate policies, given sufficient emissions coverage, with only modest percentage costs to the higher income groups. The lowest decile are estimated to gain, on average, by 8 per cent of their mean income, whilst the top decile are estimated to be less than 2 per cent worse off financially. This reflects a steep gradient in underlying income in addition to the gradient in emissions across income deciles.

This can be examined further using the Suits index for tax progressivity which compares the cumulative distribution of the tax burden to the cumulative income distribution (Suits 1977). Since the Suits index can be calculated based on mean emissions and mean income per income decile, it is less affected by the infrequency of purchase problem than the Gini coefficient that is sometimes used to examine changes in income inequality before and after a tax or benefit reform. The Suits index lies between -1 (extreme regressivity) and +1 (extreme progressivity), and is shown in Table 2.3. This confirms that taxes on home energy have the most regressive effects, followed by taxes on total emissions.

Conversely, taxes on transport emissions are near neutrally distributed

Table 2.3 Change of the Gini coefficient of income inequality before/after tax and 'tax and rebate' (T&R) schemes; Suits index for the CO₂ taxes

	Suits index	Difference of 20:80 income ratio after policy							Scaling factor
		Tax	Unscaled			Scaled			
			Tax	T&R adult	T&R 0.5 child	Tax	T&R adult	T&R 0.5 child	
Total	-0.08	1.20	-0.54	-0.64	1.20	-0.54	-0.64	1.0	
Indirect	-0.06	0.48	-0.35	-0.41	0.91	-0.66	-0.77	1.9	
Home energy	-0.19	0.39	-0.01	-0.04	1.55	-0.05	-0.16	4.0	
Transport	0.02	0.08	-0.24	-0.26	0.38	-1.10	-1.21	4.6	
Motor fuels	-0.01	0.06	-0.12	-0.13	0.48	-1.01	-1.12	8.5	
Public transport	0.04	0.01	-0.05	-0.05	0.33	-1.13	-1.25	22.7	
Flights	0.07	0.01	-0.07	-0.08	0.23	-1.26	-1.36	17.9	

Note: The Suits index compares the distribution of income to the distribution of the tax burden over equivalized income deciles. A negative sign means the tax is regressive, a positive sign means it is progressive, 0 is neutral. It reaches from 1 to -1.

Changes in income inequality in response to mitigation policies are examined by comparing the ratio of mean income of the highest income quintile to that of the lowest income quintile after deducting tax burdens or net rebates from equivalized household income. Positive figures indicate an increase in income inequality, negative figures a decrease. The scaled 20:80 income ratio changes are multiplied by a factor reflecting the proportion of an emissions subcategory of total emissions. For example, home energy emissions make up about 25% of total emissions. The income ratio difference is thus multiplied by 4 to make it comparable to the one for total emissions.

or even progressive for flight emissions. The remainder of the table presents the change of the income ratio comparing the highest and lowest income quintiles after different mitigation policies are applied, including the £100 carbon tax, an equal per adult tax and rebate (T&R) scheme and an equal per adult T&R scheme that also includes half a rebate per child. Positive figures indicate that income inequality rises after the policy is applied, and vice versa. However, sizes of the change in income ratios are affected by the size of the tax burden which, in our model, differs across emission domains due to different quantities of emissions per domain. To achieve comparability across emission domains, we can imagine that the tax is applied to equal quantities of CO₂ in each area by scaling up changes in income ratios for home energy, transport and indirect emissions based on the proportion that they contribute to total emissions in the right-hand side of the table. For example, since home energy emissions constitute 25 per cent of total emissions, the ratio change is scaled up by a factor of four.

Results suggest that T&R schemes on home energy reduce income inequality only very marginally, whilst those applied to transport emissions have stronger progressive effects. This is an interesting result as it may question the effectiveness of equal per capita home energy schemes (Defra 2008; Parry and Williams 2010). Furthermore, the scheme that includes allowances for children suggests stronger progressive effects across all emission domains than the scheme that only distributes rebates to adults.

Most of the existing work on distributional implications of mitigation policies focuses on income. However, household characteristics other than income may well play an important role in influencing distributional outcomes of mitigation policies, including age, employment status, education and rural or urban location. To examine the relationship between other household characteristics and distributional impacts, we estimated mean net rebates from a £100 per tonne of CO₂ adult-only T&R scheme and tested whether means differ for specific groups (see Table 2.4). A difference in the role of household size for different areas of emissions is evident: whilst two-adult households lose significantly more from adult-only T&R schemes on total and transport emissions than one-adult households, the opposite is true for home energy. However, economies of scale also become relevant for total and transport emissions for households with three or more adults. Furthermore, households with children receive significantly lower net rebates than households without children who ‘gain’ on average for all schemes. This pattern reverses if the scheme allocates half a lump sum rebate to each child (results not shown).

The results also show an interesting relationship between age and distributional outcomes. Previous research has shown that the relationship between age and emissions takes on an inverse U-shape, apart from home energy emissions which rise with age (Büchs and Schnepf 2013b). This is confirmed when we compare mean net rebates: on average, households with reference persons aged 35–65 receive significantly lower net rebates, and those with reference persons aged 65+ significantly higher ones, compared to households with reference persons under 35. In contrast, the oldest age group ‘loses’ more than the other two groups for home energy schemes. Education also makes a difference to the financial implications of this scheme: those with highly educated reference persons (defined as attending full-time education for 16 or more years) receive significantly lower net rebates than households in which no one attended full-time education for longer than is compulsory in the UK (11 years).

Rural households (defined as those in settlements of fewer than 10 000 inhabitants) receive lower net rebates than ‘urban’ households (households in all other areas), apart from schemes that apply to flights and public transport only, where there is no significant difference. Workless

Table 2.4 Comparison of mean net annual rebates of a £100 per tonne of CO₂ adult-only scheme (£)

	Total	se	he	se	Transport	se	mf	se	Flights	se	pt	se
Adult 1	-49.3	10.3	-95.1	3.7	54.3	3.3	31.2	2.1	16.3	1.5	6.8	1.6
Adult 2	-140.2	16.7	-7.1	4.4	-51.2	5.5	-22.1	3.1	-19.2	2.9	-9.9	2.4
Adult 3	442.8	35.3	189.1	9.6	32.9	13.3	-3.4	9.1	23.8	6.9	12.4	5.4
Children	-305.0	22.7	-36.7	5.9	-69.8	7.6	-49.0	4.4	-13.9	4.2	-6.8	3.2
No children	126.1	12.3	15.2	3.7	28.8	4.0	20.3	2.5	5.7	2.0	2.8	1.7
Age < 35	55.9	22.0	80.2	6.0	-22.1	8.2	2.4	4.9	-15.5	4.2	-9.1	3.5
Age 35-65	-169.5	16.7	-9.1	4.4	-64.1	5.5	-40.3	3.4	-14.6	2.8	-9.2	2.3
Age > 65	314.0	16.5	-42.2	5.8	152.0	3.9	83.0	2.4	42.6	2.0	26.4	1.8
Low income	487.2	14.8	21.4	5.7	180.2	4.2	92.8	2.8	51.7	2.3	35.7	1.4
High income	-807.6	23.8	-68.1	6.8	-269.7	8.5	-111.3	5.3	-92.1	5.1	-66.4	4.4
High education	-475.2	29.3	-15.5	7.7	-183.6	9.5	-65.9	5.7	-77.8	5.4	-39.9	4.5
Low education	219.6	13.3	5.9	4.1	83.3	4.2	34.6	2.7	32.6	1.9	16.1	1.8
Rural	-302.7	25.1	-100.5	9.1	-65.3	7.9	-79.3	5.2	5.8	3.7	8.2	3.0
Urban	92.7	13.7	33.5	3.3	17.9	4.5	23.6	2.5	-3.2	2.4	-2.4	1.9
Workless	442.7	21.9	37.5	7.6	158.5	6.4	93.7	3.8	41.0	3.5	23.8	2.6
Employed	-62.7	12.7	-5.3	3.6	-22.5	4.1	-13.3	2.5	-5.8	2.2	-3.4	1.8
Female	51.1	13.9	-26.7	4.5	46.8	4.7	32.3	2.8	14.2	2.3	0.3	2.1
Male	-32.1	15.9	16.8	4.2	-29.4	5.0	-20.3	3.1	-9.0	2.7	-0.2	2.1
'White'	-32.5	12.4	-7.1	3.5	-2.3	4.0	-5.2	2.4	3.7	2.0	-0.7	1.6
Ethnic minority	382.3	38.5	83.9	11.4	27.8	13.7	62.9	8.4	-43.5	7.9	8.4	5.2
Poor rural	113.7	46.6	-110.3	22.7	79.5	14.3	-12.7	9.7	53.4	7.0	38.8	6.8
motorists												
Rich rural	-1172.4	52.3	-194.4	18.4	-347.3	17.0	-220.5	11.2	-75.6	8.9	-51.2	8.3
motorists												

Note: Figures in bold are significantly different to the comparator group (always the first line within each group).

households (defined as households with at least one person of working age but without any person in employment) receive significantly higher net rebates than households in which at least one person of working age is in employment. Female-headed households receive significantly higher net rebates than male-headed households for schemes that apply to total and transport emissions, but lower rebates for schemes that apply to home energy emissions. Whilst households with ‘non-white’ reference persons receive significantly higher rebates than other households in most cases, they lose out from schemes that only apply to flights. It is possible that this reflects a need to visit relatives overseas. Finally, whilst poor rural households with vehicles lose on average from T&R schemes that apply to motor fuels and home energy, they lose significantly less than rich rural households with vehicles and they gain from all other schemes.

Even though some groups are estimated to gain on average from T&R schemes as demonstrated above, a certain proportion of households with these characteristics will still lose financially from these schemes as they emit more than the rebate that they are allocated. Table 2.5 provides an overview of the estimated proportion of households in each group ‘losing’ from an adult-only T&R scheme across the different emission domains. This confirms that, on average, considerably lower proportions of low-income, older, childless, female-headed, low-educated, urban and workless households ‘lose’ from these schemes than their counterparts. However, the proportion of households ‘losing’ from these schemes can still be considerable, for example, amongst low-income households, 21.1 per cent are estimated to ‘lose’ from a scheme on total emissions, 42.5 per cent in relation to a home energy emissions scheme and 18.7 per cent within a scheme targeting motor fuels. Furthermore, there are some exceptions to the general pattern that higher proportions of well-situated households ‘lose’ from T&R schemes, particularly for schemes on home energy emissions, for which higher proportions (around half) of households with older reference persons, female-headed households and low-educated households ‘lose’ than their counterparts.

Clearly, many of these household characteristics are related, such as high income and high education or rural location and car ownership. Which characteristics still make a significant difference to households’ estimated net rebates from a T&R scheme after income and other factors are held constant can be examined using multivariate regression analysis. In the remainder of this chapter we present results from OLS regression of net rebates from a £100 per tonne T&R adult-only scheme on total, home energy and transport emissions.⁹ Results are shown in Table 2.6.

The first three columns show models that only include income and household size as independent variables; columns 4 to 8 present models

Table 2.5 Percentage of households 'losing' from an adult-only tax and rebate scheme

	Total	Energy	Trans- port	Motor fuel	Flights	Public transport	n
<i>Average</i>	<i>41.87</i>	<i>44.71</i>	<i>37.34</i>	<i>38.81</i>	<i>26.06</i>	<i>24.45</i>	<i>24 446</i>
Low income	21.1	42.5	15.2	18.7	10.3	15.5	6 112
High income	70.7	50.2	64.7	57.3	44.0	39.6	6 112
Children in hh	54.4	49.2	44.4	48.7	26.5	28.5	7 151
No children hh	36.7	42.9	34.4	34.7	23.6	25.1	17 295
Age ≤35	43.6	34.4	41.8	40.2	27.9	30.4	4 836
Age 36 to 64	48.9	46.1	44.8	46.9	28.5	28.4	13 294
Age ≥65	25.8	49.7	18.2	20.8	13.4	17.7	6 316
Education ≥16	58.9	44.4	57.0	51.3	40.8	35.5	5 743
Education <11	33.3	44.7	28.1	31.9	16.6	21.8	9 405
Rural area	50.1	51.2	44.8	51.5	23.4	23.3	4 713
Urban area	39.2	42.6	35.3	35.0	25.0	26.9	17 374
Workless hh	24.1	40.3	18.7	20.7	12.6	19.4	3 035
In employment	44.4	45.3	40.0	41.4	26.1	27.0	21 411
Female head	40.5	50.4	31.5	32.4	20.8	25.7	9 434
Male head	42.7	41.1	41.0	42.8	26.7	26.3	15 011
Not white	34.4	36.7	36.1	29.4	35.2	28.0	1 908
White	42.5	45.4	37.4	39.6	23.5	25.9	22 530
Poor rural motorists	36.6	50.8	29.2	42.7	10.7	13.6	637
Rich rural motorists	76.6	58.0	71.6	70.6	41.6	34.6	1 422

Note: Low-income households have equalized household income equal or below the 25th percentile, high-income households are situated at or above the 75th percentile of the equalized income distribution.

that include a range of other household characteristics. All models exclude missings to make the results comparable, apply sampling weights and use robust standard errors to address heteroscedasticity. Error terms were not perfectly normally distributed but results were robust to the exclusion of regression error outliers without significant changes in coefficients. The models presented here include regression outliers.

The results confirm that an increase in income (here represented as annual disposable income divided by 10 000) is associated with losses from a T&R scheme. A comparison of results after standardizing the values of the dependent variables confirmed that effect sizes are greatest for schemes on total emissions and lowest for home energy (results not shown). Results in Table 2.6 also show that each additional adult in the household is associ-

Table 2.6 (continued)

Variables	(1) Total	(2) Home energy	(3) Transport	(4) Total	(5) Home energy	(6) Transport	(7) Total	(8) Home energy
Education 12-15				-0.12*** (0.01)	-0.02*** (0.00)	-0.02*** (0.01)	-0.10*** (0.01)	-0.02*** (0.00)
Edu. missing				0.05*** (0.02)	0.01 (0.01)	0.02*** (0.01)	0.05*** (0.02)	0.01 (0.01)
Workless				0.06*** (0.02)	0.01* (0.01)	0.03*** (0.01)	0.04** (0.02)	0.01 (0.01)
Ethnic minority				0.14*** (0.02)	-0.00 (0.01)	-0.02* (0.01)	0.12*** (0.02)	-0.02* (0.01)
Rural				-0.11*** (0.01)	-0.04*** (0.01)	-0.03*** (0.01)	-0.06*** (0.01)	-0.01 (0.00)
Rural missing				-0.30*** (0.02)	-0.15*** (0.01)	-0.02* (0.01)	-0.10*** (0.03)	-0.03** (0.02)
Bedrooms				-0.18*** (0.01)	-0.08*** (0.00)	-0.02*** (0.00)	-0.13*** (0.01)	-0.05*** (0.00)
No vehicle				0.39*** (0.01)	0.05*** (0.00)	0.15*** (0.00)	0.32*** (0.01)	0.02*** (0.00)
Own outright							-0.14*** (0.02)	-0.05*** (0.01)
Mortgage							-0.18*** (0.02)	-0.05*** (0.01)
Missing own							-0.10*** (0.04)	-0.07*** (0.02)
Detached							-0.17*** (0.02)	-0.10*** (0.01)
Semid							0.00 (0.02)	-0.04*** (0.01)

ated with further gains from an adult-only T&R scheme due to economies of scale. Children tend to be associated with 'losses' from these schemes. If children receive half an allowance each, each additional child is associated with gains after controlling for other factors (regression results for these models not shown).¹⁰

Interestingly, high education level (households in which at least one member attended full-time education for 16 or more years) remains associated with significant losses, compared to households in which none of the members attended post-compulsory full-time education. This holds for T&R schemes across all emission domains after controlling for income and other factors.

Female-headed households lose significantly more from schemes on total and home energy emissions than male-headed households. Workless households tend to 'win' from schemes on total and transport emissions compared to households in employment, but do not significantly differ from their counterparts in relation to home energy schemes.

Rural households lose from all types of T&R schemes, suggesting that they use more energy for heating their homes and for travelling than urban households, after controlling for income, education, housing and vehicle ownership. However, rural location is no longer significant in the full model that also controls for dwelling and heating type as well as home ownership (columns 7 and 8 in Table 2.6). This suggests that higher home energy emissions of rural households are largely accounted for by a higher proportion of detached houses and oil central heating in rural areas. As one would expect, additional numbers of bedrooms and owning a car reduce net rebates from T&R schemes on all types of emissions because they relate to higher emissions from home energy and transport, controlling for other factors. The 'full' model of rebates on total and home energy emissions also indicates that owning an accommodation outright or through a mortgage reduces the net rebate compared to households who are renting, holding all other factors constant.

CONCLUSION AND DISCUSSION

Comparing estimated distributions of burdens from carbon taxes and net rebates from T&R schemes across emission domains in the UK provides several insights. According to income ratios, transport emissions were most unequally distributed in the sample, followed by indirect, total and home energy emissions. We also found that carbon taxes on transport are less regressive than taxes on total or home energy emissions, confirming findings from other studies (e.g. Barker and Köhler 1998; Klinge Jacobsen

et al. 2003). Taxes on flight emissions were slightly progressive based on the Suits index and near neutral using changes in income ratios, whilst taxes on motor fuels were regressive. This contrasts to findings by Barker and Köhler (1998: 398) and Dresner and Ekins (2004) who found taxes on motor fuels to be neutral or progressive in the UK. This may well be because car ownership amongst low-income households was still much lower in the mid- to late 1990s. In 1995, NTS data record just under 40 per cent of sampled households in the lowest income quintile as owning cars, but by 2008 this had risen to 60 per cent (Stokes and Lucas 2011).

Our results also confirm that T&R schemes, generally speaking, have progressive distributional effects, based on a comparison of income inequality before and after applying the T&R schemes. However, this was less clear for the home energy scheme which was surprising given that per capita schemes have been advocated for reversing regressive effects of home energy taxes (Defra 2008; Parry and Williams 2010). T&R schemes on total and transport emissions also appeared to be slightly more progressive if allowances for children were included.

Furthermore, employing multivariate analysis suggests that household characteristics other than income and household size have important, independent associations with distributional outcomes and may thus need to be considered in the design of mitigation or other complementary policies as they may indicate greater emissions ‘needs’ or responsibilities for emissions; these characteristics include rural location, type of heating and dwelling, age, worklessness, gender and education. This adds weight to the point so far most forcefully raised by Starkey (2008, 2012) that equal per capita allowances or rebates may not be fair as they do not take these responsibilities and/or ‘needs’ into account. Whilst (especially upstream) per capita schemes are perhaps least costly from an administrative point of view, they may need to be complemented by additional schemes that offer compensation to people who have higher emissions due to circumstances beyond their own choice.

Due to several limitations, results presented in this chapter need to be treated with caution:

- Distributional implications across emission domains are compared by applying the same tax rate in each area. If the degree of regressiveness or progressiveness is compared across emission domains, results might differ if different tax rates are applied to different areas.
- We only applied a very simple method of simulating distributional outcomes by focusing on the change in household income after the tax or T&R scheme is applied. More detailed simulation exercises

would also introduce the complexities of the existing tax and benefit system, and could examine how changes based on mitigation policies interact with other changes in the tax and benefit system.

- In relation to T&R schemes we referred to financial ‘gains’ and ‘losses’ from these schemes. However, a declining upstream cap on emissions would have to be set if emission reduction targets are to be met, or equivalently an increasing level of CO₂ taxation over time. ‘Gains’ from these schemes, in these circumstances, need not translate into overall higher consumption or increases in material living standards. This is because the economy would be shrinking overall to the extent that alternative energy sources and efficiency gains are not fully substituting for fossil energy. Monetary income from the scheme might not be falling, but money is, ultimately, only a claim on goods and services produced. The limitation of our analysis here is intrinsic to static microsimulation, which allows a detailed analysis of instantaneous effects at the cost of assuming unchanged behaviour.
- Due to the infrequency of purchase problem outlined above, some measures of distribution or inequality are likely to be inflated, particularly for transport-related emissions, as set out in the text.

NOTES

1. Findings presented in this chapter are based on the research project ‘Who Emits Most? An Analysis of UK Households’ CO₂ Emissions and Their Association with Socio-Economic Factors’ which was funded by the Economic and Social Research Council (ESRC) (RES-000-22-4083). Many thanks to Frederico De Luca for assistance in preparing the dataset for this project.
2. The distinction between needs and wants or tastes is notoriously fuzzy and its clarification is outside of the scope of this chapter. See Starkey (2008) and Druckman and Jackson (2010) for a discussion on emissions needs.
3. The issues at stake include whether the atmospheric sink can be considered the property of national governments; whether governments can be trusted to reallocate revenues for a defined purpose rather than absorb them into general revenue; effects on public acceptance; and potentially lower costs of a scheme that would work through the existing structures of the nation-state.
4. The distributional effects of lump-sum rebate schemes also depend on the level of the cap. PCT, cap-and-share or cap-and-dividend schemes will be progressive as long as low-income households generally consume less than their initial allocation of emissions and energy. If a scheme applies internationally with the same per capita allocation across the whole scheme, its distributional effects are likely to be regressive in highly developed countries. For example, a global scheme which allocated a budget of 4 tonnes of CO₂ per year to each citizen in 2006, slightly below the then world average of 4.39 tonnes CO₂ per person, would have regressive effects in most industrialized countries as their average per capita emissions are much higher (in the UK, annual per capita emissions were 9.37 tonnes of CO₂, in the US, 19 tonnes of CO₂ in 2006, according to

- the World Bank Development Indicators). However, those schemes would be extremely progressive in less-developed countries. See Wakeford (2008) and Sharan (2008) on the impact of a cap-and-share scheme on South Africa and India, respectively.
5. See <http://www.sutherlandtables.co.uk/>, accessed 24 April 2013.
 6. The remaining six categories are estimated as described above.
 7. The interview question asks for the number of flights taken in the previous year. The infrequency of purchase problem therefore applies to the extent that there are households who fly, but less than once per year. We assume that this is a small percentage of households, but do not have data on this figure.
 8. The language of ‘gaining’ and ‘losing’ is problematic in this context because a nominal rebate surplus may not necessarily translate into ‘real’ increased consumption in an economy that is constrained by increasing emission caps; see the limitations discussed in the Conclusion to this chapter.
 9. The net rebate variables are divided by 1000 to ease interpretation. The 1st and 99th percentiles of the net rebate and income distribution are excluded from the regression analysis to minimize the influence of outliers.
 10. All other patterns described above remain very similar in the model which allocates half an allowance to every child, apart from ethnic minority households’ rebates on transport emissions which are no longer significantly different to ‘white’ households. This is probably related to the significantly higher number of children in ethnic minority households: 1.0 child on average (se 0.03) compared to 0.5 (se 0.01) for ‘white’ households.

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3. An ecosocial understanding of poverty

Tony Fitzpatrick

Whenever called upon to define ‘social policy’ I experience a silent panic. There are those things that governments do which – related to the design, implementation and administration of welfare services – are related to but distinct from ‘economic policy’ and ‘public policy’. Defining social policy in terms of the welfare state can seem unduly restrictive, until people are reminded that government expenditure in this area accounts for over two-thirds of total public spending and almost one-third of the United Kingdom’s gross domestic product (GDP). Indeed, the general public are now much more aware of the cost of social expenditure than was the case before austerity and before the 1997–2010 Labour government was blamed for somehow crashing the global economy and creating the worst financial crisis in 80 years – presumably by spending too much on nurses’ pay and the like.

Unfortunately, then, that awareness is all too often narrated through an economic liberal framing about the unaffordability of ‘welfare’. Public debates about the ethics of social policy follow a similar pattern. Much of the UK media has adopted the US practice of referring to social security as ‘welfare’, such that to be claiming benefits – to be ‘on welfare’ – is now an automatic cause for suspicion. Lurid stories about a minority of ‘shameless families’ lazing around at taxpayers’ expense are made to seem representative of the whole, fuelling a sense of perpetual resentment at benefit dependency that no amount of accurate statistics and contextualized explanations can dislodge. Post-2008 austerity has also sparked public anger at sections of the ‘undeserving rich’, but this often manifests itself as reactionary fatalism;¹ much easier to demonize those who lack the political voice to fight back. The erosion of universalist and social insurance principles within the British system continues to foster the attitudes that many feared, in which a system for the poor becomes a poor system. A proper debate about the ethics of social policy demands an appreciation of history and philosophy that most of the media (old and new) are unwilling or unable to present.

Meanwhile, there are aspects of the subject which reach beyond the welfare state per se. In addition to history and philosophy there are many subjects which connect to social policy: criminology, media studies, social work, economics, law, sociology, politics, to name just a few. Where should we draw the line? Should we only borrow from other disciplines insofar

as they relate directly to the welfare state? Or does social policy need to redraw its own intellectual boundaries? And can we always distinguish rigorously between these two options?

Such questions are especially pertinent when we consider what is perhaps the greatest challenge we now face: climate change. Climate change poses obvious tests for the welfare state. How should we reorganize welfare services to cope not only with global warming but with the uncertainties that climate change brings? Yet if climate change is likely to impel drastic social changes then we may also have to rethink the very parameters of social policy. How drastic depends on how long we delay taking the kind of substantive actions that are needed. (Ironically, those who delay action out of a desire to defend existing practices, often by clinging to technological fixes like the ‘dash for gas’, are making it less likely that current political and economic models will endure. Unfortunately, they also make it more likely that successors will be driven by ad hoc crisis management rather than principled strategies.)

These clashes – between narrow and expansive definitions of social policy, and between existing models and new challenges – are highlighted when we consider the relationship between climate change and an issue which has been central to social policy for centuries: poverty. What are the implications of the former for the latter and of the latter for the former? In my book *Climate Change and Poverty* (Fitzpatrick forthcoming) I have debated this and other questions at length in relation to developed countries, especially the UK. What follows is an attempt to summarize and present the main elements of what I call an ecosocial conceptualization of poverty. In zipping through a 100 000 word treatise you must forgive me for losing much of the details and being more declarative than I (sometimes) prefer; the upside is that the following offers a punchier account of the essentials. You should still read and, more importantly, pay for the book itself of course.

In the first section I contrast the two principal approaches to conceptualizing poverty: capabilities and resources. Defending what is mainly a resources-based approach, the next section then looks at how ‘socio-natural resources’ may be said to extend through space and time. The most pertinent aspects of an ‘ecosocial’ model are then outlined and, in the final sections, that model is applied to a range of data culled from several interlocking debates: housing and urban densities, transport, air pollution. The concluding section rounds off the discussion.

CAPABILITIES VERSUS RESOURCES?

It has become common for poverty research to either make use of, or at least refer warmly to, the capabilities approach (Sen 2009; Nussbaum

2011). This is because almost everyone agrees that ‘resources aren’t everything’. If you distributed a free car to every household in the street that resource might be less valuable to the disabled person who cannot drive it and who, because of their health needs, has less money to run it anyway. What really matters are the capabilities which allow people to transform resources into sources of well-being. The capabilities approach can yield a precise research methodology if you wish – it has influenced the United Nations Development Programme since the 1990s – or can simply constitute a point of reference for a more diffuse set of concerns about rights, freedoms, opportunities, social inclusion, respect and dignity. Nor does it mean abandoning the focus on relative poverty and deprivation. Capabilities are not fixed. The scope and depth of what I am or am not capable of doing and being is in part dependent on the capabilities of others. Since social agents both enable and constrain one another we have a particular responsibility to enhance the capabilities of the least advantaged, including (but not necessarily limited to) the poorest. Who can deny, then, that debates about distributive justice should incorporate a concern with capabilities?

There are, though, at least two considerations which might make us pause before we treat the capabilities approach as the basis for a new consensus about poverty (for other critiques see Feldman and Gellert 2006; Fitzpatrick 2008; Dean 2009; Pogge 2010). Firstly, it has failed to ground itself in a universalist frame of reference which is both sufficiently robust and flexible. *Climate Change and Poverty* explains why, but I leave this to one side here. Secondly, it unjustifiably downgrades the importance of income and wealth, material resources, economic power and the distributive paradigm, both to the capabilities approach itself and to any understanding of contemporary capitalism. For instance, Martha Nussbaum (2006: 50–51) rejects much of the theories of justice advanced by John Rawls for being too materialistic in its assumptions and too impersonal in its theoretical methods: ‘Sen and I both argue that Rawls’s theory would be better able to give an account of the relevant social equalities and inequalities if the list of primary goods were formulated as a list of capabilities rather than as a list of things.’

The problem with this characterization is that it risks reifying goods such as income and wealth, making them appear less social than they really are. Income and wealth are ‘things’ in one, superficial sense: notes, coins, houses, cars; but ultimately they are social relations, that is, symbols of, and weapons deployed within, structured systems of social class and political-economic power that shape not only our external endowments (‘things’ and possessions, plus opportunities and liberties) but also our internal sense of worth in relation to others. Rather than the capabilities

approach per se, a more robust approach might be less dismissive of resources in what firmly remains a distributive paradigm.

That paradigm, though, must make room for the natural environment. Brenda Holland (2008: 320) argues that the environment is a 'meta-capability' because without it the material properties (e.g. shelter, nourishment) which make capabilities possible would not exist. The environment is the capability which makes other capabilities possible: 'Being able to have good health and nourishment requires that ecological systems function at a level that can sustain the provision of soil, water, and atmospheric temperature that enable agricultural production and the absorption of human produced waste (pollution)' (Holland 2008: 323).

Similar considerations surely apply to issues of distributive justice: the environment is that which makes social distributions possible, and if those distributions do not observe some social and environmental baseline of 'just sustainability' then they undermine their own ecological conditions. Thus, insofar as 'poverty' implies a 'poverty of capabilities', we ought to focus upon fundamental 'socio-natural conditions'. An ecosocial understanding of poverty therefore defines poverty as the deprivations resulting from an inadequate distribution of, and participative access to, those resources which are key to both natural and social environments. Poverty is a deprivation of socio-natural resources.

Socio-natural resources are those which are key to the interdependencies of natural and social environments. This can have many implications. For instance, it means taking natural assets more seriously than much of the literature dealing with assets has yet done. Those who acknowledge the importance of natural assets – often under the rubric of 'natural capital' – tend to do so in highly economic and instrumental terms. Those aspects of nature which evade a monetary calculation, which have intrinsic value, in other words, are given lip service by governments eager to avoid Oscar Wilde's condemnation of those who know the price of everything and the value of nothing. Yet to date there is little evidence of this altering a business-as-usual, markets-know-best approach.

The alternative is not to withdraw from the natural environment, even if this were possible, nor to bid farewell to cities and mass societies in a log-cabin, Henry David Thoreau kind of way. We ought to abandon the notion that humans have 'dominion' over the world, certainly. But the power we now possess to affect the rest of nature means we possess a 'domainship' which that power demands we exercise responsibly through our social institutions and practices. Instead, we might embrace a paradoxical combination of commodification and decommodification. Nature is commodified insofar as we must devise ways of generating and organizing social wealth that protect the natural sources of that wealth. It is decommodified

insofar as we must acknowledge the limits of our ability to monetize a nature whose elements belong to one another organically. To alter one part is potentially to alter everything else. We may indeed intervene, but only with an overarching, respectful attendance to the interdependent web into which we ourselves are organically woven. To express the paradox simply, we both must and must not put a price on life.

This is the ethos of the rewilding movement, as it seems to me (Monbiot 2013). Ecosystem restoration makes economic sense because nature really is the ocean upon which our economies have floated for centuries, while rendering that ocean invisible (Juniper 2013). (No wonder markets seem so magical to so many. They imagine that markets lift themselves into and float through the air without aid or consequences – or at least none we need worry about. No wonder market fundamentalists have faith in such divine properties.) But restoration is value in that sublime, aesthetic sense with which we are all familiar but would struggle to define. This ‘paradox’ will not be welcomed by everyone. Yet we ought to avoid the trap of defining intrinsic value negatively, that is, something has intrinsic value because of what it is not. Instead, we can embrace a simultaneity or complementarity in which value is both instrumental and intrinsic, both monetary and non-monetary.

One implication is that we ought to seek the socialization of natural resources but also the ‘re-naturing’ of our economic and social institutions and practices. Socionatural resources can therefore be defined as those natural resources which exist squarely at the interface of the natural and social world. They are: (1) the material which humans obtain from the natural world and which, through transformation, becomes (2) the means of creating value, and eventually (3) the waste which the natural world will eventually reabsorb and reassemble into new forms of matter. Socionatural resources describe the space through which we either sustain, or fail to sustain, the lives of humans and non-humans. Under this heading we can include land, energy, water, food and the atmosphere.

Adding this to our earlier thoughts (where poverty is a deprivation of key resources) yields the notion of poverty as an alienation of and exclusion from social wealth which, in turn, implies an alienation of and exclusion from socionatural resources. *Climate Change and Poverty* thereby offers the following as the basic principles of an ecosocial model:

- minimum entitlements to socionatural resources and/or their commensurate value;
- property rights, as mediated by the needs and interests of relevant communities;

- institutions and networks permitting political voice and democratic representation;
- obligations to value, that is, recognize, care about and preserve, the worth of nature in conjunction with other living beings (human and non-human).

SPACES AND TIMES

This definition of socionatural resources is just the start. Since resources extend through space and endure through time we can expand our definition by considering these distinct but complementary literatures.

Socionatural resources border, occupy, affect and are affected by space. But what do we mean by space? In social policy terms, space has traditionally been treated in territorial terms as physical distances across which goods are distributed, services are delivered and power is exercised, for example in the tug of war between central and local governments. But with the advent of globalization and digitalization space has warped (expanded and contracted) in ways that are often dizzying. Domestic workers have been brought into competition with workforces around the globe that are well trained, highly educated and – frequently – cheaper to employ. With the demise of egalitarian principles UK society has polarized into disconnected spaces between the ‘have-nots’, the ‘haves’ and what President George W. Bush once charmingly called the ‘have mores’.

Armed with a more sociological frame of reference, some researchers therefore distinguish between two forms of poverty. ‘People poverty’ implies forms of concentration (where households are more likely to cluster together with other households at similar levels of wealth), segregation (in which clusters are socially and spatially divided from each other) and polarization (in which segregations intensify and become entrenched over time). ‘Place poverty’ captures the extent to which locations take on distinct characteristics in terms of transport links, leisure facilities, housing, medical services, schools, shops and basic design. These characteristics then affect the opportunities of those living there, with those on low incomes being disadvantaged because of where they live. The interaction of these two modes suggests that space is not merely something which contains resources, but is itself a resource such that those who are disempowered by social structures are ‘spatially deprived’ in two senses: deprived within space and deprived by space. Spaces are therefore intimately social and interrelational. The value of one place is dependent upon the symbolic and economic values accorded to other places. The polarization of UK space has been frequently characterized by a fight to devalue and discount

other spaces seen as alien and threatening. This is a fight which, not surprisingly, disadvantaged communities tend to lose.

Such ideas connect to some key contributions within the field of environmental sociology. John Urry (2011), for example, argues that capitalism alienates us from natural environments and social processes, setting them adrift in a world which lacks solidity and stability. Nature comes to be mastered by the interdependent systems of movement which occur 'over, under and across it'. High-carbon systems came to dominate capitalist practices due to the hegemony of the USA: electric power generation, cars and oil-based infrastructures, suburban housing, commuting and consumption, networked and mobile technologies. Urry's (2011: Ch. 9) preferred solution is a 'resource capitalism' in which space is reinvented as natural and localized space. He anticipates that a post-economic liberal era would have to address social inequalities by allowing the greater communalization of life, work and leisure based upon denser neighbourhoods (see below). Resource capitalism would be low-carbon and smart-tech.

Drawing from such ideas, I denote ecosocial poverty as: being less able to command the socionatural resources we need to survive and flourish; lacking the economic and democratic mobility to cope with new uncertainties and volatilities and to make a full contribution to social and natural sustainability. Deprivation therefore implies distributive disadvantages and a reduced ability to control the places one occupies. And if nature, society and space are symbiotic then to lack sufficient socionatural resources means being ecosocial-spatially deprived. This has six dimensions:

1. Not possessing enough space. The poorer you are the less living space you will typically possess. Quantitative space matters because, to possess autonomy, individuals and families need personal spaces, areas of peace and privacy.
2. Not having sufficient mobility across space. Transportation and housing costs effectively lock those on low incomes out of and away from the most important places.
3. Not inhabiting valued spaces. Some spaces are, economically and symbolically, more valuable than others. Affluent households will typically be closer to the best schools, facilities, transport links and parks, and have greater access to the countryside. Devalued space equates to devalued people.
4. Not being able to control spaces. Spatial deprivation involves multiple disempowerments in which space inhibits and restrains. To lack space in terms of quantity, mobility and value is already to lack the political voice needed to make a difference, to succumb to the feeling that things cannot change.

5. Not adequately recognizing that space is always shared. The inequalities creating such disempowerments also create various social and natural disconnections in which people neglect the ecological foundations of their social spaces and their effects upon it.
6. Not caring for shared space. And if space is not perceived as shared, then why bother caring for it? If a space lacks value, familiarity and obvious relevance to me then I may not recognize myself as belonging to it.

These dimensions relate to the principles outlined earlier in ways that will be sketched shortly.

In addition to space, socionatural resources extend through time. As with space, here too social policies have often thought of time in a straightforward, linear sense. Through social insurance systems and tax-funded universal services, the welfare state managed to socialize time: smoothing out the lifecourse so that individuals and families insured themselves by insuring others against predictable risks and hazards. But social policies have made less of a difference in reducing certain 'temporal inequalities' (such as the inequalities in longevity, morbidity and general quality of life that derive from socio-economic background) and can sometimes make things worse (for example by failing to recognize care work, or by raising the retirement age without sensitivity to class inequalities). All too often, 'time poverty' continues to characterize welfare states: 'You are time poor to the extent that you have little time left over after what you need (not after what you choose) to spend your time on' (Goodin et al. 2008: 84).

This is arguably because social policies have socialized capitalism but done so only partially, as there are limits to which the dominant capitalist actors will allow themselves to be socialized. Capitalism tends to 'freeze' time, making it appear immutable, beyond human control and so, quite simply, 'natural'. Yet time is both natural and social such that its rhythms are shaped as much through social constructions, practices and conventions as through natural biological determinants. Even when people manage to 'unfreeze' time, for example by reducing the working week, gaining rights to holidays, sick leave, maternity pay, and so on, capitalist time always tries to refreeze itself in an ethos which effectively says, 'any more concessions would be bad for business and so undermine the economy'. The welfare state therefore represents a partial – but only a partial – concession; a limited thawing and softening of social time. But some capitalisms are better than others. Goodin et al. (2008) show that rates of money poverty and time poverty are highest in nations organized around free markets, with all of the social inequalities and problems that free markets generate.

In addition, capitalist imperatives tend to discount the future and the

interests of non-humans. In ecological terms, this amounts to a 'short-term anthropocentrism', leading to a preponderance of negative externalities. An externality is that which is produced through an interaction but which is not factored into the interaction. I charge you for renting my barbecue set. I gain, you gain and our neighbour – who has to endure the fumes and smoke – is safely ignored. Some externalities can be positive, but often the 'third party' consequences are negative. Such negative externalities extend across space, time and species. Negative spatial externalities occur when the global warming produced by wealthier nations impacts most severely upon the global poor. Negative temporal externalities occur because present activities build up an ecological debt that magnify across time. And negative externalities are disproportionately visited on other species if even modest estimates of species extinction are correct. In addition to being low carbon, then, a green society needs to reconcile itself to the needs of the poorest, of future generations and of non-humans.

Climate Change and Poverty argues that all this adds up to an 'ecotemporal deprivation'. You can be deprived within time. Knowing they face decades of empty time, some young people from impoverished backgrounds are more compelled to seek solace in gangs, violence, drugs or other self-destructive behaviour than their wealthier peers. And you can be deprived by time. The hierarchies of contemporary capitalism are immobilizing, disconnecting individuals from one another. Ecotemporal deprivation thus means being controlled by time rather than being able to control it through possession of sufficient socioeconomic and socionatural resources. This also has six dimensions:

1. Not possessing enough time. As socionatural resources become more expensive and absorb a greater proportion of household income, how much time do people have to spend acquiring the money to afford them? How much time do we effectively give to energy companies, for instance? And what effects on the quantity and quality of time does this have for low-income households?
2. Not having sufficient mobility across time. With the erosion of the state pension, the evisceration of social insurance and the polarization of labour markets, time becomes desocialized and, for many, characterized by restriction and lack. You need to possess a good income if you are to plan for the future, protect yourself against contingencies and respond to opportunities.
3. Not inhabiting valued times. Eight hours at work is not the same as eight hours of enforced inactivity. Eight hours at a job you love is not the same as eight hours at a job you hate but must endure because at least it pays the bills.

4. Not being able to control time. Those who experience 'treadmill time' are those who cannot afford not to sell their time. The more someone is dependent upon selling their labour, the more they are dependent not only upon selling their physical industry and/or cognitive skill, but also upon trading in a large proportion of the only time they will ever have.
5. Not adequately recognizing the extent to which time is shared. A polarized society is characterized by distinct temporal strategies. Poorer neighbourhoods are the sites of lives lived repetitively; affluent neighbourhoods are signs of self-worth and transports into a secure future: promises that the mortgage will be paid off and your children will inherit your privileges.
6. Not caring for shared time. Time devoted to wage-dependency and consumerism is time that could have been spent on activities with greater social and natural value. Dislocated in time and space from nature, we become desensitized to the temporary but beautiful fragilities of our surroundings.

AN ECOSOCIAL MODEL OF POVERTY

There are, therefore, several principles against which the distributions, and participative control, of socionatural resources can be assessed:

- minimum entitlements;
- property rights;
- political voice and democratic representation;
- obligations to value and care for the worth of other living beings.

There are also various categories or indicators against which spatial and temporal deprivations can be catalogued:

1. Quantity. Not possessing enough space or time due to systemic, institutional inequalities which allow some to flourish at the expense of others.
2. Mobility. Not possessing sufficient mobility across space (geographical segregations) or time (lacking the power to plan for the future and insure against uncertainties and vulnerabilities).
3. Value. Inhabiting zones of space and time which devalue because they are widely devalued.
4. Control. Lacking the social and political voice needed to challenge and reverse the above disempowerments and disadvantages.

5. Sharing. Due to the dislocations and divisions which economic liberal capitalism has fostered, misjudging the extent to which: (a) social environments; (b) natural environments; and (c) social and natural environments taken together are interdependent.
6. Caring. Lacking the capacities and opportunities (but not necessarily the motivations) to preserve, sustain and enhance the value of shared social spaces and natural habitats.

Thus a preliminary definition of ecosocial poverty can be offered:

Forms of spacetime alienation and exclusion, that is, parallel immobilizations in zones which have been restricted, residualized and devalued.

Ecospatial and ecotemporal deprivations due to a relative lack of access to, and control of, key socionatural resources.

Injustices in the distribution of socio-economic and natural resources which inhibit our capacity to fulfil obligations to value and care for those affected by the exercise of such resources, that is, the present-day poor, future generations and non-humans.

As such, these principles and categories can be located against one another, as in Figure 3.1. The socionatural resources with which *Climate Change and Poverty* deals are energy, food, land, air and water. In the remainder of this chapter, in order to illustrate the application of an

SOCIAL AND NATURAL INTERDEPENDENCIES						
	Socionatural resources					
Principles	Deprivation categories	Energy	Food	Land	Air	Water
<i>Minimum entitlements</i>	<i>Quantity</i>					
	<i>Mobility</i>					
<i>Property rights</i>	<i>Value</i>					
	<i>Control</i>					
<i>Voice & democracy</i>	<i>Sharing</i>					
<i>Obligations to value</i>	<i>Caring</i>					

Figure 3.1 Interdependencies, resources and deprivation: grid 1

ecosocial conceptualization, I propose to select just three topics: housing and urban density, transport and air pollution.

HOUSING AND URBAN DENSITIES

Housing and Poverty

By 2013 the UK housing benefits bill stood at £23 billion,² with over 5 million claimants, making it a frequent source of moral panic. That panic masks the property boom from which millions of us have benefited. With the state pension withering it is understandable that so many sought to finance their retirement through housing. You climb the housing ladder – buying low, selling high – before retiring, releasing the equity, enjoying the proceeds and bequeathing some to the kids. With millions playing the same game, this propels house prices upwards. And the more people play the game, the more the game is worth playing. Except for those on low incomes and no ‘Bank of Mum and Dad’ to help. Before the 1980s, housing subsidies were directed at bricks and mortar (Webb 2012: 9). Since then, it is demand which has been subsidized to help tenants keep pace with soaring costs. Even with low take-up (up to 1 million people do not claim housing benefit), such entitlements lead to the benefits bill that Conservatives condemn. Overall:

- 43 per cent of social renters are living in poverty after housing costs;
- 38 per cent in the private rented sector are living in poverty after housing costs.

Bramley (2012: 141–4) finds that, like poverty in general, there is quite a lot of churn when it comes to housing needs. Most housing problems tend to be temporary because people:

- trade down to cheaper housing;
- adapt their spending to their income and/or housing needs;
- accumulate debt or run down savings;
- accumulate arrears on mortgage payments or rent;
- apply for state assistance;
- dissolve their households and/or become reliant on family support.

Not surprisingly, problems are correlated with low income, few assets, high rents and lower security of tenure: ‘Private renting has the highest incidence of problems, and owner occupation the lowest, with social

renting occupying an intermediate position' (Bramley 2012: 144). Lone parents, single-person households and younger people are particularly disadvantaged.

In addition to benefits, other aspects of the post-war system remain. Good-quality, low-cost housing still exists within the social housing sector, accounting for 18 per cent of all households, having a fairly redistributive effect. Yet one effect of the 1980s sale of council housing was that it helped to disperse different housing types into polarized social spaces (Lee 1994). Britain is a more disconnected country than it once was, with housing reforms adding to the cumulative effects of low-wage employment, education reforms and class. The North–South divide is largely due to property prices, with low-skilled and public sector workers in the South increasingly disadvantaged (Strelitz and Darton 2003: 91–4).

Urban Sprawl and the Natural Environment

In addition to its social effects, housing has implications for the natural environment. There is disagreement about how much sprawl exists in the UK. Officially, about 9 per cent of England's land area is urbanized³ but the Campaign to Protect Rural England contests this: 'the UK National Ecosystem Assessment shows that 14.6% of England's land area is already classed as urban – the third highest figure in Europe after Belgium and Holland'.⁴ It depends on where you perceive sprawl as ending. A road takes up a fixed area, but the noise and pollution it generates spreads farther. The trend everywhere, though, is towards more sprawl. Since the 1950s, 'European cities have expanded on average by 78%, whereas the population has grown by only 33%' (European Environment Agency 2006: 11).

Even so, 14.6 per cent hardly seems like much. Due to restrictions on development, builders economize on plots: 'the average size of new homes has got smaller, so that the smallest new homes in western Europe now appear to be being built in England' (Evans and Unsworth 2012: 1166). If what counts as 'high' or 'low' density varies from place to place (Cheng 2010: 13–16), perhaps Britain is already dense enough. Why be concerned, therefore?

The consensus is that, beyond a certain threshold, lower-density housing is worse for the environment than higher-density housing (Bulkeley 2013: 64–5, 119–21). And incidentally, a neighbourhood with greater density and a wide variety of housing types is likely to have a greater quantity of affordable rental units than a low-density neighbourhood (Aurand 2010: 1032).

This preference for high density contradicts the 'garden cities' approach

of Ebenezer Howard (1985: 11): ‘Town and country *must be married*, and out of this joyous union will spring a new hope, a new life, a new civilization.’ But by and large most regard higher densities as desirable:

With low population density there are simply not enough people to make public transport a viable alternative to cars. We need to achieve a density of 50 homes per hectare as a minimum sustainable density to support a regular bus service . . . Existing areas of terraced housing and low- and medium-rise blocks of flats normally far exceed this density, reducing energy use in transport, encouraging local shopping and offering easier conditions for high-efficiency renovation. Higher density also helps social integration and reduces isolation by supporting mixed uses and better services. (Power 2008: 4489–90; also Power and Houghton 2007: 108–9)

In short, higher densities involve:

- lower consumption of fossil fuels as people travel across shorter distances, often on public transport;
- more efficient heating and cooling systems; shared walls and floors/ceilings, Urban Heat Islands (Kohn 2010: 37–41), combined heat and power systems become more viable, as do district cooling networks;
- fewer cars, plus more walking and cycling, often in shared public spaces that can facilitate social capital, communal integration and cultural diversity.

They can yield ecological, health and social benefits.

Higher density per se is not a magic bullet. The needs for privacy, for contact with nature and to control spatial boundaries must be part of any higher-density aspiration. Nor should higher densities compromise the need to allow the poorest more domestic space than many of them possess at present. Resentment, anxiety and social conflict can be the result of forcing people together. This more rounded appreciation of what urban reform could mean often motivates the drive for ‘transition towns’ in which all parts of a community work together to address climate change (Lockyer 2010: 208–14; Bulkeley 2013: 217–23). This means supporting local economies, for example local food chains, energy generation and local currencies, building self-sufficiency and resilience, and experimenting with new communal and civic projects.

If housing density lower than a sustainable minimal threshold is ecologically damaging, then what should our response be? There are too many aspects to this question to address here, but I can give some attention to a prominent issue: the role and significance of transport.

TRANSPORT

Poverty and Social Exclusion

Lucas and Currie (2012: 155; cf. Lucas 2011) define ‘transport-related social exclusion’ as affecting people:

on or below the poverty line, who do not usually have access to a car and many of whom will also be too old or too young to drive. Affected individuals therefore mainly rely on walking, public transport or lifts from others in order to participate in everyday economic and social activities.

For Hine (2008: 50), ‘transport poverty’ implies a deprivation in accessibility and mobility which reinforces, and is reinforced by, other key deprivations. Let us break transport poverty and social exclusion down into four headings: cost, mode, convenience and effects.

Firstly, according to the Campaign for Better Transport (2008: 1) from the late 1980s to the late 2000s, a period when the overall costs of motoring fell, UK public transport fares increased significantly to more than 20 per cent above the European average. Bus fares in England rose by 51 per cent between 1985 and 2009; in London, where fares have been regulated, the increase was slightly less severe (46 per cent).⁵ Average rail fare prices increased by 60 per cent from 2002–2012 alone. However, recent spending on transport shrank as a proportion of total household expenditure (from 14.5 per cent in 2001–2002 to 13.4 per cent in 2009–11), though the percentages for rail, bus and coach spending remained the same. One possible reason is that some people changed their behaviour, that is, travelled less as a response to rising fares.⁶

Low-income households:

- need to spend a higher proportion of their income on bus travel;
- struggle to access the best deals, for example, season tickets;
- experience added costs when paying for children’s travel.⁷

Since low-income households are those most burdened by transport costs, the behavioural changes made in response to rising fares may involve even less access than before to the activities central to social participation and personal well-being. Overall, then, the highest costs for accessing even the most basic public and private services are experienced by those least able to afford them (Clifton and Lucas 2004: 25–6).

Secondly, those on low incomes rely more on bus services. Compared to people in the highest income quintile, those in the lowest make 58 per cent

fewer trips as car drivers, 75 per cent fewer by rail, 50 per cent more trips on foot and 206 per cent more by bus or coach.⁸ Just over half of the poorest fifth do not own a car, compared to 26 per cent of the total population, rising to more than two-thirds of unemployed people.⁹ The working poor are also more likely to work non-traditional hours (shift work) when public transport services are less frequent (Office of Fair Trading 2010: 70).

Thirdly, Docherty et al. (2008: 85, 88–93) summarize the malign circle at work in a car-dependent society. As cars enable and encourage sprawl, public transport becomes harder to organize and so less popular; that is, unless a bus takes forever winding its way down every other road, many rural and urban fringe areas will be underserved. To compensate for this, more people buy cars, more roads and car parks are built, land use becomes characterized by even more sprawl, public transport appears even less popular and flexible, and so it goes on. Public transport (whether subject to public, private or not-for-profit ownership) then becomes a symbol of inflexibility, inefficiency, congestion and price-gouging.

Finally, there are several key effects of all this. The lower your income, the more likely you are to be killed or seriously injured on the roads (Clifton and Lucas 2004: 27). And for lower-income groups, transport costs present significant barriers.¹⁰ Lacking a car means that some jobs, salaries and promotion opportunities are outside your reach. Furthermore, those experiencing transport poverty are also more likely to suffer disproportionately from environmental degradation (Kennedy 2004: 157–61). For instance, as humans became dependent on fossil fuels and cars, so lifestyles become more sedentary, leading to less physical exercise, more obesity and rising levels of heart disease and Type 2 diabetes. Local areas are hollowed out, with deprived households effectively forced to travel elsewhere for services, particularly healthcare, shopping and leisure (Clifton and Lucas 2004: 15–19, 29–32; Power and Houghton 2007: 191–4). The amount of walking and cycling in the UK has declined significantly since the 1950s (Tight and Givoni 2010). The average time spent travelling on foot or bicycle decreased in England from 12.9 minutes per day in 1995–97 to 11 minutes in 2007.¹¹ Those on low incomes tend to walk more and walk further, but this fails to offset their greater overall risk of experiencing ill-health and reduced longevity.

Climate Change

According to the Department for Transport (2011: 2–4; also Department of Energy and Climate Change 2013: 16–17), in 2010 transport was responsible for 21 per cent of the UK's carbon emissions, cars and taxis alone being responsible for 12 per cent.¹² Within the domestic sector as a

whole, 'emissions from passenger cars . . . account for 58% of domestic transport emissions (i.e. excluding international aviation and shipping). Lorries and vans account for a further 31% of emissions, and public transport (including both rail and buses) for 4%' (Sloman et al. 2010: 606).

In order to reverse the direction in which we have been travelling, the Department for Transport's (2009) priorities include:

- a shift to cleaner technologies and fuels (ultra-low-emission vehicles, rail electrification, sustainable biofuels);
- promoting lower-carbon choices (public transport, integrating travel modes, better information);
- market mechanisms (trading systems, price incentives, affordable public transport).

However, unless transport reforms are attached to broader initiatives related to housing and land use, they are unlikely to be effective (Newman et al. 2009). The Campaign for Better Transport (2012: 7) underscores the points made above:

Since the 1980s, many cities have allowed large retail developments with swathes of free car parking to spring up on greenfield land far from the centre and poorly served by public transport. Large, low-density housing estates have added to this problem and helped to damage the prospects of city centre shops and businesses.

Ideally, then, new developments should be (Campaign for Better Transport 2012: 8):

- Located around existing centres and public transport hubs.
- Close to jobs, services and facilities that can be reached by foot, bike or local public transport.
- Designed so that walking and cycling are safer, faster and more convenient than driving.
- Built with lower levels of parking provision, which mainly serves to encourage car use and is a use of land that helps to reduce urban density.

Fortunately, such initiatives also assist efforts to reduce poverty and social exclusion. Families living in neighbourhoods with greater residential density, a greater diversity of land uses and transit services spend just 9 per cent of their income on transport, as compared with 19 per cent spent by the average family (Aurand 2010: 1034). Also note that there is thus more of a direct link between introducing carbon taxes in order to reduce

emissions, on the one hand, and progressive redistribution on the other (Hargreaves et al. 2013: 5; also Brand and Boardman 2008). Fuel duty escalators, congestion charging, parking charges, aviation taxes, and so on should reduce transport emissions and generate revenue that can help the least well-off but also those on higher incomes, for example by reducing congestion and travel time (Docherty et al. 2008: 97–9).

Any regressive effects of carbon taxes can be reduced through investments in public transport that enable low-income households to abandon their cars. The Campaign for Better Transport (2008: 2) estimated that a 20 per cent reduction in public transport fares would increase bus travel by 13 per cent and rail travel by 17 per cent, reducing carbon emissions in the process.

We can therefore see how transport-related poverty is both cause and consequence of urban sprawl, especially as public transport modes become devalued and underfunded. Therefore, in any attempt to address the connections between poverty and climate change we cannot afford to treat housing and transport separately since both relate to the socio-natural resource of land. All of which leads on to another resource: air.

AIR

Climate Change

Air pollution and climate change are distinct phenomena. Action to tackle pollutants can have more immediate results. They exist closer to the surface and do not last long in the atmosphere, compared to greenhouse gases (GHGs) which are more active in the upper atmosphere and endure for much longer.

Nevertheless, air pollution and climate change are both essentially created by the burning of fossil fuels, and neither is respectful of national borders (Jacobson 2012). In addition, air pollution makes climate change worse. Black carbon is thought to be responsible for approximately 15 per cent of the current excessive warming of global temperatures (European Commission 2010: 4). And global warming can exacerbate air pollution. Ground-level ozone peaks during the summer months, and if heat waves (like the one which hit Europe in 2003) become more frequent and severe, various parts of Europe, especially southern regions, can expect to experience more of it.

When it comes to the solutions here, too, we find similarities. If properly designed, measures to tackle climate change may assist measures to address air pollution, and vice versa. One of the world's leading authorities on the links between both has offered an assessment of the main energy alternatives in terms of their likely effects on water supply, land use, wild-

life, resource availability and undernutrition, among several other criteria (Jacobson 2009). Jacobson concludes that the following provide the most benefits:

- wind;
- concentrated solar power;
- geothermal;
- tidal;
- solar photovoltaics;
- wave.

Wind power is the clear winner. Hydropower, carbon capture and storage, and nuclear power are at the bottom of Jacobson's (2009: 170) list.

Through improvements in air quality alone, Defra (2010) anticipates savings of £24 billion per year (at current prices) by 2050, created by promoting ultra low-carbon vehicles, renewable (and non-combustible) sources of electricity, energy efficiency, and reducing the agricultural demand for nitrogen. London Councils' recommendations include:

- more walking and cycling;
- incentives and infrastructure for low-emission vehicles;
- traffic reduction programmes;
- greater energy efficiency schemes and technologies;
- rail electrification.

And the Greater London Authority (2010: 2) cites recent initiatives:

- development of an electric vehicle infrastructure;
- congestion charging and a Low Emission Zone;
- a shift to greener modes of transport;
- car clubs;
- reducing the contribution of particulate matter from road surface wear;
- traffic smoothing;
- a bus emissions programme.

Pollutants and Health

Measures such as these are necessary because the health implications of air pollution are wide-ranging. Air pollution is correlated with low birth weight, and babies born below 5lb 8oz are more likely to suffer from conditions like heart disease, strokes and chronic illnesses later in life (Collins

2013), including cognitive impairment (Gray 2011). Defra (2010) estimates the annual health costs of air pollution to the UK at roughly £15 billion. Air pollution is thought to reduce the life expectancy of every UK person by an average of 7–8 months (Defra 2007: 7) and cutting long-term exposure to particulates by half could increase life expectancy by an average of 1–11 months (Defra 2002). Air pollution may take two years off the lives of 200 000 people (Gray 2011). The House of Commons Environmental Audit Committee (2010) estimated that air pollution could contribute to 50 000 deaths in the UK every year; and 29 000 deaths per year may occur due to human-made particulate pollution (Moore 2012: 8).

What explains figures such as these? For those in poor health, pollutants can cause eye irritation, coughing and breathing difficulties (Defra 2002). Nitrogen dioxide, sulphur dioxide and carbon monoxide irritate airways and increase the symptoms of those suffering from lung diseases. Carbon monoxide can lead to a significant reduction in the supply of oxygen to the heart, particularly in people suffering from heart disease. Particulates cause inflammation of the lungs and the worsening of lung and heart diseases, with elderly people particularly susceptible. Nitrogen dioxide increases the symptoms and severity of asthma and can even trigger an attack. And ground-level ozone affects cardiovascular and respiratory systems.

Air Pollution and Poverty

It should not surprise you to learn that the health implications of air pollution are most severe for those on low incomes. In the UK, research did not really commence until the latter part of the 1990s. According to Friends of the Earth (2001: 1):

- 66 per cent of carcinogen emissions are in the most deprived 10 per cent of electoral wards;
- 82 per cent of carcinogen emissions are in the most deprived 20 per cent of wards;
- Only 8 per cent of carcinogen emissions are in the least deprived 50 per cent of wards.

The Environment Agency stated that people in the most deprived 10 per cent of areas in England experience the worst air quality, including concentrations of nitrogen dioxide from transport and industry 41 per cent higher than the average.¹³ Wheeler and Ben-Shlomo (2005) found that in urban areas the poorest households live in wards with the worst air quality, adversely affecting respiratory functions (especially for men), though not asthma, probably reflecting cumulative lifecourse disadvantages. They invoke an ‘inverse air law’: ‘people with the worst lung func-

tion tend to live in areas with the worst air quality, and the health effects of air pollution seem to be greatest among those (men) in lower social classes' (Wheeler and Ben-Shlomo 2005: 953). Thus, according to Brainard et al. (2002: 713–14): 'future policies to reduce inequities in exposure to these pollutants should place a particular emphasis on the mechanisms driving changes in land-use patterns, urbanisation, and the development of transportation corridors'.

In his recent review of the UK literature, Walker (2012: 111; cf. Deguen and Zmirou-Navier 2010: 33) echoes these findings, going on to say however that although the poorest communities generally experience the worst air quality, 'this is not always and everywhere the case, or necessarily a simple linear relationship'. For instance, while air quality improves as income improves, some data suggests that it worsens again for the most affluent income deciles, as noted above.

Walker accounts for this by observing that since most UK deprivation is found in urban areas and since transport and industrial emissions will concentrate in urban locations, taking longer to disperse than is the case in the countryside, those wealthy enough to escape from cities have also been escaping pollution. But insofar as air quality worsens again for the most affluent, this is because some of the richest communities can be found in cities (particularly London). Spatial, social and geographical contexts always matter, in other words. Walker observes that exposure to a hazard should not be confused with its impact. Many variables matter, including: daily and hourly variations in levels and spatial concentrations of pollution; bodily and mental health; lifestyle; household composition; neighbourhood environments; socio-economic circumstances. Air pollution, in short, implies different things for different people.

In general terms, then, those who create the most air pollution suffer the least harm from it. Deprived households are much less likely to own a car. However, because places differ, and because a minority but sizeable proportion of low-income households own cars too, we might hesitate to imagine that things are everywhere so straightforward:

in general across Britain the poor contribute a significant proportion of the pollution that they are exposed to (although we do appreciate that drivers who lack the income to move to a cleaner area may also be unable to purchase cleaner vehicles) . . . The exception, however, is for a minority of the poor who experience high pollution exposure but who contribute little in the way of emissions. (Mitchell and Dorling 2003: 926)

It can therefore be concluded that poverty and air pollution accompany one another, but establishing how, why, to what extent, and therefore which kind of intervention is best, is not always a clear-cut exercise.

CONCLUSION

I am now in a position to fill in some of the empty cells of Figure 3.1 (see Figure 3.2).

As such, I contend that the earlier assertion has now been substantiated: deprivations related to socionatural resources should be acknowledged as vital within any general account of poverty. Though I have not had time here to review all of the salient debates, *Climate Change and Poverty* concludes that ecosocial poverty:

1. Is caused by forms of economic organization and growth which are neither fully inclusive spatially (many people are excluded from their benefits) nor sustainable across time. Our market-dominated societies are driven by assumptions and practices that facilitate and require

SOCIAL-NATURAL INTERDEPENDENCIES				
		Socionatural resources		
Principles	Deprivation categories	<i>Land (Housing)</i>	<i>Land (Transport)</i>	<i>Air</i>
<i>Minimum entitlements</i>	<i>Quantity</i>	Market bubbles; residualization of social support.	Profits prioritized; emphasis on subsidies.	Hotspots; burdens of social and economic development devolved to least-well-off.
	<i>Mobility</i>	Rising costs locking people out of market; inability of social housing to compensate.	Rising costs in low-density context. Negative impact of accessibility of amenities.	Exposure to poor air quality; risk of ill-health with effects on wage-earning, etc.
	<i>Value</i>	Erasure of social determinants.	Deregulation and emphasis on individual choice rather than social needs.	'Inverse air law'; reduced quality of life.
<i>Property rights</i>	<i>Control</i>	Dominance of market values benefiting rent-seeking of owners.	Dominance of market values benefiting rent-seeking of owners.	Policies and practices insensitive to vulnerabilities of poor.
<i>Voice and democracy</i>	<i>Sharing</i>	Low, unsustainable urban densities and sprawl.	Lack of participative inclusion; social dislocation.	Marketization; neglect of resource scarcities; positional externalities.
<i>Obligations to value</i>	<i>Caring</i>	Low densities producing waste.	Neglect of social and ecological costs.	Neglect of atmospheric commons; effects of air pollutants worst on poorest.

Figure 3.2 Interdependencies, resources and deprivation: grid 2

excessive demands on the ecosystem and by political and cultural systems of disrespect and exclusion.

2. Is manifested as both a distributive and procedural form of injustice in the reduced capacity of disadvantaged individuals to cope with the rising costs of key socionatural resources, control their circumstances and so determine their futures as social agents in conjunction with, and with responsibilities for, other social agents and the natural world they inhabit, depend upon and affect. Excessive ecological demand is therefore linked to important social deprivations.
3. Is something that can only be addressed through new forms of economic organization and growth which are socially inclusive and egalitarian, deriving from renewable, low carbon sources of energy and dedicated to the restoration of natural environments that have been destroyed or eroded in the modern era.

This definition reflects the view that the ecologically excessive, careless and destructive use of key socionatural resources is connected to the social deprivations that characterize that usage for millions of those on low incomes.

The overuse of a resource, in conjunction with the profit-making practices of those – typically corporations – who control it, produces scarcities and price rises for which inadequate wages and forms of welfare assistance struggle to compensate; particularly in the UK, which has come to favour residual, targeted and underfunded forms of assistance. The resulting deprivations are so damaging to individuals' well-being that people are impelled towards a continuation of the very social practices and habits that generate overuse in the first place. Since life at the bottom of the social ladder is so miserable and disrespectful, people spend much of their lives trying to scramble up the ladder to avoid the bottom. Excessive ecological demand is therefore linked to important social deprivations.

In the ecosocial frame, poverty is thus caused by systemic distributive and procedural inequalities in resources. Those inequalities are driven by a desire for security and status in economies dominated by goods which, because their value derives from their exclusivity, can guarantee neither. The oppressive practices to which poor individuals are subjected are related to the oppressive practices to which the non-human world is subjected, because both derive ultimately from irrational practices designed to cope with the concentration of power and resources in the hands of the relatively few. This squandering of human and non-human life is endemic to our social and economic cultures. The culture of waste creates poverty – low-income individuals are most vulnerable to air pollutants, for instance – and is created by it, since fear of poverty encourages people to try to outdistance others in a scrambled race to join the ranks of the affluent few.

Those drives occlude what all lives share in common: the need to flourish, to care for and be responsible for those whose lives are affected by our own.

As such, poverty is both an injustice in itself and a series of deprivations and restrictions which form an obstacle to the realization of social and environmental justices. It implies a lack of sufficient opportunities to flourish in association with others, that is, to realize existing goals and capacities and develop new ones. The 'others' with whom we should associate, and upon which we are dependent, include fellow members of the natural environment, the multitude of ecological communities with whom we share limited planetary space. Poverty therefore represents forms of estrangement (exclusion and alienation) within our social environments, and a detachment from the natural conditions of those social environments. It is contrary to well-being where, among other things, well-being implies being well for and with nature.

Justice therefore requires us to regard the non-human world as an active source of social wealth which is deserving of voice and respect; to recognize the scope of the lives we should value and the extent to which those values are intrinsic. Property rights, for instance, need to be spread more evenly among humans, while also being redefined so that they extend to non-humans, recognizing and institutionalizing the share of non-human species to the natural environment. The right of humans to own property then becomes attached to the responsibility to use it, as custodians and caregivers, to benefit everyone within an expanded notion of what it means to belong to a moral community. Poverty reduces the opportunities and capacities of all humans to act as stewards and custodians; to care for and be responsible for those other lives which are vulnerable to the asymmetrical power we possess in relation to them.

If poverty impoverishes us all, then an ecosocial conception highlights the extent to which poverty damages a planet which we share with non-humans and with our descendants, and whose all-too-temporary custodians we are.

NOTES

1. 'Bankers and politicians? They're all in it for themselves. We should leave Europe, kick out the foreigners and force the poor to work.'
2. DWP, Benefit Expenditure Tables, www.dwp.gov.uk.
3. <http://www.bbc.co.uk/news/uk-politics-20510692>.
4. <http://www.cpre.org.uk/what-we-do/countryside/tranquil-places/in-depth/item/3159-the-industrialisation-of-the-countryside?highlight=YTozOntpOjA7czo1OiJlcmJhbiI7aToxO3M6Njoic3ByYXdsIjtpOjI7czozMjoidXJiYW4gc3ByYXdsIjt9>.
5. See 'The effect of bus fare increases on low income families' at the webpage of the Passenger Transport Executive Group, <http://www.pteg.net/>.

6. Joseph O'Leary, 'Is the rising cost of public transport leaving us out of pocket?', fullfact.org, 27 March 2013.
7. See 'The effect of bus fare increases on low income families' at the webpage of the Passenger Transport Executive Group, <http://www.pteg.net/>.
8. See 'The effect of bus fare increases on low income families' at the webpage of the Passenger Transport Executive Group, <http://www.pteg.net/>.
9. <http://www.poverty.ac.uk/report-social-exclusion-transport-necessities/lack-affordable-transport-hitting-low-income>.
10. See 'The effect of bus fare increases on low income families' at the webpage of the Passenger Transport Executive Group, <http://www.pteg.net/>
11. 'No time for physical activity? The answer's on your doorstep, says NICE', <http://www.nice.org.uk/>
12. See also <http://www.greenpeace.org.uk/climate/aviation>.
13. <http://www.environment-agency.gov.uk/research/library/position/41189.aspx>.

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PART II

INTERNATIONAL DEVELOPMENTS

4. The affordability of water and energy pricing: the case of Germany

Erik Gawel and Wolfgang Bretschneider

INTRODUCTION

Water and energy services are considered to be goods of general interest. At the same time they are first and foremost economic goods whose markets have been affected by both remarkable changes and new challenges over the last 10 to 15 years. Global processes like climate and demographic changes, globalization and economic development, as well as increasing resource scarcity, have significantly altered the economic and regulatory frameworks for such utilities. Social concerns about sufficient access to water and energy, particularly around issues of affordability, have intensified in the course of these processes. However, these concerns also have to take into account the market and policy implications of social interventions.

In relation to the provision of drinking water, the implementation of Article 9 of the EC Water Framework Directive is of particular relevance for current water pricing policies in the European Union (EU). This norm is mainly driven by the objective of water conservation ('good status') and it calls, in general, for full cost recovery and the polluter-pays principle. For water prices, this means a readjustment and a tendency towards an increase in (potable) water prices. However, to a large extent these adjustments have not yet been implemented – even in countries with a relatively high price level, like Germany (see Gawel 2012).

For the energy sector – which means electricity, heating and mobility¹ – the changes are more noticeable, especially with regard to prices of energy feedstock (see Bardt 2008: 3). In Germany, gas prices have doubled since 2000 and consumer electricity prices have increased by 50 per cent (see Billen 2008: 8). This is partly due to the increasing scarcity of fossil fuels at the global level. But for Germany, to a considerable extent, it is taxes and environmental apportionments that lead to higher prices for electricity, heating and mobility, particularly when compared to other European countries. These price components might be seen as Pigovian taxes for fossil fuels that charge for the utilization of the production factors 'climate' and 'environment'. Thus they form part of the strategy to mitigate climate change and the environmental impacts of energy use. Moreover, high

prices are a consequence of the German energy transition process and the forced utilization of renewable energy resources associated with it (see Gawel, Strunz and Lehmann 2013).

Such developments demand consideration of issues of justice and fairness within the allocation of water and energy, because prices exclude utilization interests. Abandonment of consumption due to higher prices may result from a deficit in willingness to pay; but it may also be due to a deficit in ability to pay. Since water and energy are goods related to basic needs, an inability to afford higher prices is of obvious concern. This is a major issue in both political and public debates. However, in the scientific literature, both the actual definition and the measurement of affordability are still largely unclear.

This chapter intends to sketch answers to two questions. First, what does (un)affordability actually mean? Second, what role do affordability problems play in the case of the German water and energy sectors? In this chapter, we only consider the affordability of private households, that is, of consumers. Obviously, the energy and water affordability problem may also affect industrial or agrarian customers. Yet the greater relevance of affordability issues for private households may be explained with Hirschman's concepts of 'voice' and 'exit' (see Hirschman 1974). In a globalized world, industrial users have a greater capacity to exit, that is, relocate. Thus, the demand for a certain region might be elastic to some extent. The corresponding debate relates to the phenomenon and term of 'competition of locations'. By contrast, the situation for private households is quite different. Although there might be a corresponding exit phenomenon – 'voting with your feet' (see Tiebout 1956) – household consumers' elasticity of demand is, in general, much lower.² Hence, for private households, the debate on affordability of water and energy services is more a matter of voice against rising prices.

The chapter is structured as follows. In the next section social concerns regarding water and energy consumption are examined against the background of the economic characteristics of the corresponding utilities sectors in Germany. In this respect, the affordability issue is subordinated within the wider concern of 'access' to fundamental services. Next, the theoretical implications as well as the empirical shortcomings of measuring affordability are presented. The chapter then discusses aspects of water and energy affordability issues in Germany.

WATER- AND ENERGY-RELATED SERVICES AS BOTH ECONOMIC AND SOCIAL GOODS

The starting point for any consideration of affordability issues concerns the extent to which they are and should be protected from the system of

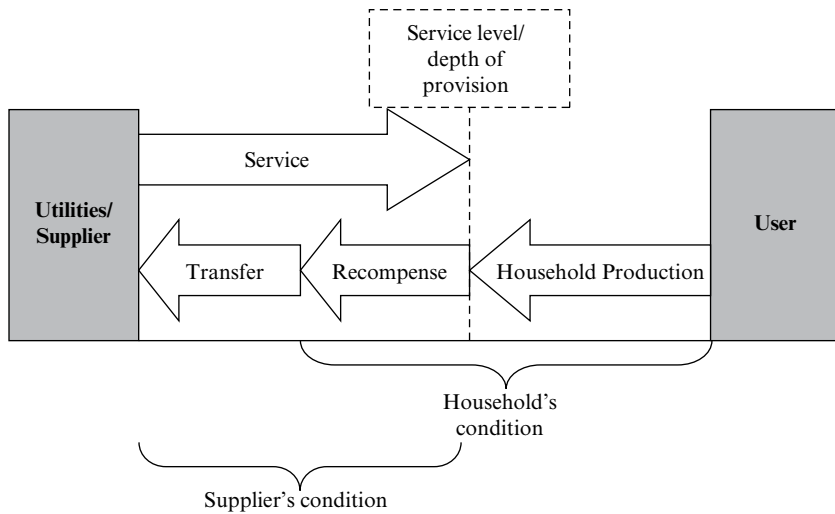
pure market exchange. The German Federal Constitutional Court considers water resources as ‘indispensable to life’³ and so water as well as energy are widely considered to be essential⁴ for human life. As such, the provision of water and energy is widely regarded to be a matter of common welfare rather than ‘commercialization’. Accordingly, the European Water Framework Directive claims in Recital 1 that ‘water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such’.

Although water and energy are essential for private households, the theory of economic policy asks for specific and clearly identified market failures that justify a regulatory intervention in their market-driven provision. With bread, for example, one can see that even ‘essential goods’ may be satisfactorily provided by market mechanisms. For the case of water and energy utilities, two kinds of relevant market failures can be identified: external effects and natural monopoly.

Regarding negative external effects of production, the government has to intervene in order to internalize the environmental costs of water and energy provision. For water, this relates to the protection of natural water resources; for energy, it concerns *inter alia* climate protection, oil spills and nuclear risks. Thus, the price for water and energy also has to reflect the scarcity of natural resources. Tariffs help to protect competitive interests of usage as well as environmental capital.

Besides these environmental costs, commercial costs for the provision of energy and water also arise. Due to the physical and technical features of water and energy, provision has to be achieved within a complex process with different stages of the value chain. This process leads to the actual economic good the consumer can use and that is to be discussed, that is, water or energy services at a certain place (spatial dimension), at a certain time (temporal dimension), with a certain quality. In Germany, the service level within these dimensions is very high: there is direct water and energy availability in practically every household, at all times and at very high quality standards. Under those circumstances, the more general problem of access to a certain good is reduced to a problem of (pecuniary) affordability (see Figure 4.1).

The general problem of access is illustrated within a model of the contractual relationship between supplier (of water or energy, on the left) and user (on the right). The supplier provides a service to the consumer while monetary recompense moves in the opposite direction. The service level determines how convenient the consumption is for the user. It can be looked at in spatial terms, that is, consumers may have to overcome space to get water, or they may have to treat water before use or may have to wait for water availability. In these cases, the users have to cope with



Source: Gawel and Bretschneider (2012: 341).

Figure 4.1 *Contractual relationship between supplier and user*

some non-pecuniary access hurdles, that is, a certain additional household production is needed (see Becker 1965). Moreover, the price itself as a recompense creates an extra pecuniary hurdle for access. Thus, the sum of pecuniary and non-pecuniary costs constitutes the conditions the user faces when getting access to the utility good. If, as in Germany, the service level is very high, non-pecuniary costs are close to zero: production is done by the utilities, not by the households themselves. The remaining hurdle, then, is the one of recompense, that is, the pecuniary costs. And this relates to the question of affordability, which is, in this way, just a particular sub-problem of the overall question of access.

Moreover, these water and energy services derive from a natural monopoly; a second market failure. Since monopolies in general have a lower performance and a higher price than products provided under conditions of (perfect) competition, and since a natural, grid-based monopoly cannot be replaced by competing suppliers, affordability problems might be notably imminent.⁵ With natural monopolies there are two general options for sectoral regulation policy: competitive ‘as if’ elements, and direct price regulations. Both might help to limit prices to an efficient or at least to a ‘satisficing’ level. However, actual prices (especially for energy) have been on the increase in recent decades.

Competitive elements were introduced, especially in the German elec-

Table 4.1 Household electricity prices in cents per kWh

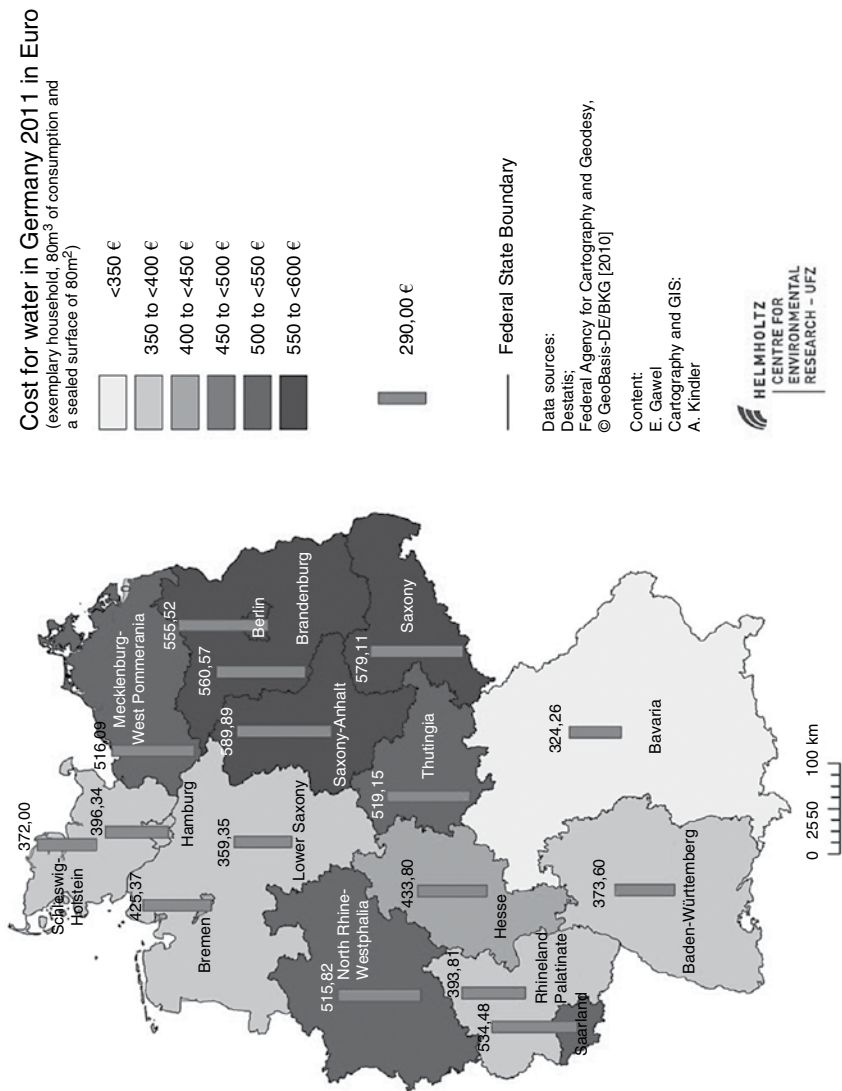
Year	2000	2005	2008	2009	2010
Household electricity prices (cents per kWh)	15.3	17.9	21.7	22.9	23.8

Source: Frondel et al. (2011: 196).

tricity sector, during the 1990s according to the EU’s general liberalization policy for utilities. This initially led to the desired price decreases, as expected. But due to the still existing market concentration and additional taxes, prices began increasing again. The electricity sector is a central element of the German ‘energy transition’ policy and, as such, is subject to price-relevant technology regulation (nuclear phase-out, supporting of renewables, and so on). Discussions focus on the so-called ‘EEG surcharge’, an electricity mark-up to fund supporting policies according to the Renewable Energy Sources Act (in German: EEG) (see Neuhoff et al. 2013).⁶ The mark-up policy has been blamed for a significant price surge since the beginning of the new millennium (Frondel et al. 2011: 195; see Table 4.1), although the observed price increase can be traced back to several different reasons.

Competitive elements are more difficult to implement in the water sector than in the electricity sector, mainly due to physical factors (missing grid connections, water quality, and so on; see Oelmann 2005: 19). Hence, full liberalization has hardly ever been implemented, though efforts have been made in certain regions to provide concessions for private utilities.⁷ Compared to other countries, the efficiency potential of the German water sector has not been fully realized; a specific regulation policy is still missing. Some economists also blame the high number of small regional monopolies, a special feature of the water sector in Germany (see Oelmann 2005: 23). However, in the area of water services, price differences rather than price increases might cause affordability concerns. The high number of small, unregulated regional monopolies led to inter-regional price variations which are considered to be ‘massive’ (see Rüttgers and Loch 2012: 188). Even within one region water prices can vary from €0.62 to €2.48 per litre (municipalities in the German federal state of North Rhine Westphalia; see *ibid.*: 182).⁸ Figure 4.2 gives a picture of current water price differences between the German federal states.

Thus, the price differences for water in Germany are considerable. In Bavaria, the costs for a household that consumes 80 cubic metres per year⁹



Source: https://www.destatis.de/DE/PresseService/Presse/Pressemitteilungen/2011/04/PD11_170_322.html.

Figure 4.2 Costs for water in different federal states of Germany (cost of an exemplary household with 80 cubic metres of consumption and a sealed surface of 80 square metres)

amount to €324; in Saxony-Anhalt these costs amount to as much as €590 per year. These differences may to some extent be due to institutional shortcomings (missing regulations, poor price control). Although from an international point of view overall water prices in Germany are high, they are hardly ever seen to be ‘unaffordable’ – rather, the relevant problem here is the price variance.

Varying, high or increasing prices are often the justifications for political calls for price caps or social tariffs because of potentially emerging affordability or fairness problems (see e.g. Beuermann et al. 2011). Quite recently, the current and expected level of power prices has become the focus of public attention with respect to the social justice of Germany’s energy transition. But for both the identification and the assessment of affordability problems it may be helpful to cast a glance at the theory and measurement of affordability and to keep in mind all the aspects determining the consumption decisions of a household. It turns out that there is no simple and single measure; rather it is necessary to keep all these dimensions in view. Moreover, theoretical considerations may also suggest different types of intervention.

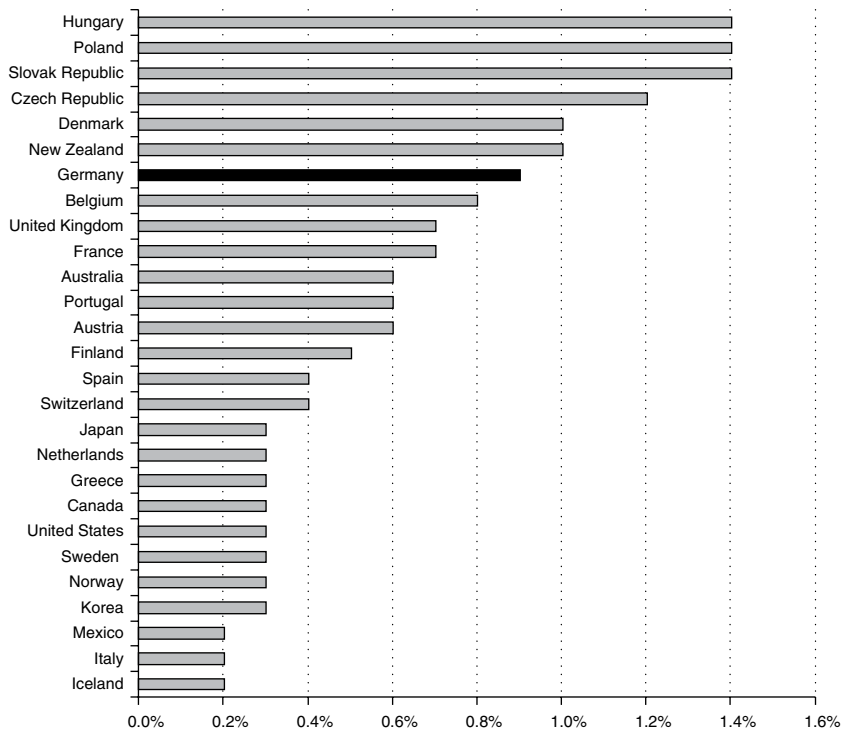
WHAT EXACTLY IS AFFORDABILITY AND HOW CAN IT BE MEASURED?

Although affordability issues are widely discussed among the public, from a scientific point of view, unfortunately, the meaning of the term is not so easy to specify and to a large extent it remains unclear. The common and still widely applied measure of affordability is the conventional affordability ratio (CAR).¹⁰ For the utility service u the burden ratio r is defined as the share of a household’s expenditure for utilities (the product of utility price p^u and consumed utility quantity q^u) of the total income (equals total expenditure, budget b):

$$r = \frac{p^u q^u}{b} \quad (4.1)$$

The Organisation for Economic Co-operation and Development (OECD 2009: 87f.) has composed the ratios for a number of industrialized countries. Figure 4.3 shows the average ratios. For Germany, the average CAR amounts to 0.9 per cent. Considering the lowest income decile of the population, this number increases and amounts to 3.9 per cent (see Figure 4.4).

But what do calculations of empirical numbers like this really mean? First of all, to identify a state of (un)affordability, an additional normative

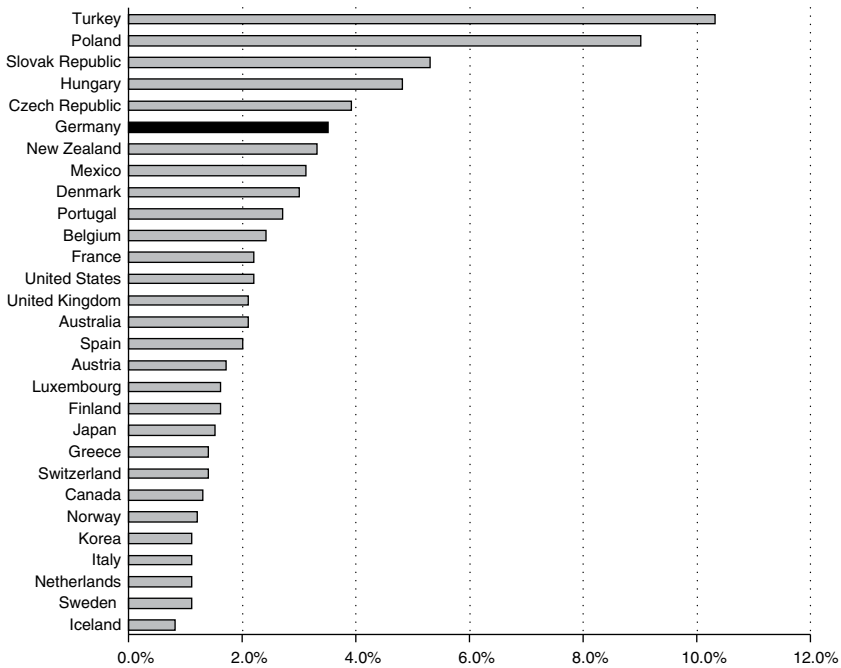


Source: OECD (2009: 87).

Figure 4.3 Average water and wastewater bills as a share of average net disposable income (USD)

target ratio r^* has to be introduced. Target ratios of 3–5 per cent, set by the World Bank, are prominent (see Table 4.2). Accordingly, the CAR identifies problematic situations for households whose burden ratio is higher than the target ratio. Since in the diagram a household's consumption decision shows up as one point, the CAR would indicate an affordability problem for all households which appear above the r^* line.

Following a target ratio r^* of 3 per cent for water, an affordability problem might be identified for Germany's lowest income decile ($r = 3.9$). For electricity, the CAR of Germany's lower decile amounts to 6.1 per cent (see Neuhoff et al. 2013: 48). At least, measured against the international target standards of 10 per cent (see Table 4.2), there is so far no general affordability problem. Such an interpretation is the intention of collecting figures like this. However, what is to be examined in the following is rather



Source: OECD (2009: 88).

Figure 4.4 Average water and wastewater bills as a share of income of the lowest decile of the population (USD)

Table 4.2 CAR benchmarks for measuring affordability of different utilities, as a % of total household income/expenditure

Source	Electricity (%)	Water (%)
World Bank	10–15	3–5
WHO	10	
IPA Energy	10	
UN/ECE		
UK Government		3
US Government		2.5
Asian Development Bank		5

Source: Fankhauser and Tepic (2007: 1040).

the question of how this judgement can be assessed from an economic viewpoint.

In order to do so, a simple microeconomic household model can be applied (see Figure 4.5). If the budget can be spent on either the utility u or a representative second good c , the ratio r can be described graphically as a ray from the origin. In such a (q^c, q^u) diagram, the ray of constant burden ratio follows the equation:

$$q^u = \frac{r}{(1-r)} p^c p^u q^c \tag{4.2}$$

For a given price vector p^c/p^u the ray indicates all consumption combinations of utilities and other goods that result in a certain but constant burden share in the budget. The affordability ray intersects the budget line (for example, at S in Figure 4.5) and thus divides it into two parts. The higher the ray's slope the larger the burden share r .

The normative target ratio r^* is based on two normatively defined quantities within the household model (again see Figure 4.5; and Gawel and Bretschneider 2010): first, a sort of minimum quantity of the index good, that is, the need for the utility good, represented by q^{u*} in the diagram; and

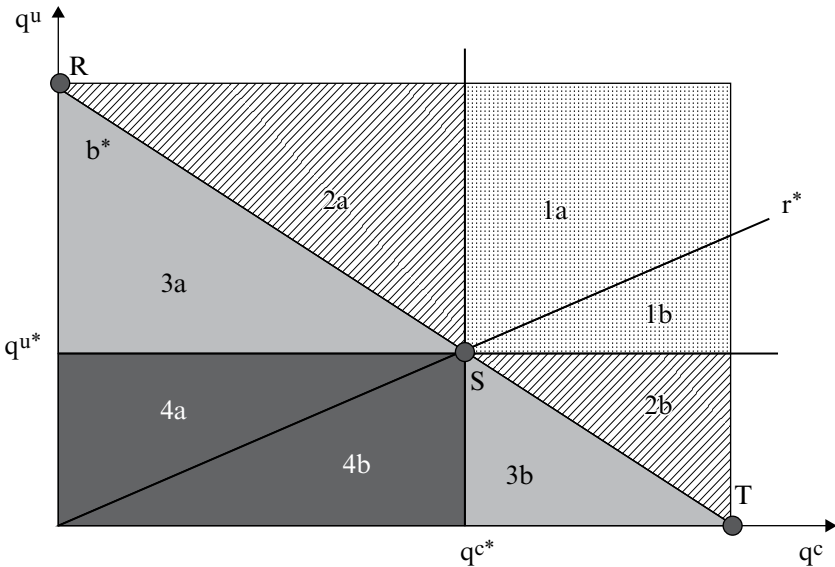


Figure 4.5 *Household model of affordability: case differentiation of indigence*

second, a minimum quantity of all consumer goods except the index good, represented by q^{c*} . This forms a point S , the subsistence bundle, graphically representing the intersection point of the two minimum quantities q^{u*} and q^{c*} . To meet this subsistence bundle exactly, we obtain a derived target ratio r^* that shows, for a given price vector, the ‘basic’ burden to be borne by the poorest. Pursuing the simple logic of the burden ratio, the diagram shows that, if a household chooses a consumption bundle above the ray given by r^* , it is facing affordability problems with respect to good w . Taken the other way, if a household chooses a consumption bundle below this target ray, it is not facing affordability problems in this respect. For $r = r^*$, equation (4.2) simplifies to:

$$q^u = \frac{q^{u*}}{q^{c*}} q^c \quad (4.3)$$

A fourth normative straight line in the model is the minimum budget b^* . A household needs this minimum budget to reach the subsistence bundle S . Thus S determines its position, while its slope depends on the relative prices of u and c . All households falling below the minimum budget are considered to be poor. Just like r^* , b^* is actually a secondary normative term, derived from the minimum quantities (multiplied by the given price vector).

These four straight lines give rise to eight areas, marked from 1a to 4b in Figure 4.5. Thus, this model differentiates eight situations in which a household might find themselves. To describe them, we use two basic differences: first, underconsumption versus non-underconsumption; and second, reasons for underconsumption, namely ability deficiency (due to budget constraints) versus willingness deficiency (due to differing preferences). As a result, we obtain four relevant areas, 1 to 4:

1. Non-underconsumption (gridded area 1). Households in this area are not facing an underconsumption problem. This is caused by two conditions: first, the household has a budget at its disposal which is greater than the target budget b^* ; second, on its budget line the household chooses a consumption bundle which avoids underconsumption of both utilities u and the representative other good c . One might argue that there is no problem here for social policy.¹¹ But the CAR (r) tells us that in area 1a unaffordability is incurred: wealthy households spend more than the target share on consumption of the index good. This misleading indication could be seen as ‘wasting-related unaffordability’. Obviously, the CAR presumes counterfactually that there is a certain decent level of consumption that might increase with

income. For electricity, the empirical data tells us that the consumption varies widely also with certain income groups (see Tews 2013: 6).

2. Willingness deficiency-related underconsumption (striped area 2). One of the goods is underconsumed, though not due to budget constraints but following accordant preferences. Households in this area possess sufficient income to allow them to reach an appropriate consumption level for both goods, they just do not choose to do so. Hancock (1993: 131) calls this the case of ‘perversity of preferences’. Though the CAR (r) tells us that, for consumption points in area 2a, we again face unaffordability, one might argue that this (pseudo) problem turns out to be a preference-driven (that is, voluntary) ‘unaffordability’. But caution should be exercised: this is a willingness-driven underconsumption only in the microeconomic household model. In fact, there might be certain ‘non-income constraints’ (Hancock 1993: 131); that is, certain higher needs for the utility good, that force a household into such a consumption decision and which are essential for the notion of affordability. Thus these households are the most interesting for affordability research (see Miniaci et al. 2008, 208) and at that point the theoretical research on affordability has to move on (see Bretschneider 2013).¹²
3. Underconsumption due to both a deficiency of willingness and of ability (light grey area 3). Households here have an available income smaller than the target budget b^* . These households cannot reach the subsistence bundle but they are somehow making a wrong decision anyway: they are underconsuming one good while at the same time already consuming more than is necessary of the other. Here we are facing a deficiency of both ability and willingness. Accordingly, merit-based and distributional problems arise at the same time. Looking at the CAR (r) in this field, we get a diagnosis of ‘unaffordability’ for the top left area 3a ignoring the mixed-conditioned underconsumption. On the other hand, the ‘affordable’ diagnosis for households in area 3b ignores the deficiency of ability they have to deal with.
4. Pure ability deficiency-related underconsumption (dark grey area 4). Those households that end up in area 4 consume insufficient quantities of both goods due to a pure distributional problem with an actual deficiency of ability. This area includes those who ‘do not even have the opportunity to make [an] inappropriate decision’ (Glied 2009: 15).¹³ According to the CAR (r), poor households in area 4b do not face any affordability problems. Since they are consuming a very small quantity of the good, they are erroneously considered as having no affordability problem (share of income for water expenses is low). But, obviously, overcoming affordability problems by mere underconsump-

tion is not a convincing solution. Rather, the critical shortage given in area 4b depicts a severe case of unaffordability.

Having described the model we can now consider two prominent alternatives to the CAR: the potential affordability approach (PAA) and the residual income approach (RIA). The PAA (see Lerman and Reeder 1987; Thalmann 1999; Foster and Yepes 2006; Miniaci et al. 2008; Kessides et al. 2009; García-Valiñas et al. 2010a, 2010b) is driven by the insight that households may underconsume utilities and be indicated as having no problem (3b and 4b), and conversely may overconsume water and be indicated as having a problem (area 1a and 2a). Thus, instead of the factual expenses, potential expenses for the index good (energy or water) are used to display the burden share; that is, the utility price p^u is multiplied by the standard consumption level q^{u*} :

$$r_p = \frac{p^u q^{u*}}{b} \quad (4.4)$$

In Figure 4.5, a fictitious movement is made on the household's budget line (parallel to the minimum budget line b^*), until the point where the q^{u*} line is intersected (see Gawel and Bretschneider 2011: 26). At that point, the comparison with r^* is made: there is an affordability problem for the household if $r_p > r^*$. This leads to the result that all households ending up under the minimum budget b^* are considered to face affordability problems. We have to note, though, that affordability in this concept is simply reduced to a problem of low income (see Thalmann 2003: 296; Gawel and Bretschneider 2011: 30). Thus, the PAA goes back to the recommendations of academic welfare economics to separate allocative and distributive problems. The PAA obviously only indicates problems of income deficit, that is, problems of general poverty instead of water-related affordability problems. On the other hand, for conditions of dysfunctional political systems of social security this measure might provide orientation for a (second-best) social policy for a certain consumer market (in this case, the market for energy or water). Thus problems of income poverty might be pragmatically redefined as problems of affordability, although there is no genuine, poverty-independent definition of affordability.

The second alternative, the residual income approach (RIA), is a measure working with a difference instead of a ratio (see Dolbaree 1966; Grigsby and Rosenberg 1975; Stone 1990, 1993, 2006; Hancock 1993; Thalmann 1999, 2003; Kutty 2005; Miniaci et al. 2008; Kessides et al. 2009; Hills 2012). Basically, the residual income is defined as:

$$b_{Res} = p^c q^c = b - p^w q^w \quad (4.5)$$

To identify affordability problems, a minimum residual income b_{Res}^* has to be defined normatively. In our model, it equates to the value of the minimum quantity q^{c*} . A problem is identified if $b_{Res} < b_{Res}^*$. In Figure 4.5, all households ending up left of the q^{c*} straight line are considered to face affordability problems. However, a convincing extension of this measure is the ‘double’ RIA, which includes the areas 2b and 3b as problematic. Therein are households that putatively solve affordability problems by underconsuming water (see Hancock 1993: 135; Miniaci et al. 2008: 207–8; Gawel, Sigel and Bretschneider 2013: 26).

Accordingly, a household is facing an affordability problem if:

$$b - p^w q^w < b_{Res}^* \quad (4.6)$$

or

$$b - p^c q^c < p^w q^{w*} \quad \text{with} \quad q^c > q^{c*} \quad (4.7)$$

This equates to all households which underconsume either the utility good u or other goods c . The problem with this measure is that it is not able to separate underconsumption due to non-income constraints from underconsumption due to deficiency of willingness.

If we define the PAA and the RIA like this, the graphical difference between these two criteria is the striped area 2. Therein, a desirable measure of affordability would isolate those households whose underconsumption is due to higher needs. These are non-poor households with affordability problems. But within area 2 they would have to be separated from households with a mere deficiency of willingness. Therefore, subsidizing households based on the PAA measurement would miss households with genuine affordability problems but, on the other hand, if it is based on the RIA, households who do not face any affordability problems would be subsidized too.

We can conclude there is no ideal way of conceptualizing and measuring affordability per se. But there are three prominent corresponding concepts of water- or energy-related indigence under discussion, which can be generalized with respect to affordability issues and summed up as follows (see also Table 4.3 and Figure 4.6):

1. The first concept is burden share, the basis of the CAR (Table 4.3, first row, and Figure 4.6a). This concept alleges a problem if a household spends more on utility goods consumption than the target ratio allows (areas 1a + 2a + 3a + 4a in Figure 4.5).
2. The second concept indicates income restraints (second row in the

Table 4.3 Three concepts of indigence

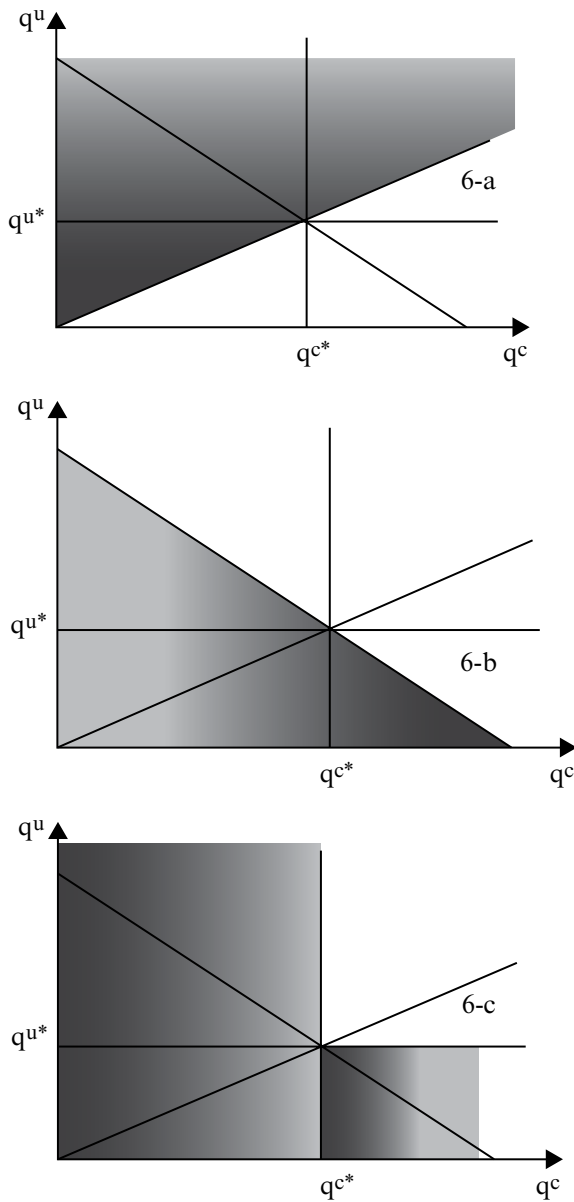
Concept of indigence	Measurement	Areas in Figure 4.5	Problem
1 Burden share	Conventional affordability ratio (CAR)	1a + 2a + 3a + 4a	Household spends more on utility good consumption than the target ratio
2 Budget restraints	Potential affordability approach (PAA)	3 + 4	Household earns less than needed to afford the subsistence bundle
3 Under-consumption	Residual income approach (RIA)	2 + 3 + 4	Household consumes less than required

table and Figure 4.6b). It suggests that areas 3 and 4 are problematic, that is, households in these areas earn less than needed to afford the subsistence bundle. This concerns the potential affordability approaches (PAA).

3. Finally, in the third concept which is based on the merit-based perspective of underconsumption, public policy is required to prevent consumption in areas 2 + 3 + 4 (third row in the Table and Figure 4.6c). The appendant measure in this case is the ('double') RIA.

Comparing these concepts of indigence, although it is widely applied the CAR appears to be particularly unqualified to indicate where public interventions should be targeted. Its severe shortcomings may be summarized as follows:

1. There is no correlation to a certain minimum consumption level of the index good. Poor households consuming a very small or too small quantity of the good are considered to have no affordability problem (area 4b).
2. Similarly, there is no correlation to a maximum consumption level of the index good. Wealthy households 'wasting' the index good may be considered to have an affordability problem (area 1a).
3. There might be cases of underconsumption which are caused by 'perversity of preferences', not by budget restrictions (area 2a).
4. Households are characterized by different amounts of members



Source: After Hancock (1993: 130–31), Gawel and Bretschneider (2011: 24) and Gawel, Sigel and Bretschneider (2013: 28).

Figure 4.6 *A graphical analysis of three concepts of indigence*

- (household size), different climatic/regional conditions, and different technological endowments. These non-income conditions lead to a different necessity which a fixed ratio measure cannot properly answer to.
5. Another aspect is that the functionality of the CAR depends on certain requirements of the price and income elasticity of demand as well as on the tariff function $p(q)$ (Gawel and Bretschneider 2011: 18). However, for our case study, the latter aspect is not relevant due to the assumption that $p = \text{constant}$.

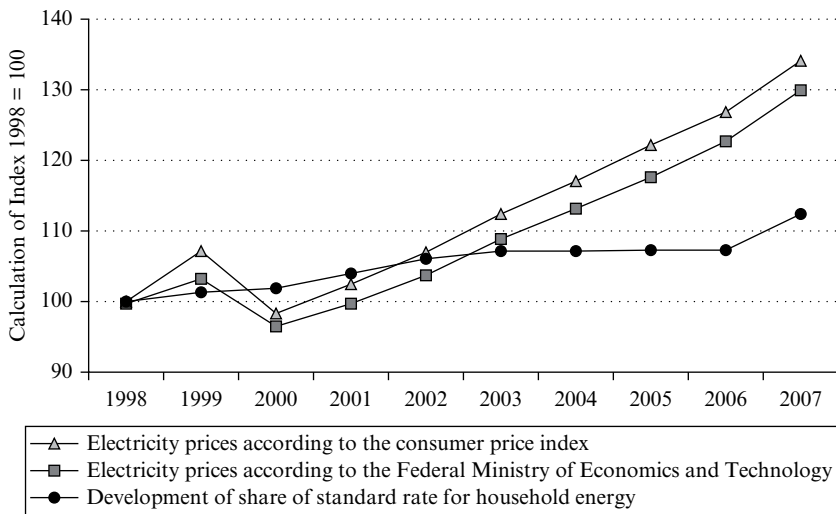
Obviously, there are enough reasons to avoid the CAR measure; at least it has to be used with particular caution. Yet the PAA and the RIA are also not fully satisfactory. The PAA identifies households with income poverty. This is useful in the absence of a general social security system. In the case of a developed country like Germany this might also be useful if the nominal minimum budget is contrasted with certain high or rising prices of water and energy that are not compensated by social security incomes. On the other hand, the PAA is not capable of identifying households with certain higher needs, where actual affordability problems might also exist. These may be displayed by the RIA. The problem here is that affordability problems due to higher needs cannot be separated from situations of deficiency of willingness. Additionally, the basis of empirical figures is more complicated for both the PAA and the RIA than for the CAR, which leads to the result of the theoretical considerations: the problem of affordability turns out to be more complex than this simple indicator. For the purposes of political control it is therefore necessary to consider the interplay of budgets, prices and consumed quantities compared to the normative standard of need.

AN AFFORDABILITY DISCUSSION FOR THE CASE OF GERMANY

An Affordability Diagnosis for Germany

As discussed in the section on 'Water- and Energy-Related Services as both Economic and Social Goods', Germany has seen significant price increases for energy in past years and this trend is expected to continue into the future. In addition, there are regional price differences for water at a comparatively high international level. Figure 4.7 shows a comparison of the price increase for household electricity and the progression of the standard rate of German transfer incomes.

This price increase means that the budget line in Figures 4.5 and 4.6



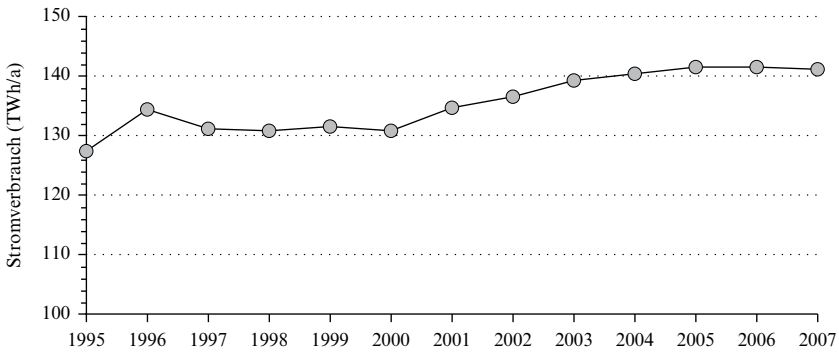
Note: In the caption Dünnhoff et al. refer to electricity ‘costs’. However, obviously they are talking about ‘prices’.

Source: Dünnhoff et al. (2006: 13).

Figure 4.7 Comparison of increase in power tariffs and adjustment of standard rate for the household's energy consumption

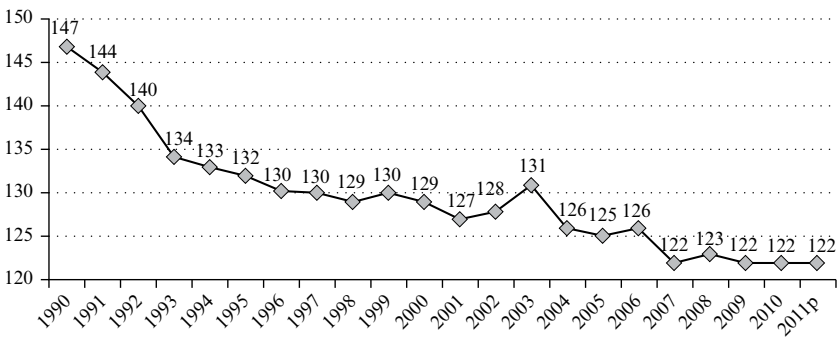
rotates counter-clockwise. If the nominal budget is not compensated accordingly, as the black line in Figure 4.7 shows, there are now households that can no longer afford the subsistence bundle S . Thus, for some households, there might be an affordability problem with respect to electricity.

But the required consumption quantity also has to be considered in order to assess affordability problems; for example one could argue that in recent years the quantitative need for electricity has decreased due to more efficient devices and appliances. This would relieve affordability problems to some extent, since household expenses for electricity equal the product of price and consumed quantity. In this case the q^{u*} line in Figure 4.5 could be reduced. However, the factual consumption of electricity does not correspond with such an assumption. Figure 4.8 shows the electricity consumption of private households in Germany during the last two decades. Therein we find a considerable increase in consumption. If the normatively given basic need is also seen to increase accordingly, the affordability problem might even be worse. Below, we will see that even in such a state of potential affordability problems, it is not unavoidable to use a price cap in order to relieve the problem.



Source: Bürger (2009: 9) with data of the German Association of Energy and Water Industries (BDEW).

Figure 4.8 Electricity consumption of private households in Germany



Source: BDEW (2012).

Figure 4.9 Average daily personal consumption of water in Germany

For the water sector, against the background of regional differences noted earlier, there is a clear trend towards reduced water consumption over the last 20 years (see Figure 4.9). This trend is presumably due to a diffusion of water-efficient devices in private households, like washing machines and sanitaryware. German reunification in the 1990s may also be responsible due to significantly increasing prices in Eastern Germany. Consequently, this consumption trend could defuse affordability problems in certain regions. However, the tariff policy has to react to decreasing consumption for financial reasons. In order to cover the remarkably high fixed costs

of water supply, the (administered) water price has to increase, although demand is declining (see Gawel 2010). Thus, reduced consumption may not compensate for affordability problems by as much as it appears on the surface.

Possible Political Instruments for Solving Remaining Affordability Problems

In this section, theoretically possible and currently applied instruments to support affordability policies are considered. For the discussion in Germany, it is crucial to recognize alternatives to a policy focused mainly on price issues. Tews (2013:14) even states: ‘The electricity price is no reasonable approach for a socially acceptable policy of the “Energiewende”.’

From an economic perspective, it is the first and most important task of policy to verify whether the scarce resource is allocated efficiently and, thus, whether the price corresponds to an efficient regime and to current scarcity. Assuming that all (especially environmental) costs are already covered and internalized, efficient organization of the supply basically keeps the price as low as possible. Here, competition is the preferred institution. The electricity market in Germany has been fully liberalized since 1999 (see Kemfert 2003: 13). However, some electricity suppliers merged to prepare for competition, which obviously reduces the price decrease or even leads to price rises. Furthermore, as far as consumers on the demand side are concerned, a certain willingness to change costly providers in a competitive framework is also indispensable. However, the consumer switching rate in Germany was very low for some years after liberalization (see Galus and Schwabe 2008).¹⁴

For the water sector, the title of a recent article makes the effect of efficient pricing on affordability problems clear: ‘Fairer prices by more competition’ (Rüttgers and Loch 2012). In fact this sector appears to be politically quite resistant to institutional reforms that have been intensively discussed in the academic arena, starting with the World Bank paper by Briscoe (1995).¹⁵ Although a creation of a (‘as-if’) competitive framework for water provision is much more difficult compared to the electricity sector – due to the physical features of water – there is still untapped potential.¹⁶

From a theoretical perspective, policy instruments in favour of affordability in a stricter sense should be deployed systematically after such an adjustment according to efficiency of supply. However, in practice, first, it is not recommendable to wait and, second, such a state of prices including ‘true costs’ will hardly ever be reached. Consequently, the following instruments in favour of affordability have to be examined and applied simultaneously to price adjustments in favour of efficiency.

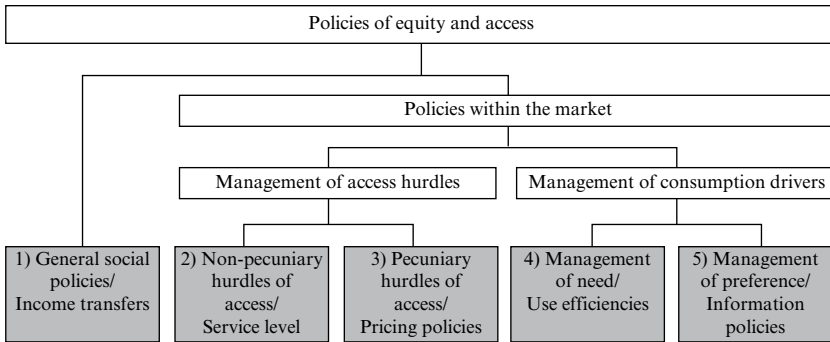


Figure 4.10 Determinants of demand as points of policy intervention

The policies aiming at granting equity and access can be classified following the general microeconomic household model (see Figure 4.10). There are three determinants relating to a household’s consumption: the nominal budget (income), the (relative) price of the utility good, and the household’s preference.¹⁷ Consequently there are three points of intervention for social policy: a policy by income transfers (addressing the household’s budget), a pricing policy and a policy of promoting efficiency of (internal) household production (addressing the need). Coming from the broader perspective of ‘access’ a fourth point of intervention might be added to the (pecuniary) price: namely the non-pecuniary costs of consumption (as in Figure 4.10). These, and a fifth option, are summarized below.

General Social Policy and Income Transfers

From an economic viewpoint, adjustment of the minimum budget is the preferred instrument for solving problems of consumption restrictions¹⁸ (see *inter alia* Bardt 2008: 4). To avoid a distortion of price functions in favour of social concerns, economic policy usually recommends subsidizing households directly by income transfers. This enables prices to perform their task of allocating scarce resources efficiently. Thus, a separation of distributional and allocative aspects is not only possible, as the famous ‘second theorem of welfare theory’ teaches, but is also desirable based on its allocative neutrality. Basically, it is an instrument that addresses problems of income poverty, rather than affordability problems of certain goods and markets. In developing countries with no adequate system of social security, however, problems of poverty turn directly into problems of affordability of the respective good. For an industrialized country like

Germany it is the other way around: problems of consumption restriction that arise as affordability problems might be easily resolved by an adjustment of the minimum budget without any price distortions. However, a challenge for such a policy might be changes and differences in needs and in prices. This calls for a very flexible adjustment of the minimum budget.

In 2013, the normal requirement of the so-called ‘unemployment benefit II’ (German welfare aid) for a single adult amounted to €382 (sec. 20 para. 2 Social Code Book II). Within the normal requirement, water and energy (except heating) are evidently included under ‘housing, energy, housing maintenance’ which amounts to €31.94. In sec. 21, greater needs are considered for certain groups of the population, where the consumption of water and electricity might play a role. Rising prices due to a rising EEG surcharge are taken into account, although delayed (see Neuhoff et al. 2013: 52). In addition to the normal requirement, factual expenses for housing and heating are also paid, insofar as they are considered ‘reasonable’ (sec. 22 Social Code Book II). In this regard there are no affordability problems for heating. These benefits can also be claimed by low-income earners.

The temporary German allowance for heating costs (‘Heizkostenzuschuss’) for the year 2008 was a reaction by the government to both increased fuel prices and a higher need due to a cold winter. This, in fact, was an actual affordability policy.¹⁹ In 2010, the allowance was abolished on the grounds that prices had been returning to a normal level. However, a general problem for general social policy instruments is that many households do not claim for financial support, although they are entitled to do so (see Neuhoff et al. 2013: 49–50).

Non-Pecuniary Hurdles of Access and Service Level

This aspect has been developed through the investigation of water access problems in developing countries and relates indirectly to affordability problems (see Gawel and Bretschneider 2012: 341). In less developed economies, affordability problems are mitigated by granting a lower service level than would be accepted in a developed country like Germany. Service levels relate to aspects of location (are services available in the house?), time (at any time?) and quality (pressure, health aspects). The lower the service level, the lower the expenditures for that poor service (and potentially the affordability problems), and the higher the non-pecuniary hurdles of access: the consumer then has to spend time to get water, to wait for service or to treat water before use, and so forth.

By controlling the level of service, affordability and access problems can be regulated at the same time. However, for Germany, only the highest

levels of service are considered to be appropriate. For electricity, this means both the highest security of supply and permanent grid stability (which relates to the dimension of time). For water, quality is mostly discussed and is similarly expected to be very high; the aspects of security of supply (access at any time) and the absence of individual costs for overcoming distance are taken for granted and are not even part of public debate. Thus, the entire affordability discussion in Germany is based on a maximum service level. This is particularly relevant since water and energy utilities are also closely related to environmental issues and social costs.

Pecuniary Hurdles of Access and Pricing Policies

An equity-oriented adaptation of prices and tariffs is one of the most favoured instruments in public debate. But from an economic viewpoint, the usual warning against social tariffs applies: if prices are adjusted for distributional reasons, they are no longer able to fulfil their genuine allocative functions, leading to inefficiencies of supply.

However, in 2006 Germany's largest energy supplier (E.ON) introduced a social tariff for electricity in Bavaria:²⁰ a discount of €9 on the monthly basic fee (see Dünnhoff et al. 2006: 25).²¹ Due to the tariff structure that basic fee was in effect waived. Consequently, households had to pay only the usage-based charges, thus maintaining incentives to consume economically. Since 2008, E.ON provides social tariffs nationwide, but as of 2011 only for households with children. E.ON is the only provider to have made such an offer and has been criticized, for example for calling its tariff 'social' while other suppliers offer potentially the same conditions without philanthropic branding.

An important part of pricing policy is the management of taxes and the legal administration of prices. In Germany, electricity is subject to a particular tax (Stromsteuer). With respect to affordability of electricity, Neuhoff et al. (2013: 51) call for a certain basic tax-free amount. The advantage compared to a general tax reduction is that the latter would relatively benefit households with high consumption and not primarily those with affordability problems.

Management of Need and Use Efficiency

Restrictions on consumption can also be relieved by decreasing the need of households, which is determined mainly by the household's technical endowment. Particularly for the energy sector, the (demand-side, consumption) use efficiency is considered to be a powerful instrument against affordability problems (see *inter alia* Neuhoff and Wittenberg 2012;

Brüggemann 2005). This follows from the fact that both water and energy are factors in the (internal) household production function, where these inputs could potentially be used more efficiently if their productivity could be successfully raised. For the case of water, the reduction in household consumption over recent years is attributed particularly to water-saving technical endowments in private households (see Rüttgers and Loch 2012). Thus a policy at this point appears neither necessary nor useful. For heating, the crucial complement is the energy efficiency of the building; an energy-focused building refurbishment can be an appropriate measure. For electricity it is, for example, the refrigerator, for which subsidies have been advocated (see Neuhoff and Wittenberg 2012; Neuhoff et al. 2013: 53). A measure that has been criticized, on the other hand, is the banning of conventional light bulbs (see e.g. Frondel and Lohmann 2010).

One advantage of this kind of instrument is that it is capable of solving a number of problems; not just affordability issues but also security of supply and climate protection (see Matschoss et al. 2008: 6).²² On the other hand, the so-called rebound effect (see Mennel and Sturm 2008) might reduce the benefits of increased energy efficiency, since efficient devices might also lead to a higher energy demand at the same time.

Management of Preferences or Information Policy

This relates to a discrepancy between a household's need and its effective preferences, particularly due to a lack of information. Households are only able to make responsible decisions about scarce resources if they know both their own consumption patterns and possible substitution options, too. In practice, this relevant knowledge is largely absent. Additionally, there is a time lag between consumption and payment; thus, the perception of scarcity is affected. Smart meters might be helpful here (see e.g. Smolka et al. 2011), since they can provide transparency about consumption patterns and allow consumers to adopt different habits. Another instrument is for energy consultation and advice. Admittedly the problem of paternalism arises at this point. When comparing the management of need and the management of preferences, it has been argued that for electricity at least there is considerably more savings potential in the management of need, that is, in technical endowments (see Bürger 2009; Tews 2011: 47; Tews 2013: 8).

In addition to the above, there are some institutional aspects left that might also affect equity and affordability. One of them is the mode of payment: for example, instalment plans might be helpful (see Billen 2008). A second one is the question of how non-payers are to be sanctioned (see Gawel and Bretschneider 2012 for a discussion of water).

CONCLUSION

If the primary social concern regarding water and energy consumption is sufficient access to these goods, one can state that in a developed country with good governance, stable institutions and a high level of service, the question of access is reduced to a question of pecuniary affordability. Even in the presence of a decent system of social policy in existence, the challenge of affordability still remains an issue if there are increases or regional differences in both the goods' price and in households' needs.

For the energy sector in Germany, a permanent and politically forced increase in prices can be seen as the most obvious social challenge. Increasing energy prices are due to the rising scarcity and absolute limitation of fossil fuels, the costs of the 'production factor atmosphere as a pollutant sink' (climate change mitigation policies), and the still relatively high prices of renewable energy sources. The political question then concerns where the burden of funding such fundamental changes, and investing in a sustainable future, should fall.

For the water sector, the systemic change has quite a different characteristic in Germany. On the one hand, there are the conditions given by Article 9 of the EU Water Framework Directive, which calls for a not yet achieved full cost recovery for water services, including environmental and resource costs. This will lead to a tendency towards repeated price increases in the future. On the other hand, the organizational structure of the German water sector still offers potential for greater efficiency. Over time, these two movements are directly opposed, so that a severe price increase may seem unlikely. What appears more critical for the water sector are – rather than the kind of changes found in the energy sector – the regional differences in prices. Price differences will still play a role even when organizational inefficiencies are relieved due to regulation policies aiming at efficiency and competition. How social policies may and should respond to this problem is still an open question.

Up to now, affordability problems for water and electricity services have not really been evident in Germany, but they may gain in importance in the future. If the need does arise, which instruments would be effective in meeting the relevant affordability challenges? As a first step, a sound allocation policy of the markets is the basis for affordability, given the price-curbing effects of competition and efficient supply. Moreover, since there is an established social security system in Germany, solving such problems by an appropriate adjustment of the respective 'poverty line' is a preferable option. With this kind of intervention one avoids price distortions on the markets for water and energy, which are crucial for nature conservation and sustainable infrastructures as well. Such an adjustment may

be difficult, since there are also variations in the level of needs concerning water or energy, which for energy is mainly caused by technical endowments. Another instrument may be the enhancement of technical efficiency within household usage. This is already being widely discussed for the energy sector. For the water sector, the potential of this solution still needs to be examined. Only after having fully applied these instruments should affordability problems be grounds for social pricing, because as a matter of public concern it also appears to be important to protect the allocative functions a price is expected to fulfil.

NOTES

1. The electricity sector is obviously the current focal point of the German debate on affordability.
2. This may also be the case for agricultural companies.
3. BVerfGE 58, 300, 344; 10, 89, 113.
4. For water see Laskowski (2011: 186).
5. At this point the differentiation between functional and dysfunctional parts of a price might be useful. Functional parts of a price help to achieve objectives like efficiency, refinancing services and ecological sustainability (for environmentally relevant goods like energy and water). However, the monopoly rent is a part of a price which is dysfunctional, since it is due to (institutional) inefficiencies.
6. The surcharge of the Renewable Energy Sources Act (in German: EEG).
7. With regard to social concerns just recently, Rüttgers and Locht (2012).
8. In 2010, in the city of Remscheid, the price per litre was €2.48, whereas in the municipality Hövelhof it was only €0.62.
9. This corresponds approximately to a two-person household.
10. The CAR has been used recently in the German debate on electricity prices, for example in Neuhoff et al. (2013).
11. Quite the contrary: the problem of overconsumption with respect to scarce resources like energy and water may arise. In this chapter, however, we have to leave this unconsidered.
12. See the discussion of the PAA and RIA measure below.
13. In Figure 4.5 these are households with a budget equal to or smaller than the budget that intersects the ordinate at q^{**} .
14. Five per cent in Germany, whereas in the United Kingdom it amounts to more than 50 per cent (Galus and Schwabe 2008).
15. To name just a few studies on the efficiency-oriented reform of the German water sector: Janda (2012), Schönefuß (2005), Oelmann (2005), Stuchtey (2002).
16. Rüttgers and Locht (2012, 188–91) propose competition of comparison and ‘transmission competition’ in large urban areas.
17. In this perspective the household’s preferences are redefined to quasi-objective needs, as is usual in many parts of social policy.
18. For the matter of increasing oil and gas prices see *inter alia* Bardt (2008: 4).
19. This allowance could be requested by all housing allowance recipients.
20. For an overview on empirical social tariff models see Dünnhoff and Gigli (2008).
21. The discount is granted to households who are exempt from the public broadcasting fee. As with the heating cost allowance, the population group is identified by a secondary figure for deprivation.
22. Mostly the management of need is discussed within the debate on climate protection (see e.g. Menzel and Sturm 2008).

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5. Green taxes in Scandinavia: do they contribute to (in)equality?

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INTRODUCTION

The three Scandinavian countries – Denmark, Norway and Sweden – were among the Organisation for Economic Co-operation and Development (OECD)’s pioneers in introducing green taxes when green taxes gained momentum in several European countries in the 1990s (Andersen et al. 2001; Svendsen et al. 2001; Speck et al. 2006). From 1994 to 2010, Denmark experienced the highest percentage of revenue generated from environmentally related taxes measured as a percentage of gross domestic product (GDP) among OECD countries (OECD 2013 – data for 2010) and although Norway and Sweden are ranked lower on this list, slightly above the OECD average, the Scandinavian countries, after more than two decades, have a solid experience from which the effects of green taxes can be assessed. What effects have green taxes had on the equalities for which Scandinavian welfare states are well known (see e.g. Acemoglu et al. 2012)?

Theoretically, the premise behind the introduction of environmental policy instruments is the negative environmental externalities which occur in unregulated economies. Contrary to command-and-control regulation, economic instruments create direct price signals for producers and consumers for the costs of pollution (OECD 2001a). By internalizing those negative externalities, economic instruments create an incentive for the agents (consumers, households, industries and so on) to reduce pollution. Additionally, green taxes are often considered to be more cost-effective than traditional command-and-control regulation. Furthermore, among economic instruments, green taxes entail a potential for a double dividend (Pearce 1991): by generating a revenue, green tax reforms can be used to lower or remove distorting taxes in the economy; and by lowering (say) income taxes, green taxes can induce both a positive environmental effect and additionally generate positive effects on employment, although the magnitude of this effect has been debated (for a discussion on the double dividend debate see, for example, Speck et al. 2006: 226ff). Besides generating revenues to finance the Scandinavian welfare states, an important

element in the Scandinavian tax systems has been a more equal income distribution than is generated through an unregulated market (see e.g. Ministry of Finance 2007: 26).

According to Huby (1998: 4ff), it is possible to identify three themes which are common to both social policy and studies of the environment: inequality, sustainability and responsibility. Below, the primary focus is on economic (in)equality among households with regard to the introduction of green taxes, but sustainable development can be said to be part of this, in its commitment to 'equitably meet developmental and environmental needs of present and future generations' (UN General Assembly 1992). Issues of responsibility are important too, given that the state takes responsibility in areas (for example, pollution control) where it is difficult for individuals acting alone to achieve effective results (Huby 1998: 15). This can be done by, for instance, introducing a regulatory framework for pollution control.

Structured inequalities – for instance variation among individuals in their exposure to different levels of pollution – can arise as a result of the way societies are organized (Huby 1998). For instance, low-income households may more often be exposed to pollution. By lowering (local) pollution levels, green taxes may contribute to more equality in both social and environmental terms (see e.g. OECD 2006: 135). On the other hand, green taxes are often accused of hitting low-income households harder than other social groups, as taxed products (whether taxed directly or indirectly) traditionally constitute a larger share of the consumption pattern of low-income groups (EEA 2011). Consequently, green taxes may contribute to more inequality in economic terms among households. Needless to say, households belonging to the same income class can exhibit quite different consumption patterns, and thereby taxation levels too (Speck et al. 2006: 249; EEA 2011).

Inequalities relate to firms, too, because competitiveness is unevenly distributed (Speck et al. 2006: 255). Such considerations have led the Nordic governments to design green taxes with exemptions and reduce tax levels for exposed industries (Speck et al. 2006: 260). This generates another kind of inequality, as Nordic households and non-exposed industries thereby often pay higher carbon dioxide (CO₂) taxes per tonne than companies. This has been the case in all three Scandinavian countries (Daugbjerg and Pedersen 2004). In Norway for instance, heavily polluting industries have been totally exempted from CO₂ taxation (Daugbjerg and Pedersen 2004), which has led the OECD (2011: 3) to recommend that Norway remove such exemptions to environmentally related taxes. In Sweden a study (Environmental Protection Agency 2004: 25) showed that private consumption was responsible for 25 per cent of CO₂ emissions in the period

1993–2000, but contributed 47 per cent of the total CO₂ tax revenue. By contrast, manufacturing industry was responsible for 26 per cent of emissions and contributed only 9 per cent of total CO₂ tax revenue. In Denmark, there has been reduced tax levels for industries too (Daugbjerg and Pedersen 2004). Approximately three-quarters of the Danish revenue from green taxes is paid by consumers and a quarter by industries (Danish Economic Councils 2009: 120f). Despite this disparity, in this chapter we will be focusing on inequalities among households.

Methodologically, the analysis is based on a literature review of literature on the distributional impacts of green taxes in Scandinavia. Using relevant search terms we identified key academic articles and reports from public and private policy agencies such as the European Economic Association (EEA) and OECD regarding green taxes and distributional effects in Scandinavia.

The following section contains a discussion on green taxes and distributional effects. After that, there is a short description of the history of green taxes in Scandinavia, before turning to a presentation of relevant literature addressing the distributional effects of green taxes in Scandinavia and our conclusions.

GREEN TAXES AND DISTRIBUTIONAL EFFECTS

A major concern in policy debates about green taxes is that these policy instruments affect low-income households disproportionately. Taxes on energy, including transport, have been identified as regressive, because energy is an essential component of household consumption (Speck et al. 2006; OECD 2006).

Green taxes may affect the distribution of income among households both directly and indirectly. In fact, taxes may affect equality through at least four different mechanisms, the combined effect of which ideally should be examined to assess the distributional effects of green taxes (EEA 2011):

1. the direct effect of price increases on income distribution;
2. the effects of the recycling of revenues from green taxes on income distribution;
3. the wider socio-economic effects, including potential job-creation; and
4. the effect of a reduction of environmental problems and related health problems.

These four different impacts vary in their distribution across socio-economic groups but also across time. Moreover, an important issue in the

debate about green taxes is the concept of income used to calculate distributional effects. The question is whether to use annual disposable income or lifetime income as the basis for measuring the effect (Kosonen 2012: 163). As a proxy for lifetime income, economists have used total household expenditures in a given year, arguing that this reflects expected lifetime income, while annual income may fluctuate. Several studies have shown that calculating taxes as a percentage of household expenditures tends to give a less negative distribution effect compared with calculating taxes as a percentage of annual incomes (*ibid.*).

Green taxes affect income distribution through their effect on prices. Taxes increase the prices that households must pay for the relevant resources, services or goods, such as energy, water or waste handling. As some of these goods or resources may make up a larger proportion of the consumption of lower-income households, a price increase will hit these groups harder. The effect on the distribution of incomes would be lessened by behavioural changes, but this depends on the ease of substitution towards lower-energy products or practices (Kosonen 2012). An early study of a carbon tax in the UK found, however, that the mitigating effect of behavioural changes would be limited (Smith 1992 cited in Kosonen 2012). In addition to this direct effect, green taxes – not least taxes on energy and CO₂ – may also affect prices indirectly as they affect the cost of production of a wide range of consumer products (Wier et al. 2005; Speck et al. 2006; Kosonen 2012). The equity impacts depend on whether producers are able to pass on the tax to consumers or whether the tax results in lower profits or salaries; that is, whether demand or supply is more responsive to prices. To the extent that the environmental tax cannot be passed on to consumers, the regressive effect on incomes would be limited, all other things being equal. In fact, it is conceivable and indeed intended that taxes on resources such as energy eventually lead to (energy) efficiency gains which are of benefit to consumers and producers alike.

However, the literature also shows that distributional effects of environmental taxes and charges are not uniform across the relevant activities or resources (Ekins and Dresner 2004), industrial sectors (Speck et al. 2006) and geographic location (Ministry of Finance 2003a; Speck et al. 2006: 251). Most studies indicate that energy and carbon taxes, and particularly taxes on domestic heating and electricity, tend to be regressive; while taxes on transportation, that is, fuel and vehicles, are more likely to have progressive distributional effects (EEA 2011; Kosonen 2012). Higher-income groups tend to have more and bigger cars and therefore also a higher consumption of fuel. In some countries, fuel taxes tend to constitute a relatively higher share of the incomes of middle-income groups compared with both low- and high-income groups, and middle-income households

are therefore hit relatively harder by such taxes (Kosonen 2012, citing several studies including Smith 1992).

Transportation taxes are most likely to affect the geographic distribution of the tax burden. Thus, rural areas tend to be hit harder by fuel taxes than people in urban areas who may have to travel shorter distances but also are more likely to be able to access public transportation (Kosonen 2012; EEA 2011).

While environmental taxes clearly have distributional effects, these may be mitigated either by design of the tariffs themselves or through targeted compensation schemes. Ekins and Dresner (2004) examined a wide range of mechanisms in a UK setting and concluded that it would be possible to design environmental tariffs and combine them with compensation packages in a manner that made them progressive for the lower three income deciles. As for tax design, one way to avert or lessen the regressive effects of environmental taxes would be to tax only activities and products which are used more heavily by higher-income households (EEA 2011; Ekins and Dresner 2004). However, this strategy may collide with environmental objectives, which would suggest taxation of those activities that present the greatest environmental challenges. Other ways to counteract the negative distributional impact of green taxes would be to grant tax exemptions to certain income groups or to offer a tax-free energy allowance (Ekins and Dresner 2004). In the Netherlands a tax-free allowance on energy consumption offset the negative impact of environmental taxes (Peter 2007 in EEA 2011). As for compensation packages, these might be targeted towards benefits for low-income groups (such as means-tested benefits) as a way to very directly counteract inequality (*ibid.*). However, Ekins and Dresner also pointed out that their results applied to average households within income groupings. In fact, variations within each socio-economic group regarding energy use are so great that this hinders a tax design that is entirely progressive. Moreover, as mentioned, the straight impact of tax-induced price changes may be moderated by their interaction with other mechanisms.

Most importantly, perhaps, the use of the tax revenue affects the distributive consequences of environmental taxes. Environmental taxes can be made more progressive when implemented as part of an overall tax reform where the revenue from green taxes replaces taxes on labour – that is, income taxes and social security contributions – or capital taxes (EEA 2011; OECD 2006; Speck et al. 2006). Lower income taxes would neutralize the price increases incurred by environmental taxes, in other words. However, reduced income taxes may actually benefit high-income groups more than low-income groups and thereby increase inequality (see e.g. Kosonen 2012). One way to design an environmental tax reform

to be progressive would be to direct income tax reductions towards the lower income brackets. Alternatively, environmental tax revenue may be returned to households in the form of lump-sum transfers (Kosonen 2012: 165). Thus several model-based studies have estimated that such lump-sum returns to households lead to less inequality (Rausch et al. 2011 and Cambridge Econometrics 2008 – both cited in Kosonen 2012; OECD 2006). Even so, economists tend to argue against such lump sum returns as they compromise the gains in efficiency that may be achieved by reducing other taxes (Ministry of Finance 2003a: 36).

Earmarking of the environmental tax revenue towards specific environmental policy objectives may also directly or indirectly contribute to improved equity: directly, when revenues are used to fund programmes that allow low-income families to reduce their use of resources, such as energy efficiency installations; indirectly, earmarking may contribute to greater equity to the extent that it improves to greater policy effectiveness and thereby to a cleaner environment, which may benefit lower-income groups more (see below). Studies suggest that earmarking may improve the effectiveness of environmental taxes (Andersen 1994; see Soares 2012 for a review).

Finally, while this is not typically included in discussions about environmental tax reform, one could argue that revenue generated by environmental taxes could help finance traditional welfare services, including family support or job training programmes which benefit lower-income households. The EEA recently has promoted environmental tax reform as a means to address general fiscal problems (see e.g. Andersen et al. 2010). Likewise, the targeted compensations schemes mentioned above may also be construed as recycling a part of the revenue.

Beyond revenue recycling, environmental tax reform may have wider economic impacts which could also affect income distribution (EEA 2011). This includes positive effects on employment as green taxes alter both the absolute costs of labour and the relative prices of labour compared to energy or other resources, leading to job creation (OECD 2006). Moreover, to the extent that green taxes spur innovation in energy and eco-efficient products and production processes, they may spur growth that is decoupled from energy and resource use, again affecting employment positively. A study of the 1999 German tax reform estimated that the job creation effect of switching to environmental taxes amounted to up to 250 000 new jobs a year (EEA 2011: 15). However, Fullerton (2010) points out that if environmental policies and taxes induce companies to invest in expensive abatement technologies, this will increase demand for capital rather than for labour and could therefore put pressure on wages, which typically constitute a larger share of the incomes of low-income families. This underlines the point that the distributional effects of environmental

taxes depend on a range of factors (OECD 2006: 135), highlighting the contingent nature of the distributional impact of environmental taxes, and makes general assessments both complex and tenuous.

Distributional effects include not only income effects but also the distribution of the benefits from reduced pollution (EEA 2011). According to some studies, low-income families are more exposed to pollution (EEA 2011; Kristensen and Larsen 2006) and therefore stand to gain relatively more from a tax-induced reduction of pollution. The empirical evidence is mixed, though (Ministry of Finance 2003a: 13). In other words, the relationship is contingent and diverse. For energy taxes and other carbon-related emissions in particular it may be difficult to establish the specific socio-geographic distribution of benefits, as climate change effects tend to be widely distributed (EEA 2011). Fullerton (2010) argues that such policies and taxes may improve local air quality, reduce global warming and avert rising sea levels, the distributional effects of which vary. For example, improvements in local air quality might benefit lower-income households, while rising sea levels at least in the Northern Hemisphere may benefit high-income families with seafront property. Yet other types of environmental taxes, notably taxes aiming to curb emissions from road traffic, benefited lower-income households in Berlin, as these were more exposed to traffic-related emissions (Luhman 2008, cited in EEA 2011: 17). Such beneficial effects are channelled through positive effects on health.

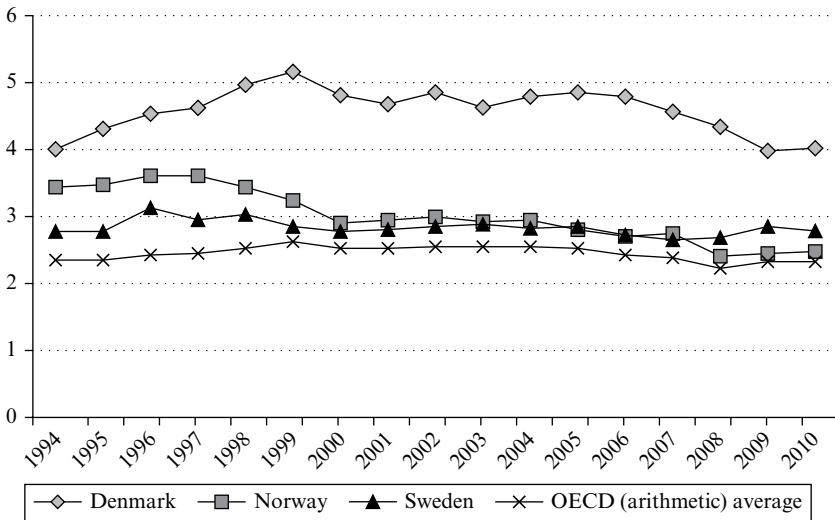
This section shows how environmental taxes potentially have a negative impact on income distribution and thereby equality, but it also shows that this impact may be avoided or counteracted and that the overall outcome may be progressive. Environmental taxes can increase prices which lead to increased inequality, yet this may be directly mitigated through tax design and compensation schemes that target low-income groups. Furthermore, the revenue collected through environmental taxes may be used to offset other taxes, like income taxes, compensating directly for higher prices and possibly also creating new jobs. The combined income distribution effect of these mechanisms is not easy to predict. Moreover, revenues could also be used to shore up public finances, ultimately allowing for welfare services or investments in environmental technologies with beneficial environmental effects. Thus, the picture is one of contingent relationships which do not lend themselves to a simple set of hypotheses about cause-effect relations. It follows also that a precise and comprehensive assessment of the distributional impact of environmental taxes and tax reforms is challenging at best. Thus, the following sections will provide an overview of the evidence of the equity effects of green taxes in the Scandinavian countries, but with the caveat that it will not offer a final answer to the question as to whether green taxes in Scandinavia have compromised equality.

GREEN TAXES IN SCANDINAVIA

For the last two decades, revenues from environmentally related taxes have been higher than the OECD average in the three Scandinavian countries (see Figure 5.1). However, when the revenue from environmentally related taxes is measured as a percentage of total tax revenue, the story is different (see Figure 5.2). Here Norway and Sweden are below the OECD average. Denmark is still well above the OECD average, although there has been a significant decrease in the last decade, but the detailed data (OECD 2013) reveal that Denmark in 2010 was exceeded by Australia, Estonia, Ireland, Israel, Japan, Korea, the Netherlands and Turkey on this measure. However part of the reason for the lower percentages in Scandinavia is that the average tax burden in Scandinavia is higher than in most other OECD countries. It may be argued that this fact has given the Scandinavian countries a potential for more comprehensive tax reforms as the tax base is larger.

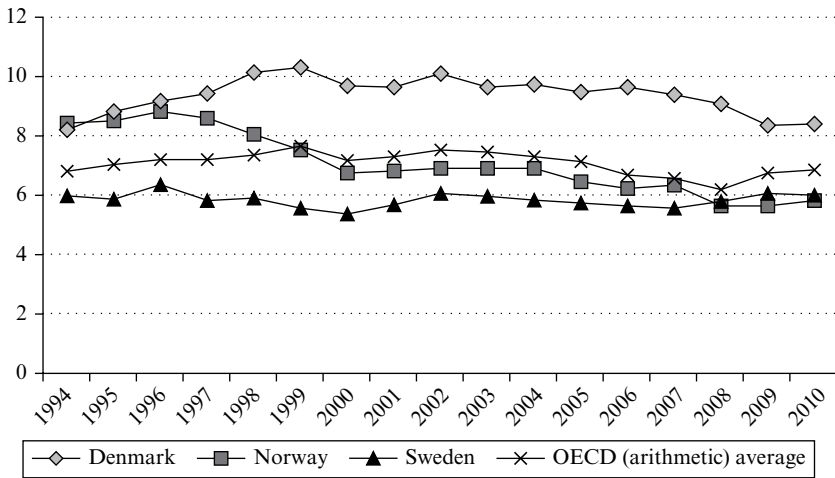
Green Tax Reform in Denmark

Measured as a percentage of GDP, Danish environmentally related taxes generate the highest revenue in the OECD (see Figure 5.1). A large



Source: OECD (2013).

Figure 5.1 Revenues from environmentally related taxes, % of GDP



Source: OECD (2013).

Figure 5.2 Revenues from environmentally related taxes, % of total tax revenue

proportion of the revenue (39 per cent in 2005) is generated by very high car registration tax and car weight duties (Speck et al. 2006: 84). In total, environmental taxes related to transport generate two-thirds of total Danish revenues from environmentally related taxes. Approximately three-quarters of the revenue is paid by consumers and one-quarter by industries (Danish Economic Councils 2009: 120f). The current Danish system of environmentally related taxes is to a large extent the result of a comprehensive green tax reform carried out after 1994, which particularly increased the use of green taxes within three areas: energy, traffic and water (OECD 2007: 125; Ministry of Taxation 2001; Danish Economic Councils 2009: 120). Meanwhile, marginal tax rates were lowered at all income levels. For instance, the bottom-bracket tax was reduced from 14.5 per cent in 1994 to 8 per cent in 1998. Another element was that social pensions and social security, which were formerly exempted from taxation, were made liable to taxation, but meanwhile the sum paid out was raised, meaning that people receiving these contributions gained a benefit from the tax reductions (Ministry of Taxation 2001: 47ff). Subsequently, in 1996, a fairly wide-ranging reform – the so-called Energy Package – of CO₂ taxes was introduced, meaning that industrial tax rates were raised (Andersen et al. 2001; Ministry of Taxation 2001). However, a smaller part of the reform involved raising the sulphur dioxide (SO₂) tax for households. Revenue was

reimbursed through different arrangements; for instance, through subsidies for investments in greener household heating systems and through a lowering of general tax rates (Statsrevisoratet 1998). Denmark is one of the few EU member states where economic instruments have been implemented in the agricultural sector (Speck et al. 2006), for instance through a pesticide tax on agriculture (Pedersen et al. 2012a, 2012b).

In the 2000s, under the Liberal–Conservative government (2001–11), revenue measured as a percentage of GDP and as a percentage of total tax revenue started falling (see Figures 5.1 and 5.2) due to a tax freeze. In general, introduction of new green taxes slowed down in the 2000s (Lindhjem et al. 2009), although the period experienced some new initiatives too. For instance, a new industrial nitrogen oxides (NO_x) tax was implemented in 2010. When a new government led by the Social Democrats took power in 2011, the prospects were that green taxes would gain new momentum, as the Social Democratic-led government was based on a platform to reform taxes and charges to create the right incentives to ‘think and act green’, by ‘making it pay to save energy and reduce consumption of pesticides’ (Danish Government 2011: 27). However, in practice, the government has had a difficult time fulfilling these expectations. A doubling of the existing pesticide tax is currently (April 2013) under approval in the EU, but after a few months in office the government dropped its road tax plan in Copenhagen. Furthermore, as part of a 2013 Growth Plan, the government proposed to abolish the industrial CO₂ tax on electricity, abolish the packaging tax, reduce the industrial wastewater tax and drop the planned road taxes on lorries (Ministry of Finance 2013).

Green Tax Reform in Norway

Norway has also been a pioneer in introducing economic instruments within environmental policy and was an early mover (1991) in introducing CO₂ and energy taxes (Andersen et al. 2001). During the 1990s Norway introduced taxes on waste landfilling and incineration, sulphur dioxide (SO₂) emissions, NO_x emissions, non-refillable beverage containers, and chemical products too (OECD 2001b, 2011). Consumers in the two most northern regions – Nord-Troms and Finnmark – have since 1990 been exempted from electricity tax (Ministry of Finance 2007: 58). Some criticism was raised in the 1990s that many Norwegian mainland energy-intensive industries were totally exempt from CO₂ taxation and an expert Green Tax Commission proposed in 1996 to remove the exemptions. Consequently, the Norwegian minority government proposed in 1998 a minimum CO₂ tax rate at 100 NOK/ton, but a cross-party

opposition majority defeated the proposal (Andersen et al. 2001; OECD 2001b). The Green Tax Commission had very comprehensive proposals for a green tax reform in Norway, but in practice the suggestion led only to 'a very limited reform of the tax system'. Green taxes were increased by approximately €100 million and part of the revenue was used to increase tax allowances (Ministry of Finance 2003b, Ch. 5.6.2). According to the OECD (2001a: 51), part of the Norwegian green tax revenue has been used to lower income taxes. Since 2000, parallel with the described development in Denmark and the development in Sweden after 2006 (see below), Norway has slowed down the introduction of green taxes. However, in relative terms, measured against GDP and the total tax base, the decline started earlier (see Figures 5.1 and 5.2). During the period after 2000, most tax rates have only been adjusted incrementally from year to year based on the expected increase in general price levels, while new environmental tax initiatives have been few (Lindhjem et al. 2009). As shown in Figure 5.2, revenue from green taxes now makes up about 6 per cent of the total tax revenue in Norway, compared with 8 per cent during the 1990s.

Seventy per cent of Norway's greenhouse gas (GHG) emissions are today either covered by the EU's emission trading system or are subject to environmental taxes, but the effects have been small over time due to industrial exemptions and reduced tax levels (OECD 2011). Since 2003, a tax has been levied on import and production of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), chemicals with potentially high global warming effects (OECD 2011).

According to Barde (2004), due to a relatively favourable employment situation in Norway, less emphasis has been placed on double dividend effects. It might be added that, in general, the Norwegian state does not have the same financial need as the Danish and Swedish states to generate revenue from new taxes and charges, due to the huge profits generated from Norway's oil and gas production in the North Sea.

Green Tax Reform in Sweden

Like Denmark and Norway, Sweden was an early mover in introducing green taxes. In 1996, the OECD concluded that during the previous decade, Sweden used economic instruments to supplement traditional command-and-control instruments (OECD 1996). Actually, Sweden had since the 1970s made use of environmental taxes and charges and other economic instruments in environmental policy (Speck et al. 2006: 191), with this development accelerating in the 1980s and 1990s. For instance, in 1991, the Swedish energy tax was supplemented by a high CO₂ tax at

250 SEK/tonne CO₂, although tax rates for the manufacturing industry were reduced later in the 1990s (Andersen et al. 2001). A number of municipalities in the northern part of Sweden have a reduced electricity tax (Lindhjem et al. 2009: 85–6). The new energy taxes in the early 1990s generated a revenue of €1.8 billion; meanwhile income taxes were lowered (Speck et al. 2006: 191). Furthermore, in 2001, Sweden started implementation of a green tax-shifting programme involving a planned €3.3 billion of revenue over a ten-year period (Speck et al. 2006; Lindhjem et al. 2009). €1.1 billion was reformed in the first four-year period (2001–2004). Part of the revenue was used to lower income taxes, lower employers' contribution and raise personal allowances (Rutqvist et al. 2012; Speck et al. 2006: 191).

In the OECD's second review of Sweden in 2004, it was concluded that in the period 1996–2004, several new green taxes, charges and duties were introduced (for example, municipal waste charges, landfill tax, gravel tax, annual excavation charge, airplane emission landing charge, oil transport duty, road user charges). Furthermore, several established taxes were modified to better internalize environmental externalities; and for several taxes and charges, levels were raised. According to Rutqvist et al. (2012), Swedish industries were in general excluded from the new taxes. The OECD concluded in 2004 that 'with almost 70 market-based instruments, Sweden probably has more economic instruments in use than any other country' (OECD 2004: 45; see also Environmental Protection Agency and Energy Agency 2006). After 2004, green tax reform continued, including more than €2 billion for the period 2001–2006. After the change of Swedish government in 2006, where the Social Democratic Party lost, after having been in power from 1994 to 2006, green tax reform was stopped (Rutqvist et al. 2012). In relative terms, Swedish revenue from green taxes has been more stable in the period 1994–2010 than revenues in Denmark and Norway (see Figures 5.1 and 5.2).

DO GREEN TAXES IN SCANDINAVIA CREATE MORE (IN)EQUALITY?

Below, some evidence regarding the distributional effects of green taxes in Scandinavia is presented, keeping in mind the four aspects mentioned above: (1) the direct effect of price increases on income distribution; (2) the effects of the recycling of the revenues from green taxes; (3) the wider socio-economic effects, including potential job creation; and (4) the effect of a reduction of environmental problems and related health problems.

Denmark

The Danish Economic Councils (2009) analysed different equality aspects of current Danish green taxes. Table 5.1 shows how large a part of total household consumption green taxes account for.

Unsurprisingly, in absolute terms high-income citizens pay higher taxes than low-income citizens. Citizens in decile 10 pay 0.74 billion DKK in green taxes, while those in decile 1 pay only 0.31 billion DKK and people outside the workforce 0.30 billion DKK. What might be more surprising is the relative numbers. For the lowest-income group (decile 1) green taxes constitute 5.24 per cent of their consumption (and 4.99 per cent for those outside the workforce), while for the highest-income group (decile 10) green taxes constitute 6.24 per cent of consumption (and 7.52 per cent for decile 6). However, if compared with decile 2 (6.21 per cent), the share is almost equal. As evident from Table 5.1, the difference can primarily be explained by transport taxes. High-income groups buy more expensive cars (car registration tax varies from 105 per cent for the cheapest cars to 180 per cent for the most expensive cars; Danish Economic Councils 2009: 143) and drive more miles than the lowest-income group and those outside the workforce, therefore a higher part of their consumption goes to green taxes within transport. By contrast, for green taxes on water and electricity, which constitute a larger share of consumption for low-income groups than for high-income ones, the differences are not as huge. Measured as a percentage of consumption, Danish green taxes seem to have an income-leveling effect and thereby contribute to more equality in economic terms (Danish Economic Councils 2009: 122). However, the picture may be different if measured against total income (instead of total consumption). High-income groups save more of their earnings than low-income groups and, needless to say, saved income is not subject to green taxes. On the other hand, it might be argued that saved income at some point will be invested in consumption and therefore, over time, will be subject to green taxation too (*ibid.*).

As shown in Table 5.2, when measured against household income, vehicle taxes and energy taxes contribute more inequality (Danish Economic Councils 2008). Jacobsen et al. (2001: 58; see also Jacobsen et al. 2003; Wier et al. 2005) measured the distributional effects for all green taxes and concluded that in total they have a small regressive effect. The regressive effect is less than, for instance, the effect of Danish value-added tax (VAT). Danish petrol and registration duties for cars are progressive, whereas most other environmental taxes are regressive – in particular, taxes on water, retail containers and CO₂ emissions (Jacobsen et al. 2003). Isolated, the Danish CO₂ tax is more regressive than VAT (Wier et al. 2005).

Table 5.1 Danish green taxes and distribution measured as % of household total consumption

	All green taxes	Electricity	Energy, other	Transport (incl. fuel)	Water	Other green taxes	All green taxes
	% of consumption						
	Billion DKK						
Outside workforce*	0.30	0.94	1.16	2.58	0.23	0.08	4.99
Within workforce:							
1. Income decile	0.31	0.96	1.02	3.01	0.19	0.07	5.24
2. Income decile	0.40	0.81	1.14	4.02	0.18	0.07	6.21
3. Income decile	0.36	0.81	1.06	3.39	0.18	0.07	5.51
4. Income decile	0.45	0.76	0.97	4.17	0.17	0.07	6.13
5. Income decile	0.52	0.78	1.02	4.76	0.18	0.06	6.79
6. Income decile	0.63	0.70	1.04	5.55	0.17	0.07	7.52
7. Income decile	0.52	0.75	0.98	4.42	0.17	0.07	6.40
8. Income decile	0.64	0.69	0.93	5.41	0.16	0.06	7.24
9. Income decile	0.72	0.74	1.07	5.13	0.16	0.07	7.16
10. Income decile	0.74	0.64	1.06	4.33	0.14	0.07	6.24

Note: *The group of citizens outside the workforce is larger than the deciles. Therefore numbers in this category are adjusted to make comparable data.

Source: Danish Economic Councils (2009: 122), based on the MUSE database. MUSE is a general equilibrium model.

Table 5.2 Danish green taxes and distribution measured as % of disposable income

	Vehicle taxes	Taxes on energy products
Disposable household income:	4.97	4.34
< 100 000 DKK		
100 000–150 000 DKK	2.43	3.73
150 000–200 000 DKK	3.59	3.49
200 000–250 000 DKK	4.71	3.25
250 000–300 000 DKK	2.44	3.02
> 300 000 DKK	2.60	2.35

Source: Extracted from Danish Economic Councils (2008: 340).

Additionally, Jacobsen et al. (2001, 2003) found some residential inequalities, since rural households are more exposed to environmental taxes due to higher transportation costs, limited access to efficient heating technology, and limited access to district heating and natural gas.

However, the total distributional effects are very dependent on how the revenue from green taxes is used by the state. If it is reimbursed through lower income tax targeted at lower incomes or (in particular) higher personal allowances, there will be a benefit for low-income groups. It is worth noticing though that if the revenue is reimbursed through higher personal allowances, there will not be as large a positive effect on employment (and therefore higher welfare economic costs) as when reimbursed through lower income taxes (Danish Economic Councils 2009: 173, 180). As mentioned in the section on ‘Green Taxes and Distributional Effects’, the 1993 green tax reform lowered income taxes.

In terms of broader environmental effects, there is some evidence that low-income groups are more exposed to pollution and therefore might reap more of the benefits from green taxes addressing at least local and regional types of pollution, like air pollution. However, differences do not seem to be very large. For instance, Kristensen and Larsen (2006) found that 10.2 per cent of Danish high-income homeowners suffer from pollution, while the figure for low-income tenants is 14.8 per cent and the average for the Danish population is 11.7 per cent. There are a number of analyses of the positive effects of Danish green taxes. For instance, they have contributed to lowering air pollution (CO₂; carbon monoxide, CO; SO₂; NO_x, particulate matter; and volatile organic compounds, VOCs) (see e.g. Ministry of Finance 2001; Danish Economic Councils 2012: 127f), but it is very difficult to assess precisely whether they have contributed to more equality in environmental terms. Some of the Danish green taxes have had

a more limited effect, for example the pesticide tax (Pedersen et al. 2012a, 2012b; Danish Economic Councils 2012).

Norway

Norway's National Sustainable Development Strategy sets out five key principles against which to judge Norwegian policy action: (1) equitable distribution; (2) international solidarity; (3) the precautionary principle; (4) the polluter-pays principle; and (5) joint efforts (OECD 2011: 34). As such, Norwegian green taxes do not in general have very large regressive effects. However, since the mid-1990s Norway has paid relatively little attention to green taxes (Ministry of Finance 2003b; Lindhjem et al. 2009).

When the Norwegian expert commission on Green Taxes – A Policy for Better Environment and High Employment presented the final proposal for a green tax reform in 1996, it focused on distributional effects (Ministry of Finance and Duties 1996). The commission concluded that if there are positive employment effects of a reform, the total distributional effects will probably be positive. The distributional effects of changing prices are difficult to model but, in general, taxes on flights and taxis are progressive and likely to have positive equity effects given their high income elasticity. Vehicle fuel taxes seem to have a small regressive effect on distribution, while car registration tax has a progressive effect. Furthermore, the commission refers to a Norwegian 1992 study analysing the effects of a fossil fuel tax which concluded that the effects were relatively equitably distributed among different types of households; there was more differentiation among different regions (Ministry of Finance and Duties 1996). Another committee under the Norwegian Ministry of Finance (2007: 181) assessed the distributional effects too (see Table 5.3). Here it was found that fuel taxes and electricity taxes are clearly regressive, while taxes on vehicle fuel and oil are somewhat regressive. Taxes on flights are very progressive, while car registration taxes are somewhat progressive.

Consequently, if a goal of green tax reform is to limit inequality, decision-makers should focus on plane flights and car ownership; then again, the total effects are dependent on how the revenue is used and what environmental effects occur.

As mentioned, due to relatively low unemployment rates, Norway has placed less emphasis on double dividend effects according to Barde (2004). However, the above 1996 commission had a comprehensive focus on these aspects. The macroeconomic analyses performed by the commission indicated that there was a potential for double dividend effects in Norway through a lowering of unemployment rates, but that the effects on employment were relatively modest. However, in the commission's opinion

Table 5.3 Distributional effects of green taxes in Norway

Product	Change in degree of equity per NOK
Fuel	0.820
Electricity	0.712
Gasoline and oil	0.233
Local road transport	0.092
Road transport, long range	0.000
Car ownership	-0.609
Flight travels	-1.410

Note: Negative numbers indicate a progressive effect; positive numbers indicate a regressive effect.

Source: Ministry of Finance (2007: 184).

these modest effects should not prevent the Norwegian government from introducing more green taxes, because of the additional effects on pollution reduction (Ministry of Finance and Duties 1996: 44).

Regarding the distribution of environmental effects, the Norwegian green tax commission (Ministry of Finance and Duties 1996: 467) found that negative environmental effects are quite unevenly distributed in Norway, for example between households in the countryside and in the larger cities, but also among households with different income levels. Among households with economic problems, 60 per cent were exposed to environmental problems, while this was the case for only 35–40 per cent of those households which did not experience economic problems. Negative traffic effects are highest for middle- and low-income households.

Sweden

Sweden has for more than two decades been very active in implementing economic instruments in its national environmental policy. In 2003, an expert group made a comprehensive analysis of the distribution of costs and benefits in Swedish environmental policies for the Ministry of Finance (Ministry of Finance 2003a). The main conclusions are that: (1) the purpose of 'environmental policy' is to change consumption and production patterns, and the environmental policies will therefore inevitably have distributional effects; (2) if decision-makers want to combine environmental aims with regional balance, this will lead to stringent requirements as people living in the countryside are harder hit by the costs of Swedish environmental policies than people living in cities; (3) if decision-makers

want to combine environmental aims with an equal distribution of income, there is a need for compensating measures for low-income groups; (4) impact analyses must be performed before decisions are made (Ministry of Finance 2003a: 11).

The 2003 Swedish expert group made an *ex ante* analysis of a green tax reform involving a non-marginal rise of the Swedish CO₂ tax, and combined it with three different reimbursement scenarios: (1) lowering general VAT; (2) subsidizing public transport; and (3) lowering income tax. In general, Swedish low-income households and households in sparsely populated areas will carry a heavier burden in relative terms (measured against income level) in scenario 1. In scenarios 2 and 3 the results are a bit mixed, but the highest-income group is favoured in all three scenarios in relative terms and, in general, households in sparsely populated regions will experience a disadvantage (Ministry of Finance 2003a: 78). Some of the effects are quite comprehensive. For instance, in scenario 1, Stockholm households will experience a 0.2 per cent cost rise (measured as disposable income), while households in the sparsely populated and colder Norrland Region will experience a 0.6 per cent rise. On average, low-income households use 15 per cent of disposable income on energy consumption, while the figure for high-income households is 7 per cent. Stockholm households use 7 per cent of disposable income on energy consumption; Norrland households use 10–14 per cent. The Ministry of Finance (2003a: 163) also found that existing vehicle fuel taxes have significant regional effects. In sparsely populated municipalities, inhabitants typically contribute with 5000–6000 SEK/per year in road fuel taxes, while inhabitants in the large and largest cities pay only approximately half of this amount. Tax allowances for work-related travel do not compensate for the differences to any significant degree.

According to the Swedish Environmental Protection Agency (2004: 9) earlier Swedish model simulations have not given support to any double dividend effect, which according to the agency is unsurprising as these model simulations have not addressed the benefits of environmental improvements and positive effects on employment – the two effects which constitute ‘the double dividend’. The Environmental Protection Agency finds that the Swedish green tax reforms from 2001–2003 brought increased revenue of 8 billion SEK, primarily through a higher CO₂ tax and a higher electricity tax (manufacturing industry has been exempted from the rises), with positive effects for almost all household groups (on average). The reason for this effect is that while households and the service sector bear the costs (the effects on prices and salaries of the higher costs on the service sector are not calculated, though), the revenue is reimbursed solely to households, through raising the personal allowance. In other

words, the regressive effects of raising the energy taxes have been levelled out by the change in the personal allowance (Swedish Government 2003: 233ff; Environmental Protection Agency 2004: 10–11; Speck et al. 2006: 252).

A detailed analysis of the effects concludes that although the reform is revenue neutral, the direct income effect is positive (although the effects are small) for almost all average household groups (divided by income, family type, region and dwelling type). On average, all family types experience small positive effects of up to 0.3 per cent of disposable income. For most income groups the effects are positive (up to 0.3 per cent of disposable income), but for the lowest and the highest income decile there are small negative effects (0.4 per cent for the lowest-income decile, just above 0 per cent for the highest-income group). The negative effect in the lowest-income group is explained by the fact that a number of business owners are registered with a very low income but possess a high energy consumption, and therefore cannot be considered as traditional low-income individuals. Furthermore, many social security receivers are registered in this income group: they often do not pay income taxes and therefore do not get the benefits of a lower personal allowance (Swedish Government 2003: 234–5). The regional effects are all positive but very small (the highest positive effects are in Gothenburg with 0.2 per cent). The largest variation is found among different types of dwellings. Houses without electricity lose on average 0.3 per cent of disposable income, while the group ‘other’ has a positive effect of 0.6 per cent. In other words, on average, people in houses without electricity and people receiving social security contributions seem to be the losers, although the loss is relatively small, while the other groups are net winners. Needless to say, in particular the results for a relatively exposed group like social security receivers may raise some equity concerns.

The Swedish Government (2003: 237) also analysed the distributional effects if there had been no extra revenue from the service sector. Here, the net effects are within the interval of a 0.1 per cent negative effect on disposable income (for the highest-income group) and a 0.2 per cent positive effect (for one of the middle-income groups), except for the lowest-income group, which experiences a negative effect of 0.9 per cent. The analysis did not involve any calculation of employment effects or environmental effects. Furthermore, there has been critique of the ‘extremely static’ character of the analysis (see Brännlund 2005: 52, our translation). According to Rutqvist et al. (2012), Swedish Government (2003) is the only official analysis of the Swedish green tax reforms 2001–2006. Additionally, Rutqvist et al. (2012: 25f) remark that the Swedish government have not had an explicit focus on employment effects, and explains that the reason for this

might be that the tax base for environmental taxes is still relatively small and therefore the lowering of income taxes and the possible employment effects are relatively small too.

Sterner (2012) analysed the distributional effects of transport fuels in a comparative study of seven European countries including Sweden. Sterner points to the fact that fuel taxation is one of the few policy instruments that has actually reduced fuel consumption considerably (mainly in Europe and Japan) and thereby reduced CO₂ emissions, but fuel taxation is often met with resistance as this policy instrument is considered to be strongly regressive. One conclusion of the comparison is that in general, measured as share of income, distributional effects are small and in many countries reasonably close to proportionality. There is some regressivity for Sweden and the UK, and progressivity for Serbia. However, when expenditures are used as a proxy for lifetime income, the result for Sweden is that the taxes are progressive. Measuring against lifetime income results in very small distributional effects close to proportionality in all seven countries (Sterner 2012: 81).

According to Brännlund (2005: 64f) most analyses of green tax reforms show that: there is no double dividend; the environmental effect is often small; green tax reform can collide with other societal aims (income distribution and regional distribution); reimbursement mechanisms are not decisive for double dividend effects; reimbursement mechanisms can be decisive for the distributional effects.

Speck et al. (2006) conclude that many of the analyses of distributional consequences in Denmark and Sweden are dependent on modelling approaches with different underlying assumptions, which makes them difficult to compare, but 'one finding which holds for both countries is that the geographical location of households is of great significance as households living in rural areas face a higher tax burden as a result of CO₂ taxation than households living in urban regions' (Speck et al. 2006: 251).

The OECD (2004: 46) remarks that more attention should be addressed to measuring the effects and cost-effectiveness of the Swedish measures. Rutqvist et al. (2012) also find that the environmental effects are sparsely analysed for the green tax reforms 2001–2006. However, some environmental policy instruments have been evaluated, regarding their environmental effect; for instance, the Swedish sulphur tax accounts for an estimated 30 per cent of the reduction in Swedish SO₂ emissions in the period 1989 to 1995; and the Swedish NO_x charge is estimated to have contributed both to a reduction in NO_x emissions and to an increase in energy efficiency, due to a refund mechanism where the charge is refunded in proportion to the amount of energy generated and in inverse proportion to emissions

(OECD 2004); there are also indications of relatively comprehensive effects of Swedish CO₂ taxes (Andersen et al. 2001; see also Environmental Protection Agency and Energy Agency 2006). In other words, there are benefits to the policies, but knowledge on how the benefits are distributed among different social groups is lacking.

CONCLUSION

While the pace of green tax reforms has slowed down or even reversed in the last decade, the three Scandinavian countries have a relatively long history of green taxes and all three have had elements of green tax reforms in their policy designs, as part of the revenue collected from green taxes has been used to lower other distorting taxes in the economies. Thus, the Scandinavian countries offer a good opportunity to examine empirically the relationship between environmental taxation and social equity. Hence, this chapter has reviewed available evidence on the distributional effects of environmental taxes on household incomes in the Scandinavian countries. The question posed was whether the Scandinavian green taxes contribute to (in)equality among social groups. As predicted, the overview of the evidence of the effects on equity of green taxes in the Scandinavian countries does not provide us with a conclusive answer.

The complex relationships among prices, revenue recycling, tax reform and environmental improvement renders a clear conclusion impossible. Moreover, relatively few studies have examined this question and dominant among these are model simulations, often carried out *ex ante* and employing highly idealized assumptions about human rationality. Solid *ex post* analyses of the environmental, employment, reimbursement and distributional effects of green taxes in Scandinavia, based on empirical data, are rare. Furthermore, there are no *ex post* analyses of the total distributional effects of any of the green tax reforms in the Scandinavian countries. But despite lacking a conclusive answer, we have some indications of the equity impact of environmental taxes.

Regarding environmental effects, there is some evidence that green taxes have generated positive environmental effects, but how the benefits of green taxes are distributed among different social groups in Scandinavia is largely unknown. There is some evidence, though, that low-income groups are more exposed to pollution than high-income groups, and therefore green taxes may potentially contribute to more equality by curbing emissions. But any conclusion on this aspect requires a more detailed look at the specific forms of pollution and their distribution across socio-economic groups. The employment effects of green tax reforms seem

to have been barely researched at all. It can be concluded, though, that expectations regarding those effects are apparently not very high among Scandinavian governments.

The distribution of the costs of green taxes has been the subject of more analyses. There is evidence that some types of green taxes are typically more regressive than others, although there are some differences among countries. Water and electricity are examples of commodities which normally constitute a larger share of consumption for low-income groups than for high-income groups, and green taxes on these commodities therefore often have a regressive effect. In contrast, car registration taxes typically exhibit progressive effects. There are distributional effects among different regions within all three countries. In general, rural households are more vulnerable to green taxes than households in cities.

Inevitably, green taxes in Scandinavia have led to some inequalities both regarding costs and benefits. The good news is that the experience of the Scandinavian countries also shows that governments aiming to avoid inequalities among different income groups, regions and so on regarding the distribution of the costs of green taxes, can do so through careful tax design. If the revenue is reimbursed through lower income taxes or, in particular, through higher personal allowances, it is possible to make the whole tax package proportional or progressive. In fact, as demonstrated via the Swedish green tax reforms of 2001–2003, it is possible to provide a net benefit for all households if green tax revenue from other sectors of the economy is reimbursed to households, for instance through a higher personal allowance. Another design option is to differentiate the tax levels, as demonstrated in electricity taxes in Northern Sweden and Norway, and thereby avoid geographical inequalities.

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6. ENGO activism in the EU: the G10, climate change and social policy

Michael Briguglio, Maria Brown and Ian Bugeja

INTRODUCTION

This sociological study analyses European environmental non-governmental organizations (ENGOS) in terms of political ideologies and strategies, in relation to climate change policies, and within a social policy context. This study makes use of qualitative methodology that employs discourse analysis to a sample of press releases released by ENGOS forming the Green 10 (G10) – this being the transnational entity that brings together ten of the largest and most influential ENGOS in the European Union (EU) (Green 10 n.d.). Furthermore, sampled press releases are related to the four main target areas of the 2009 Copenhagen Deal endorsed by the United Nations Framework Convention on Climate Change (UNFCCC).

ENVIRONMENTAL IDEOLOGIES

A basic way of conceptualizing the ideologies of ENGOS is by contrasting moderate and radical ideologies. Compared to other ideologies that promote radical social change, ideologies such as sustainable development, ecological modernization and conservationism can be considered to be moderate (Dalton 1994; Dickens 1996, Van Der Heijden 1999; Williams and Ford 1999; Carter 2001, 2007).

A chief characteristic of sustainable development is its attempt to reconcile economic, social and environmental factors through the involvement of the state and civil society by means of cooperation at international, national and local levels (Sutton 2004). Sustainable development is a dominant environmental ideology on a global level, enjoying endorsement by institutions such as the United Nations and the EU, for example in attempts to reduce poverty, increase access to education, protect the environment and increase public participation. Business interests can present obstacles to such goals, for example if goals such as green consumerism are promoted, thus contradicting ‘the logic of capitalism towards capital accumulation and maximization of profits’ (Carter 2001: 321).

Ecological modernization is also endorsed by institutions and policy-makers. This ideology endorses economic growth that does not damage the environment. Clean technology, innovation, regulation and market-based instruments such as emission trading schemes (which are being promoted by the EU) play a key role in this 'green' version of capitalism, which is promoted in advanced industrial societies (Mol and Sonnenfeld 2000; Carter 2001; Sutton 2004; Milanez and Buhrs 2007).

Conservationism gives priority to the preservation of what is considered to be threatened by society (Dalton 1994). Activities from habitat protection to eco-labelling are promoted through consensual reforms and partnerships, for example between State agencies and ENGOs (Carter 2007: 148–9).

Radical environmental ideologies include eco-socialism, environmental justice, ecologism, deep ecology and eco-feminism. Eco-socialism argues that only radical social change can do away with environmental catastrophe and mass inequality, which in turn are the products of capitalism (Kovel 2007). Class politics are considered to be of strategic importance, 'first because of growing economic oppression and exploitation, and second, because ecological degradation is increasingly a class issue (but rarely *only* a class issue)' (O'Connor 1998: 267). Similarly, environmental justice holds that issues of class, poverty, race and gender are related to environmental issues (Carter 2001: 144), thus speaking in terms of issues such as 'climate justice' (Di Chiro, 2008: 291).

Ecologism puts forward ecocentric philosophy, arguing that there are limits to growth. Ecologists promote a small-scale society characterized by fewer material objects, less reliance on technology, and more labour-intensive work (Dobson 2007). Ecologism is also related to other ideologies such as eco-feminism, deep ecology and Gaia theory. Eco-feminism celebrates the relationship between women and nature, arguing that patriarchal practices are harmful to both (Shiva 1988). Deep ecology is a more radical version of ecologism, thus promoting a return to what it deems authentic nature made up of simpler lifestyles (Devall 1990). Gaia theory argues that nature, or 'Gaia', is self-regulating and ultimately in control and will survive and adapt to change without human beings (Lovelock 1979).

Besides the above, one can also speak of 'not in my backyard' (NIMBY) concerns on local issues related to overdevelopment, local pollution and so forth (Carter 2001: 144).

Though the identification of environmental ideologies is essential for research purposes, ENGOs cannot always be straitjacketed by such ideal types. Within the same ENGO, different tendencies and trends may exist. Some have observed, for example, the trend towards institutionalization of

NGOs which become increasingly moderate – which will be elaborated upon below. Hence, Neil Carter (2001: 315) believes that the environmental movement has become ‘so reconciled to the continuation of capitalism that it is now positively enthusiastic about the role of the market as a tool to protect the environment’.

IDEOLOGICAL INSTITUTIONALIZATION?

Whilst moderate NGOs tend to believe that environmental improvements can take place through social reforms, radical NGOs demand radical social change. Hence one would expect moderate NGOs to be more likely to participate in mainstream politics through formal procedures, and radical NGOs to be more present in radical action such as protests and demonstrations. In turn, this may result in institutionalization of NGOs. Here ‘social activities become regularized and routinized as stable, social-structural features’ (Jary and Jary 2000: 303).

Through such a process, professional and conventional methods are given priority over radical strategies, albeit in different degrees amongst different NGOs. Friends of the Earth (FoE), the World Wide Fund for Nature (WWF) and Greenpeace have all been dubbed as examples of institutionalization (Van Der Heijden 1999; Carter 2001; Rootes 1999, 2007), and this process seems to be increasingly common. As Russel J. Dalton (1994: 256) puts it:

Radical and anarchic elements within the movement are scarce, even if they are visible in the media. Rather, most environmentalists are products of Western affluence and strong advocates for the democratic creed. The green movement, and other NSMs [new social movements], primarily represent a reformist challenge to contemporary political systems. They press for political change across a wide front, often asking simply that European societies continue the political and social thinking that initially spawned these movements.

On the other hand, institutionalized NGOs may have access to restricted information and to decision-making spheres (Carter 2001; Rootes 2007). Yet, can a place on the negotiating table be equated to significant impacts in terms of environmental policy? Is it more accurate to speak in terms of institutionalized NGOs which have ‘joined the global campaign to keep socio-economic development patterns in rich countries and limit it in poor ones?’ (Di Chiro 2008: 285–6).

In an EU context, radical NGOs are seen as not fitting within the European Commission’s vision of European civil society (Hunold 2005). Conversely, moderate NGOs may be seduced, institutionalized and co-opted within EU structures, through access of resources such as funds

and consultation. This could result in a state of dependence (Knill and Liefferlink 2007: 72), and could benefit long-established ENGOs at the expense of recently set-up groups (Taylor 2005: 165). Yet the EU itself does not have a singular, monolithic environmental ideology. As Michael Briguglio (2013: 120) puts it:

Nodal points on economic competitiveness and environmental sustainability and protection, feature prominently in EU politics. These are often signified by neo-liberal demands, though the economic logic does not feature in all EU environmental policies. The latter often involve moderate ideologies of ecological modernisation, sustainable development and conservationism.

The overdependence of moderate ENGOs to state structures might create space for radical ENGOs to be active at grassroots level. Both elements of the environmental movement might end up needing each other. One sits on the same table with policymakers, and speaks a similar language; the other comes up with innovative ideas and has clearer access to everyday environmental issues. The moderate and radical wings of the environmental movement may thus be considered to be symbiotically related, resulting in 'creative tension' (Carter 2001: 147).

The next part of this literature review will focus on the ENGOs which are being researched in this study, namely the members of the Green 10. In turn, this chapter will analyse the ideologies of such ENGOs.

THE G10 ENGO ALLIANCE

Following the adoption of the Single European Act and the realization of the Common Market Programme, the EU has been characterized by a 'dramatic increase' in the number of civil society actors that include ENGOs (Knill and Liefferlink 2007: 69–72). An important development in this regard was the development of the Green 10 (G10), which, in its words, comprises 'ten of the largest European environmental organisations/networks. They coordinate joint responses and recommendations to EU decision-makers. Membership of the Green 10 alone is more than 20 million people' (Green 10 n.d.).

Member organizations of the G10 are BirdLife International, Central and Eastern European Bankwatch Network (CEE Bankwatch), Climate Action Network Europe (CAN-E), European Environmental Bureau (EEB), European Federation for Transport and Environment (T&E), Health and Environment Alliance (HEAL), Friends of the Earth (FoE) Europe, Greenpeace, Naturefriends International and World Wide Fund

for Nature (WWF) European Policy Office. Greenpeace, WWF and FoE have over 10 million members, most of whom live in Europe (Van der Heijden 2010: 9).

The European Environmental Bureau, an umbrella organization of 140 ENGOs founded in 1974, highlights various areas which should concern ENGOs, and recommendations are put forward accordingly (Falter and Scheuer 2005: 43). It has also created alliances with trade unions, social and consumer bodies and specific industries. For example, together with the European Trade Union Confederation (ETUC) and the Social Platform, it lobbied for the linking of the EU Lisbon process with sustainable development (European Environmental Bureau 2007: 2). In 2009, CONCORD (the European Confederation for Relief and Development) joined forces with these three organizations, and the 'Spring Alliance' (2011). The Spring Alliance also comprises various civil society organizations, including ENGOs such as Friends of the Earth International, Greenpeace and BirdLife International; and various other stakeholders, including some Green and Left Members of the European Parliament.

Other ENGOs such as Friends of the Earth Europe, Greenpeace and WWF have been established on a European level since the mid-1980s, whilst others such as BirdLife International, Climate Network Europe and the Transport and Environment Federation were established during the 1990s (Knill and Liefferlink 2007: 71–2).

The largest ENGOs within the EU are all based in Brussels, yet they collectively employ fewer than 30 people in their Brussels offices; a far cry from employment numbers in business lobbies. Indeed, economic interests, which are generally more powerful, have been longer established on a European level (Knill and Liefferlink 2007: 71).

G10 ENGOs (with the exception of Greenpeace) access European Commission (EC) funds (Hunold 2005). The moderate EEB is most dependent on EC funding (Rootes 2007). Some may argue that the ENGO has been institutionalized and co-opted, yet others highlight that it is considered to be 'the most comprehensive environmental interest association' (Knill and Liefferlink 2007: 71). As stated above, Greenpeace does not accept EC funding, and is best known for its spectacular direct actions and media stunts. At the same time, however, it has also incorporated 'rational' debate with industry through scientific discourse (Carter 2001).

Friends of the Earth is not as radical as it was in its earlier years, and is now a professional organization with a centralized structure. As Neil Carter (2001: 139) puts it:

Today FoE is regularly consulted by government and its representatives are frequently found on official committees. Consequently, it eschews the grand

confrontational gestures which helped build its reputation but that might now lose it the respectability needed for regular insider status. Where FoE once relished direct action, it is now hesitant to use it because as a large 'protest business' it cannot afford to break the law for fear of having its financial assets sequestered by the courts.

Yet one should also note that unlike Greenpeace and WWF, FoE has formed alliances with the global justice movement and is critical of neoliberalism (Doherty and Doyle 2006; Carmin and Bast 2009).

Therefore, the literature points towards institutionalization of G10 members, albeit having elements of the 'creative tension' referred to above. Consequently this chapter will analyse what environmental ideologies are adopted by G10 members through their official statements.

METHODOLOGY

Research Questions

The literature review discussed in the previous section of this chapter establishes that a thorough understanding of EU ENGOs ideologies and strategies calls for an analysis of their environmental ideological approach, ideological institutionalization and alliance patterns. Thus, the research questions at the heart of this study are:

- What environmental ideologies feature among ENGOs within G10?
- Do ENGOs in the G10 form alliances in their activism on climate change?
- What is the relationship between the ENGOs' ideologies and their institutionalization?

These research questions are addressed using a qualitative research design, as explained in this section.

Documentary Analysis

Documentary analysis lends itself beautifully to this particular study since documentary analysis provides data on practical and political issues, agendas and decisions that policymakers make on a short-term and long-term basis (May 1992: 133). Hence it becomes possible for researchers to research documents in terms of 'what they leave out, as well as what they contain' (May 1992: 138). Thus, it can be said that through documentary

analysis it is possible to understand agendas that often go through unnoticed under the guise of 'official hence neutral' documents.

Sampling

The population for the investigation of the research questions of this study were ENGOs forming part of the Green 10 (G10) at the time of the study in 2012. This was the most practical, valid and reliable choice given that these comprise ten of the largest European environmental organizations with significant voice and space when it comes to decision-making at EU level (Green 10 n.d.).

Documents sampled for research purposes consist of press releases published by the G10 during 2011. The main reason behind the choice of press releases is their high practicality given that they are readily available and accessible online. There is also high reliability since easy access also makes it possible to repeat the study at any time, possibly to compare with a different time-frame. Internal and external validity are thus enhanced since '(n)o aspect of social reality depends on a single text, or even on all the texts that exist in a particular setting' (Philips and Hardy 2002: 86).

The main reason for the choice of time-frame is that 2011 is the most recent full year that followed signing of the 2009 Copenhagen Deal endorsed by the United Nations Framework Convention on Climate Change (UNFCCC). This event is described as 'the moment in history in which humanity' had the chance to respond to the challenge of climate change (UNFCCC 2012). Indeed, given that the Kyoto Protocol's expiry is 2012, the Copenhagen Deal is intended to seal commitment to sustainability and equitability beyond 2012.

Due to the voluminous amounts of press releases published by the G10 over the one-year period, further sampling narrows down the number of press releases related to particular issues. To explain better, the Copenhagen Deal itself targets four main areas, namely: (1) commitment of industrialized countries with respect to mid-term emission reduction targets; (2) actions for developing countries targeting limited greenhouse emissions; (3) financing for developing countries to minimize greenhouse gas emissions and adapt to climate change; and (4) selection of institutions that can support developing countries in empowered decision-making with respect to a sustainable use of technology and financing. Therefore, given that in the literature review the established indicators for a thorough understanding of ideologies and strategies of ENGOs in the EU are: (1) type of environmental ideology; (2) level of institutionalization; and (3) type and degree of alliances established, this study analyses these indicators with respect to the G10's perspectives on developments accomplished

in the four key areas described above during 2011. In order to do this, discourse analysis is employed, as explained in the next section.

Discourse Analysis

This study makes use of discourse analysis to analyse raw data in such a way that text documented in G10 press releases is treated as discursive units (Philips and Hardy 2002). The term 'discourse' makes reference to 'actual practices of talking and writing' (Woodilla 1998 in Philips and Hardy 2002: 3), hence the appropriateness of this analytic tool in analysing press releases. As an analytic tool, discourse analysis presumes that 'without discourse there is no social reality, and without understanding discourse, we cannot understand our reality, our experiences, or ourselves' (Philips and Hardy 2002: 2). Nonetheless, texts obtain meaning when interconnected to others (Philips and Hardy 2002: 4) hence the need to sample a number of G10 press releases during 2011. According to Fairclough (1992, cited in Philips and Hardy 2002) discourse analysis is based on a three-dimensional approach whereby the analytic process investigates: (1) texts' connection to discourse; (2) connections with the historical and social context; and (3) connections with actors, relationships and practices.

Challenges

Through discourse analysis, meaning is derived through an understanding of sources, production, dissemination and consumption. Yet this understanding has to take into account the risk of subjectivity; a subjectivity of wide-ranging and multidimensional traits. On the one hand, the G10 is a heterogeneous association of NGOs, as will be established in the analytic part of this chapter. It features diverse meanings and motives underpinning the production and dissemination of press releases. On the other hand, the research team's consumption of press releases in the sampling process and understanding of data is also open to subjective bias. There is also the challenge of filling any gaps between participants' and researchers' interpretations (MacDonald and Walker 1975). Hence the relevance of unifying the research exercise on the basis of indicators as pillars of the research design. This is not to say that the choice of indicators is not prone to subjectivity, yet the literature review exercise substantiates the choice.

Another challenge of this study is to not reduce the analysis to mere consideration of text and context, typical of semiotics and narrative analysis, yet not discourse analysis (Philips and Hardy 2002: 86). This study calls for a three-level consideration of text, discourse and context 'to understand how structured sets of text and the practices of their production,

dissemination, and reception together constitute the social'. The next section analyses data from the ten ENGOs in the G10.

ENGOs

BirdLife International

The ideology of conservationism features prominently in BirdLife's press releases relating to climate change. As its name suggests, one of the ENGO's focus areas pertains to the monitoring and conservation of bird areas (BirdLife 2011a) and the modus operandi of funds from the EU that pertain to the preservation of habitat improvement of bird life (BirdLife 2011b, 2011c). However, the ENGO also raises its concerns over funding which pertains to unsustainable and polluting farming methods (BirdLife 2011d), and on the need for serious reform of the Common Agricultural Policy (CAP) (BirdLife 2011e). It also welcomes reforms such as via the EU Biodiversity Strategy (BirdLife 2011f).

The ENGO voices its concerns about legislative loopholes that have a ripple effect on the environment: 'A major carbon accounting flaw in EU legislation whereby biofuels used in transport and biomass used for power generation are counted as "zero emissions" will have "immense" consequences for the environment' (BirdLife 2011g). Other examples in this regard include the press releases against the use of biofuels in certain areas (BirdLife 2011h); and also about unsustainable use of biofuels in general (BirdLife 2011i).

With regard to institutions that the ENGO resorted to, the European Commission is the main actor, particularly with regard to Environmental Impact Assessments (EIA) of potential impacts on local habitats and bird species, and on member states' obligations to Natura 2000 (BirdLife 2011j). It also may effect a shift towards green issues in EU budgeting (BirdLife 2011k, 2011 l).

At times, the ENGO resorts to the above institutions via alliances, such as OCEAN2012, Seas At Risk and WWF, when all these groups were urging the European Parliament and Council of Ministers to follow the EU Court's recommendations (BirdLife 2011m); and with the European Environmental Bureau (EEB) and Transport & Environment (T&E) when calling for the immediate revision of biofuel sustainability criteria to take indirect land-use change (ILUC) impacts into account (BirdLife 2011i). The majority of the aforementioned press releases deal with the Copenhagen criteria pertaining to the selection of institutions that can support developing countries in empowering decision-making with respect

to a sustainable use of technology and financing, particularly through funding mechanisms such as the CAP (BirdLife 2011e), and the (misuse) of financing mechanisms such as through EU funds which were indirectly contributing to methods of farming that have polluting implications (BirdLife 2001d). With reference to the Copenhagen criteria for limiting greenhouse emissions, BirdLife highlights the undesired implications for the environment of biofuels (BirdLife 2011g), thus requiring reduction in emissions by developed countries.

CEE Bankwatch

This ENGO largely makes use of the ideologies of conservationism, ecological modernization and sustainable development. As regards the former, the ENGO called for help and awareness towards the struggle of saving Khimki forest's motorway development, an event which had significant coverage via the ENGO's press releases (CEE 2011a, 2011b); as well as putting pressure on governments and the EU to put a stop to funds allocation to road building in sensitive areas (CEE 2011c).

As regards ecological modernization and sustainable development, the ENGO manifests these in various instances, be it by pushing forward a sustainable transport system (CEE 2011d), the need for sustainable energy usage rather than nuclear energy (CEE 2011e), and the better utilization of EU funds for the purpose of upholding sustainable development across the Union (CEE 2011f, 2011g). CEE Bankwatch closely monitors the action of the European Investment Bank (EIB), an institution whose mission is to promote EU objectives by providing long-term financing on favourable terms for viable projects. The ENGO claims that this institution should not be funding projects which go against the EIB's purpose, such as the development of Khimki forest, where the contractor is being accused by the group of 'failing to adhere to its UN Global Compact commitments' (CEE 2011h). It also appeals to national authorities to stop wasting 'precious time trying to persuade a reluctant European Commission' to approve a reallocation of EU funds from rail to road (CEE 2011i). At times, CEE Bankwatch also appeals to both the EIB and the European Bank for Reconstruction and Development (EBRD), such as when trying to persuade the institutions to stop investing European public money in coal power plants both in Europe and elsewhere (CEE 2011j).

The majority of press releases issued by CEE Bankwatch in 2011 did not feature alliances, bar some exceptions. Examples include an assessment that was initiated by a coalition of environmental NGOs on the Khimki forest (CEE 2011k), liaising with human rights organizations (CEE 2011g) and at times the ENGO aligned with NGOs of particular regions which

the ENGO is defending such as organizations from the Western Balkans, including Eko-svest (Macedonia), EDEN Center (Albania) and CEKOR (Serbia) (CEE 2011l). The majority of press releases for 2011 deal with the Copenhagen criteria pertaining to a selection of institutions that can support developing countries in empowered decision-making with respect to a sustainable use of technology and financing (CEE 2011m, 2011n). Almost equal importance is given in other press releases to the criterion pertaining to financing for developing countries to minimize greenhouse gas emissions and adapt to climate change (CEE 2011i, 2011j).

Climate Action Network Europe

Through a significant number of press releases, CAN-E refers to its own studies for more ambitious climate action in Europe (CAN-E 2011a). Sustainable development and ecological modernization both feature in such releases, as the ENGO calls for a modernization that is both green and sustainable. The ENGO's endorsement of a new treaty that can save the Kyoto Protocol by 2015 and hence implement actions to reduce greenhouse emissions (CAN-E 2011c). It also opposes public expenditure on unsustainable power stations (CAN-E 2011d). The ENGO often presents its reports on climate action to the European Commission (CAN-E 2011a), and often alerted the latter on its failure to meet targets (CAN-E 2011e).

The majority of press releases issued by CAN-E did not feature alliances. From the above-mentioned instances, the ENGO teamed up with ClientEarth, Greenpeace, WWF and the Polish Climate Coalition to question the lawfulness of the request of the Polish government with regard to the funding of unsustainable power stations (CAN-E 2011d). The ENGO also teamed up with Germanwatch to release the Climate Change Performance Index (CCPI) (CAN-E 2011b).

The majority of the press releases are related to the Copenhagen criteria concerning actions for developed countries, targeting limited greenhouse emissions – more specifically with regard to climate action. In addition, CAN-E exercises constant pressure on the European Commission to regulate governments with regard to fiscal expenditure and environmental control. CAN-E's press releases also focus on the selection of institutions that can support developed countries in empowering decision-making with respect to sustainable use of technology and financing (CAN-E 2011b, 2011e).

European Environmental Bureau

The press releases of the EEB related to climate change are mainly characterized by sustainable development and ecological modernization

ideological orientations, particularly on the need for cleaner energy, energy efficiency and consultation of civil society. The ENGO voices its disappointment on the lack of commitment to genuine action from heads of state about energy savings (EEB 2011a). The effective development of the Common Agricultural Policy (CAP) is at heart of the ENGO's appeals (EEB 2011b, 2011c), particularly with regard to the need for inclusion of civil society in consultation processes (EEB 2011d).

The EEB also refers to the need to 'conserve energy, natural resources and raw materials in order to drive innovation and the future competitiveness of industry and economies' (EEB 2011e). With regard to institutionalization, EEB normally resorts to the European Commission and heads of government. As regards the former, the ENGO pushes forward issues such as the need for resource efficiency (EEB 2011f). In addition, the EEB also lobbies with the EC, particularly when there is a need for legislative proposals to safeguard the environment (EEB 2011g), scrutiny of the actions of the member states (EEB 2011h), and pushing forward interests that should be a part of the Europe 2020 agenda (EEB 2011i).

At times in 2011, the ENGO tried to get its message across with the help of other alliances. These included Green Budget Europe (EEB 2011k), T&E and HEAL (EEB 2011l), as well as WWF, the International Foundation for Organic Agriculture (IFOAM) and BirdLife International (EEB 2011c).

The press releases deal predominantly but not exclusively with the Copenhagen criteria related to actions for developing countries, targeting limited greenhouse emissions and financing for developing countries to minimize greenhouse gas emissions and adapt to climate change (EEB 2011j). Some press releases also deal with the selection of institutions that can support developing countries in empowering decision-making with respect to a sustainable use of technology and financing (EEB 2011m).

European Federation for Transport and Environment

The ideology of T&E is mainly characterized by ecological modernization, though it also has a considerable sustainable development dimension, often combining both ideologies. As regards the former, it calls for reduction of emissions and increased fuel efficiency in shipping (T&E 2011a) and road transport (T&E 2011b, 2011c).

As regards sustainable development and/or its combination with ecological modernization, the ENGO supports fiscal measures such as the Emissions Trading Scheme (ETS) for aviation (T&E 2011d, 2011e), and calls for tax shifts from labour to pollution, creating jobs in the process. As T&E puts it, 'In times of austerity raising fuel taxes instead of income

taxes will protect jobs, cut emissions and reduce Europe's EUR300 billion-a-year oil import bill. It's far better to tax pollution and oil imports than it is to tax people's income' (T&E 2011f).

T&E frequently resorts to EU institutions for its appeals, and the timing of its press releases is significant in this regard. For example, it released a press release on the day the European Commission was set to propose an increase in the minimum level of road diesel taxation in Europe (T&E 2011g). Another press release was released on the day when Europe's Climate Commissioner Connie Hedegaard was set to meet EU environment ministers to discuss Europe's plan to force oil companies to clean up transport fuels (T&E 2011h).

Other examples of T&E's lobbying within the EU are: its appeal to the EU ombudsman for the release of EU information in connection with the tar sands issue (T&E 2011i); its petitioning of the European Parliament on tar sands and the Fuel Quality Directive (T&E 2011j); and together with other ENGOS, its role as a defendant in the litigation at the European Court of Justice on the ETS scheme within the EU (T&E 2011d). The ENGO has also reacted to issues discussed in global institutions, such as International Maritime Organization's Marine Environment Protection Committee (T&E 2011k).

As regards alliances, though most of T&E's press releases were not characterized by such strategies, others referred to alliances with other ENGOS, such as in the court case referred to above, and also to alliances on global issues such as the 'clean shipping coalition' (T&E 2011k). The petition referred to above was also characterized by support from other NGOs as well as cross-party parliamentarians (T&E 2011j).

With respect to the Copenhagen criteria earmarked in this chapter, all T&E press releases deal with the need for emission reductions in industrial countries, while conversely, only one deals with the need for institutions to support the empowerment of developing countries (T&E 2011k). Most press releases do not deal with the need to reduce emissions in developing countries or with the need to provide financing for such countries.

Friends of the Earth Europe

The ideologies of the press releases issued by FOE are within the sustainable development ideology, though the ENGO also endorses ecological modernization. The ENGO focuses mainly on the misuse of natural and scarce resources (FOE 2011a), particularly with regard to certain types of biofuels and their negative social and environmental effects (FOE 2011b, 2011c). The Common Agriculture Policy is also given utmost importance by FOE (FOE 2011d), which in turn pushes forward the need for sustain-

able development through targets that promote greener use of resources for reducing Europe's dependence on water, land and other resources (FOE 2011e, 2011f).

As regards institutionalization, FOE Europe often resorts to the European Commission, such as when raising concerns on the future of the CAP (FOE 2011a, 2011c). The ENGO makes reference to the European Union as a whole by trying to raise awareness on the ineffectiveness of certain directives; for instance, the Energy Efficiency Directive (FOE 2011g).

Most press releases did not feature alliances. Some exceptions include alliances with CEE Bankwatch Network to call on member states to commit to spending more of the billions of euros of structural funds for new member states on energy savings and other green measures (FOE 2011h). Other examples include teaming up with ClientEarth, the Food and Environment Reporting Network (FERN) and Corporate Europe Observatory (CEO) to file a lawsuit following the Commission's refusal to provide access to information in decisions relating to the sustainability of Europe's biofuels policy (FOE 2011i).

With regard to the Copenhagen criteria, all of the aforementioned press releases deal with actions in developed countries targeting limited greenhouse emissions, or with financing for developing countries to minimize greenhouse gas emissions and adapt to climate change. This comes as no surprise given that the ENGO mainly focuses on the utilization of EU funds on the environment and strategies related to the environment. Various legislative mechanisms and infrastructural mechanisms, such as technology (FOE 2011b, 2011c), are highlighted to reduce emissions.

Greenpeace

Greenpeace statements convey a sense of urgency along the lines of ecological modernization. Different Greenpeace press releases give feedback on policies taken by private industries (Greenpeace 2011b, 2011l, 2011m). For example, in its words, 'the rapidly growing environmental footprint of the online world offers an evaluation of both good and bad energy choices made by leading Information Technology (IT) companies such as Facebook, Google, Apple, Yahoo! and others' (Greenpeace 2011b).

The ENGO's sense of urgency to tackle climate change is clear. As it puts it, 'Global carbon emissions have reached the highest levels ever despite the economic downturn . . . The surge has raised concerns that the target of avoiding a dangerous 2°C rise in global temperatures is "almost out of reach"' (Greenpeace 2011c).

Greenpeace accompanies this with some radical action and statements,

such as its activists' attempts to climb the Leiv Eiriksson oil rig (Greenpeace 2011d), its pending court case in Greenland with regard to action to protect the Arctic (Greenpeace 2011e) and its Executive Director's contribution at the G8 May 2011 summit on how '(f)reedom and democracy can never be served if the G8 continues to be underwritten by a fossil fuel-based economy, and when our leaders are beholden to oil barons who profit from undermining our security and ecology' (Kumi Naidoo in Greenpeace 2011f).

Notwithstanding such action and statements, the strong ideological imprint of moderate ecological modernization is reflected in the predominance of regularized activity in Greenpeace's institutionalization pattern. However, it is interesting to note the wide range of activities that fall in this category. Indeed, regularized activity includes carrying out studies itself (Greenpeace 2011a, 2011g), for example on switching Europe to an electricity grid powered almost completely by green energy (Greenpeace 2011g); citing studies, often by the International Energy Agency (Greenpeace 2011b, 2011h); championing (Greenpeace 2011i) or giving exposure (Greenpeace 2011i, 2011j, 2011k, 2011l, 2011m) to initiatives or decisions stemming from public (Greenpeace 2011j) and private or industrial entities (Greenpeace 2011k, 2011l, 2011m), as developed in the section on alliances. Yet this analysis also notes some instances of radical militant action carried out by the ENGO (Greenpeace 2011d, 2011e, 2011n).

When it comes to alliances, the analytic exercise sheds light on alliance formation by means of regularized activities, mainly of support through coverage. This spectrum of alliances is multidimensional, ranging across public sector (Greenpeace 2011j, 2011o), private sector (Greenpeace 2011k, 2011l, 2011m), national (Greenpeace 2011p), international (Greenpeace 2011k, 2011l, 2011m) and supranational entities (e.g. Greenpeace 2011q, 2011r); state (Greenpeace 2011j, 2011o) and civil society (for example, Facebook users; Greenpeace 2011s).

Health and Environment Alliance

In line with sustainable development ideology, HEAL prioritizes preventive action against health hazards over financial and technological gain, for instance with regards to the health of born and unborn children (HEAL 2011a, 2011b). HEAL also stands out for voicing health concerns associated with climate change (HEAL 2011c, 2011d, 2011e, 2011f). Thus, the ENGO combines its environmentalism with social and economic considerations in a global scenario. Indeed, HEAL's generic address is not specific to industrialized countries. Thus, in analysis, HEAL's press releases cover

all four themes related to climate change which are under analysis in this study by reaching out also to developing countries' awareness on sustainable financing and decision-making, albeit not solely re emissions.

All instances of institutionalization featuring in the sample analysed for this ENGO are characterized by regularized activity, including coverage in support of international events that promote health considerations, for instance the launch of HEAL's Durban Declaration and 'Call to Action' during climate talks in Durban as part of UN Framework Convention on Climate Change (UNFCCC) in December 2011 (HEAL 2011f).

With respect to alliances, findings show little evidence of formalized links and procedures, even though the ENGO supports broad social alliances: 'Two hundred local businesses and organizations, national and European politicians, and companies from a variety of sectors, including engineering, energy supplies and healthcare, have lent their support to a 100% renewable energy vision for Europe in 2050' (HEAL, 2011g).

HEAL also shows informal alliances of support when citing studies, for example the EU-funded Aphekom project (HEAL 2011h) and an International POPs Elimination Network (IPEN) study (POPs being persistent organic pollutants) (HEAL 2011b).

Naturefriends International

Discourse analysis of press releases by NFI was limited by a very small sampling frame of available press releases. The main ideological stance is sustainable development, which it believes should be mainstreamed in all policy areas: 'European politicians to include the aims of sustainable development into all areas of the European Union as well as to clearly regulate the financial markets to secure social democracy and a fair global development' (NFI 2011c). The ENGO does not shy up from radicalizing its discourse, for example when it calls 'upon the European Union to wind up the Euratom [European Atomic Energy Community] with immediate effect and to transform it into an agency for sustainable energy generation and energy efficiency' (NFI 2011a). NFI also condemned the European Energy Summit's proceedings (February 2011) which resulted in further liberalization (NFI 2011b).

Across the NFI's sample, patterns of institutionalization comprise critical feedback on current affairs and decision-making. The EU is the constant target of NFI, subject to critiques concerning energy policy within the Community (NFI 2011a, 2011b, 2011c). As regards the four Copenhagen climate change criteria, NFI mainly addresses the first target by emphasizing the vital role of European countries in achieving increased

energy efficiency and sustainability. There is no evidence of alliances in the sampled press releases.

WWF European Policy Office

On the climate change issue, the ideological orientation of WWF combines ecological modernization with sustainable development. For example, whilst on the one hand it calls for energy efficiency, innovation and investment in emissions reduction (WWF 2011a), it also highlights the ‘incredible environmental and social advantages of a future powered by renewable energy over the next decades’ (WWF 2011b). WWF speaks of the need to shift to a sustainable economy (WWF 2011c), in line with EU2020 targets (WWF 2011d), adding that ‘the revolution in our energy system will inevitably be good for jobs and the green economy in Europe’ (WWF 2011e).

WWF resorts to EU institutions such as the European Commission, the European Parliament and the Council of Ministers for its appeals, which are frequently timed ahead of important meetings or in reaction to their outcomes. For example, on the same day that the European Commission was going to release its energy roadmap, WWF issued a press release calling for concrete legislation on renewable energy and energy efficiency (WWF 2011e). Similarly, a day ahead of the Council of Ministers’ meeting on energy and innovation, WWF publicly called for a 100 per cent clean and renewable energy target by 2050 (WWF 2011f). The ENGO was also one of the defendants in the litigation at the European Court of Justice on the ETS scheme within the EU (WWF 2011g, 2011h). WWF also addresses and refers institutions beyond the EU, for example it tends to legitimize its arguments by referring to the Intergovernmental Panel for Climate Change (IPCC) (WWF 2011i).

Most press releases issued by WWF in 2011 on climate change did not feature alliances, though there were exceptions. Apart from its joint action in the ETS scheme referred to above, it also refers to alliances with business, academic programmes and other NGOs (WWF 2011j); to citizens marching in the streets during climate change talks (WWF 2011k); and to governments and the EU who share claims of ENGOs to combat climate change (WWF 2011l).

As regards the Copenhagen criteria, all WWF press releases deal with the need for emission reductions in industrial countries, but only one deals with the need for institutions to support the empowerment of developing countries (WWF 2011m). The need to reduce emissions in developing countries is dealt with in around half of the ENGO’s press releases. A slightly lower number of such releases deal with the need to provide financing for such countries.

SOCIAL POLICY IMPLICATIONS

In relation to the data presented above, this section looks into the social policy implications of the claims by ENGOS in relation to climate change. On the one hand, one may argue that the G10 ENGOS analysed in this study operate within a dichotomy which separates the social from the natural, and that in most cases ecological concerns are seen as the starting point for various ENGOS. In this sense, social concerns are a secondary concern for such organizations, and social policy implications are merely incidental. If this is the case, there is little cause for optimism as regards holistic action and policymaking which attempts to unite social, economic and ecological concerns.

The strongest case for such an argument could be exemplified by conservationist concerns on species and natural habitats such as those generally pronounced by BirdLife. Here, there are no implications on traditional social policy concerns. On the other hand, however, the greening of agriculture can be seen to be linked to social policy, for example in relation to quality-of-life concerns such as quality of food. In turn, this can be linked to the demand for social policies which are concerned not only with the quantity of food, but also its quality and access to it (Lang et al. 2002). Indeed, this chapter argues that despite the starting-points of various ENGOS, the effect of their discourse on climate change concerns can be interpreted to have various social policy impacts.

Examples of this, also presented above, are the demands made by ENGOS for fiscal reform, such as the need for tax shifts from labour to pollution, as proposed by the European Federation for Transport. As explained earlier, this demand has also been articulated in relation to the creation of green jobs. In this regard, ENGOS might perhaps take a more proactive role in showing 'what types of jobs will be lost and created in order to help people adapt and to determine what sort of (re) training is necessary' (Angelov and Johansson 2011: 264), particularly when concerns have arisen regarding precarious employment in this sector, which otherwise has high potential to develop (Briguglio et al. 2011). Government regulation of administrative procedures and fiscal policies are of great importance in this regard (Damato 2011; Rizzo 2011).

Similar economic claims, also relating to the competitiveness of industry, have also been made by ENGOS such as WWF and the European Environmental Bureau, whilst Friends of the Earth has highlighted the social impacts on local populations of policies such as those promoting a shift to biofuels. Here the global implications of specific policies are scrutinized by ENGOS. On the other hand, Naturefriends International

calls for a mainstreaming of sustainable development to ensure a stronger social model at a global level. Similar concerns have been put forward by institutions such as the United Nations Environment Programme and the European Green Party, in the call for a Green New Deal (Barbier 2009; Butikofer and Giegold 2009).

Better regulation of the private sector, and the accountability of such industries – a key concern of Greenpeace – is related to social policy in terms of concepts such as corporate social responsibility. Yet it is Greenpeace itself, not to mention more radical ENGOS, which ultimately call for a shift away from an economy dependent on fossil fuels. Accountability of other sectors within the economy, such as the European Investment Bank as carried out by CEE Bankwatch, also has social policy implications in the sense that this institution can be made accountable for decisions with social and environmental implications.

Civil society participation in the consultation process, as demanded for example by the European Environmental Bureau, can be associated with claims for more open, inclusive and democratic social policy. This is in line with core green demands for a more democratic and decentralized social policy (Barry and Doherty 2002: 131).

Health is another social policy aspect which is of concern to ENGOS, as witnessed for example by the Health and Environment Alliance's climate change concerns. Here the concept of sustainable development is applied to the social needs of present and future generations. This goes beyond the narrow concept of illness and curative policies, towards a more holistic policy of preventive health, towards a 'healthy society' (Barry and Doherty 2002: 128).

The specific concerns of ENGOS in relation to climate change have gained legitimacy in recent years, as ENGOS formed part of a hegemonic formation through which climate change became a key political issue, with substantive impacts such as policy and legislative changes (Briguglio 2013). In this respect, adaptation to climate change was mainstreamed in EU policy, albeit in a more moderate manner than was requested by ENGOS. Hence:

ENGOS partially surrendered some of their more radical claims, but ultimately conceded that a common position on climate change within the EU was better than not having a deal. In this respect, adaptation to climate change became mainstreamed in EU policy, in spite of the resistance of various national governments and business interests. (Briguglio 2013: 392)

In particular, ENGOS used the EU as a gateway for empowerment and managed to sensitize the political agenda and public awareness. They achieved substantive impacts in terms of EU-wide climate change targets

and helped bring about structural changes to implement EU policy. They were generally critical of neoliberal policy but managed to push forward ecological modernist and sustainable development claims within the EU policy discourse (Briguglio 2013).

CONCLUSION

This chapter concludes that as far as campaigning on climate change goes, ENGOs forming part of the G10 are characterized by moderate environmental ideologies. This analysis found that in most cases, the aforementioned ENGOs tended to combine these moderate ideologies in their public statements. For example, an interplay of sustainable development and ecological modernization tends to be quite common among the organizations in question. This can reveal institutionalization through ideological consent (Briguglio 2010), and in the case of climate change, the construction of a hegemonic formation with EU-wide carbon dioxide (CO₂) emission targets (Briguglio 2013).

This chapter also concludes that claims made by G10 ENGOs have various social policy implications, such as those in relation to the green economy, and democratization of decision-making structures and preventative health. In turn, this reveals trends of ideological cohesion among different ENGOs, as well as a sense of difference from more radical and less mainstream ENGOs which do not form part of the G10. A current example of this is Climate Justice Now! (CJN n.d.), a network of organizations and movements from across the globe committed to the fight for social, ecological and gender justice. CJN calls for 'system change not climate change' (Reitan and Gibson 2012).

In the years to come, G10 ENGOs could help tilt the EU towards greener policies along the lines of sustainable development, ecological modernization and conservationism. Such ENGOs might also be increasingly influenced to further moderate their ideological outlook, in order to retain their status as key actors within EU institutions. In this case, it is likely that they will distance themselves further from calls for radical social change.

Indeed, G10 ENGOs are generally not critical of the capitalist system itself, which, according to more radical organizations and ideologies, is the main cause of climate change. Whatever the case, and given the sense of urgency surrounding issues such as climate change, interesting times lie ahead for ENGOs in particular and the green movement in general.

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7. Environmental and health costs of economic globalization policies in Latin America

Judith Cherni

INTRODUCTION

Latin America has been particularly badly affected by intensified economic activity resulting from decades of globalization, although almost nowhere on the planet has been spared its environmental impacts entirely. The liberalization policies of the Washington Consensus have advocated the principle of ‘comparative advantage’ to stimulate economic growth in the developing countries through their participation in the international economy. For countries like Brazil and Argentina, the exploitation of comparative advantage in agriculture did indeed result in a huge expansion of their international trade, mostly due to the production of soya beans (US: soybeans) and corn (maize) crops. However, while the coffers of a few nations and of those involved in the trade have definitely filled as a consequence, the liberalization policy model has also had noticeably adverse effects on the natural environment and the population’s health.

This chapter seeks to analyse the policy process that has driven governments towards the deregulation of national rules, privatization and trade liberalization. As part of the Washington Consensus’s ‘comparative advantage’, governments in developing countries have endorsed new forms of agriculture. Globalization policies have been pivotal in opening up Latin American agriculture to the international market, radically changing centuries-old agricultural practices that farmers had employed to preserve land fertility, and introducing modern genetically modified crops. With the intention of increasing and improving agricultural yields, the introduction of genetically modified seeds in conjunction with less traditional farming techniques has been central to the implementation of market reform policies and the success of the agro-export model in Latin America.

The current chapter discusses some of the most prevalent and influential policy mechanisms used in the region to promote economic growth (that is, international trade), and examines the massive expansion of this type of agriculture, which requires not only modified seed but also targeted

fertilizers and pesticides in order to produce competitive yields, particularly in Argentina.

Notorious transformations in the natural environment as well as the remarkable incidence of diseases in inhabited areas near sprayed fields are considered and linked to the reform policies of the past decades. Although undoubtedly significant, the environmental changes and those to people's lives discussed here have been less acknowledged than other more direct consequences of liberalization policy and economic growth. In reality, little is known about the changes that have taken place in rural and urban surroundings as a result of Argentina becoming a main player in the international commodities market. This chapter explains the extent to which Argentina, boasting a significant group of large landholders, has been able to compete in this market, assesses ecological impacts, and analyses case studies.

The next section deals with a significant moment in the history of environmentalism and highlights the inextricable link between economic growth policy and environmental impact. Some aspects of the scope of globalization and liberalization policies are then considered with reference to the Washington Consensus and its effect on Latin America. While the quantitative success of the agricultural sector in Argentina in the 1990s and 2000s is assessed, the chapter also exposes the environmental consequences of this economic accomplishment and focuses on the case of suburban Ituzaingó in the city of Córdoba where an unprecedented incidence of ill-health has been uncovered and a fierce struggle against spraying with pesticides and the attendant economic model has been waged for more than a decade.

POLICY AND THE ENVIRONMENT: A 50 YEARS HISTORICAL PERSPECTIVE

The year 2012 marked the fiftieth anniversary of the publication of Rachel Carson's *Silent Spring* (1962) which denounced the alarming environmental damage that industrialization and the use of pesticides, particularly in the USA, had inflicted on nature. As a result of such economic development, nature has been inexorably contaminated and abused over the past 50 years and the environment's basic functions adversely affected.

The devastating environmental impact of centuries of industrial growth has been amply acknowledged. For example, the environmental consequences of intensive agriculture in Latin America under the Green Revolution of the late 1960s have been extreme and severe: among them desertification, deforestation and water contamination by nitrates (see,

e.g., Redclift 1987; Conway 1985; Blaikie 1985). There has however been less recognition of other levels of environmental and societal costs, whose origins can be found in later policies aimed, paradoxically, at improving the economic conditions of developing and emerging economies. Since the late 1980s, market reform policies have been in large measure incompatible with environment, health and sustainability. Although integration in the new global economy has generated wealth – for some social groups and some countries – it has also led to a reduction in the quality of life of millions of inhabitants in the developing world. In Latin America, relaxation of national regulations together with integration into the global trade network has been, perhaps, the most unforgiving of the ten Washington Consensus rules (Williamson 1990), in both human and environmental terms.

The environment fulfils essential functions: as source – the capacity to supply resources; as sink – the capacity to neutralize waste, without incurring ecosystem change or damage; as life support – the capacity to sustain ecosystem health and function; and as maintainer of other human health and welfare functions – the capacity to sustain human health and generate human well-being in other ways (Ekins et al. 2003). Over the past 50 years of economic growth, and particularly in the last three decades of market reform, these basic functions of nature have been greatly impaired. The damage has typically been in opposite directions, that is, through shrinking resources and capacity – for example, through indiscriminate natural resource exploitation, animal and flora extinction; through the reduction of the capacity of the atmosphere to act as a sink; and by the addition of toxic materials to nature – for example, overloading the air, water and soil with noxious gases, metals and other contaminants.

The two-pronged assault inflicted on the natural environment – that is, the addition of pollutants on the one hand, and the reduced capacity to degrade on the other – has been pivotal in determining the current state of the climate and thus in precipitating one of the most serious environmental catastrophes in human history, global climate change; while toxic emissions have relentlessly increased, the capacity of the atmosphere to absorb them has been reduced. Climate change is perhaps the best example of market economy failure that humanity has ever known (Stern 2007: 1). By focusing on the process of globalization in Latin America, additional forms of local environmental degradation and human effect can be uncovered which, although less obvious and dramatic than climate change, have also been triggered by the way the globalized market economy operates.

There is considerable uncertainty as to the current scale of economic activity under globalization policies and the environment's long-term capacity to withstand current and future pressures on natural resources,

let alone the uncertainty as to whether uncontrolled economic growth and trade will continue to intensify. Already in 1997, pro-market Organisation for Economic Co-operation and Development (OECD) publications warned of the severe environmental consequences of liberalization, cautioning that globalization could place significant new stresses on environmental resources and advising that new measures be put in place to avert this (OECD 1997 [1998]: 24).

THE IMPACT OF GLOBALIZATION AND LIBERALIZATION POLICY IN LATIN AMERICA

Globalization, the buzzword of the 2000s, is a useful term to encapsulate the liberalization policies that have become popular since the late 1980s (Perraton 2003). The Washington Consensus, a term first coined in 1989 by John Williamson (1990), describes these policies as a standard reform package promoted for countries in crisis by Washington-based institutions such as the International Monetary Fund (IMF), World Bank (WB), International Development Bank (IDB) and US Treasury Department (IIE 2007). The Washington Consensus reform package contains a set of ten relatively specific free market oriented economic policy strategies, presumably designed to make a targeted nation's economy function more like that of First World countries (such as the United States). As part of this standard reforms package, international financial organizations and donors were allowed to exert considerable pressure for institutional change in developing countries, particularly during the 1990s, when the Washington Consensus was most influential (Jerome and Ariyo 2004). The prescriptions encompass policies in such areas as macroeconomic stabilization, economic opening with respect to both trade and investment, and the expansion of market forces within the domestic economy; and deregulation of national rules, privatization and trade liberalization (Williamson 2005).

Under the liberal reform regimes of the 1990s, the role of the state was both reduced and redefined as market regulator while the private sector was encouraged to provide management roles and supply substantial investment (Martinussen 1997). International financial institutions, principally the IMF and WB, effectively dictated economic policy to developing countries, which came under intense pressure to privatize public services (Hilary 2004).

Privatization in Latin America has usually been undertaken in tandem with liberalization. In the public service sector, for example, privatization has been the international agencies' preferred option and, in many

cases, privatization constituted a key condition for receiving development aid, loans and debt relief (Bouille and Wamukonya 2003; Kozulj and Di Sbroiavacca 2004). Latin America took the lead in practically every area related to electricity privatization, most noticeable in corporatization (61 per cent), as compared to East Asia and the Pacific (44 per cent); and unbundling, that is, dismantling large energy systems into generation, transmission and distribution (73 per cent; compared to 40 per cent in South Asia and 13 per cent in the Middle East and North Africa) (Nexant 2004). The activity of independent power producers (IPPs) is slightly more advanced in South Asia than in Latin America but both regions show high levels of movement. In the 1990s, out of 88 developing countries that adopted market reform policies, taking on between 15 per cent and 42 per cent of all aspects of reform, implementation was highest in Latin America (Bacon 1999). Of all developing regions that implemented energy market reforms by the late 1990s, privatization of power distribution assets was greatest in Latin America and the Caribbean (44 per cent), regions where corporate restructuring was also significantly more advanced (72 per cent) (Bacon 1999).

The combination of privatization rules, the unbundling of the electricity industry and deregulation through the diminished role of national government in controlling prices permitted electricity providers to raise tariffs and connection fees. As a result, electricity tariffs increased after privatization, in many cases pushing the poor further into poverty (Hilary 2004). For Latin America, post-privatization electricity prices more than doubled: in Brazil between 1991 and 1996, and in Peru between 1992 and 1996 (Goldemberg et al. 2004; Torero and Pasco-Font 2001); in Colombia, prices increased by more than 50 per cent between 1995 and 2000 (Clarke and Wallsten 2002). In the Dominican Republic post-1999, electricity prices rose by 50 per cent with the government agreeing to protect consumers from the full increase by paying \$5million a month to the power companies to halve the new tariffs (Action Aid UK 2004).

As to international trade liberalization, it was aimed at enhancing a country's income by forcing resources to move from less productive to more productive uses by drawing on a developing country's comparative advantage in terms of natural resources and cheap labour. Lax environmental controls that characterize poorer countries should probably be added to the list of comparative advantages that make investment attractive to producers and investors.

The liberalization of trade has enabled significant increases in the volume of sales to foreign countries in some developing countries. However, while the theory behind liberalized trade postulates that worldwide openness will promote the wealth of all nations, the reality has been that such policy is

also associated with numerous problems of equitable development and uncontrolled assault on local natural environments.

The case of agriculture in Bolivia provides a good example of the application of globalized market regulation in Latin America, highlighting as it does the geopolitical inequities between developed and developing economies. Bolivia's government brought down its trade barriers and cooperated with the United States to virtually eradicate the production of coca (the basis of cocaine), even though this crop provided a relatively higher income than any alternative to its already poor farmers. The US responded, however, by keeping its markets closed to Bolivia's alternative agricultural products such as sugar (Stiglitz 2002: 61). An unwelcome outcome of globalization has thus been an increasing worldwide divide between the haves and have-nots, with ever more people reduced to dire poverty in the Third World, living on less than US\$1 a day.

The Latin American mining sector is another case in point. Thanks to liberalization, the powerful mining industry has engaged in the rampant and now virtually unregulated extraction of natural resources in the continent, selling these valuable products to other foreign economies. Opened in 1993 by the World Bank International Finance Corporation (IFC), Yanacocha in Peru is the largest gold mine in Latin America and considered the second largest in the world (Langdon 2000). Situated in the Department of Cajamarca, just about 50 km away from the historic Inca city of Cajamarca, Yanacocha is owned by the US–Canada Newmont Mining Corporation (51 per cent stake), the IFC (5 per cent) and the Peruvian company Buenaventura (BBC News 2002). Commercially, the mining operations are deemed a success story; however, the socio-economic and environmental impacts reflect another reality. Only a few locals can be said to be better off. Evident consequences are that traditional ways of life have been destroyed and local water sources polluted with cyanide and mercury (*The Economist* 2005). The open-cast mining practised by the corporation has destroyed pristine Andes mountains and reduced part of the landscape to huge bare geometrical piles of barren soil and deep craters (author's observation 2006).

An ostensibly positive and important aspect of trade liberalization in Latin America has been the increased scope for growing and exporting non-traditional crops, also made possible thanks to technological innovation, specifically genetically modified seeds (Nissanke and Thorbecke 2010). Implementation of liberalization policies has occurred in a number of Latin American countries that have sought to share in the growth promised by participation in the international market. Whereas the expansion of agricultural market policies in Latin America has been particularly marked, its results are by no means uniform. In Guatemala, diversifica-

tion into non-traditional crops has been advocated since the early 1990s to capitalize on the country's comparative advantages in terms of cheap labour and the potential of the agricultural sector to expand. The market-oriented policy was thought to be an ideal mechanism to extend the benefits of globalization directly to the poor. Yet, rural small landholders lacked the capacity to diversify or to overcome difficulties that inevitably arise with complex types of cultivation and variable global agricultural markets (Carletto et al. 2010). An inherent problem with such thinking is that it fails to appreciate that it is their very poverty which makes most rural smallholders in Guatemala struggle to compete in global markets.

Yet, the experience of expanding mono-agriculture and thus, of making use of the regions' comparative advantages in order to participate in the global economy, has not been uniform in Latin America. In contrast, three other Latin American countries, Brazil, Argentina and Paraguay, have since the early 2000s become the world largest producers of soya beans, and have benefited from a thriving agro-export industry. A particular case in point, and one that this chapter analyses in detail, is the globalization process in Argentina where, since the late 1990s, trade liberalization policies have turned part of the economy towards an agro-export model of production with severe consequences for the environment and those who live in the vicinity of new crops. The cancellation of national trade barriers and deregulation of environmental safety standards are among the most controversial measures adopted by the government to facilitate the expansion of profitable non-traditional crops monoculture in Argentina. Two other equally crucial factors affected the thrust of the agro-export sector policy in Argentina: the presence of large landholders, and the introduction of high-yield genetically modified (GM) seeds.

The agro-export model exploited some of the country's widely recognized competitive advantages, that is, plentiful arable land, access to water and beneficial climatic conditions. The combination of these natural factors meant the country was in a prime position to meet world demand for food crops. As a consequence, widely cultivated GM fields have proliferated in Argentina and successful soya beans cash crop production has placed the country among the world's major producers.

TRADE LIBERALIZATION AND THE SUCCESS OF AGRO-EXPORTS IN LATIN AMERICA

Large-scale production and high earning exports bear witness to the economic success of the agro-export model in Latin America. The strength of the globalization trade model is reflected in the pole position that

Argentina achieved in international agriculture markets. In 2010–11, Argentina was the third-largest producer of soya beans (30 175 thousand metric tonnes, TMT) after the United States (35 919 TMT) and China (45 778 TMT) (USDA 2011). In the same period Argentina was, moreover, the world's largest exporter of soy-meal (29 285 TMT), followed rather far behind by Brazil with less than half of Argentina's production (13 850 TMT) and the USA (8393 TMT). According to the United Nations Department of Agriculture (USDA 2012), farmers in Argentina were expected to increase the soya bean production for the 2011/12 season. In the same period, Argentina was also the second-largest exporter of corn.

Argentina, Brazil and Paraguay had featured among the world's six largest growers of GM soya beans, and globally, Uruguay has the highest proportion of its total arable land allocated to GM crops. In terms of world market share, the main producer of soya beans is the United States (35 per cent), followed by Argentina (27 per cent), Brazil (19 per cent), China (6 per cent) and India (4 per cent) (Mercopress 2011). Paraguay ranks sixth among the world's major producers of soya beans. The United States is also the world's principal consumer of soya beans, with an average annual consumption of 45 313 TMT (USDA 2012).

The Spectrum Commodities (2012) analysis of the United States Department of Agriculture (USDA) Economic and Statistics System, and the USDA/National Oceanic and Atmospheric Administration (NOAA) Joint Agricultural Weather Facility, calculated average production per year and deduced that Brazil is the second-largest producer of soya beans in the world (after the United States), averaging 30 236 TMT of bean production. Brazil is also the second-largest consumer of soya beans in the world, with an average consumption of 22 779 TMT per year, and imports an average of 893 TMT. Brazil is the second-largest exporter of soya beans, exporting an average of 8363 TMT per year. Brazil's ending stocks average is 586 TMT of beans. Soya beans are grown in small pockets throughout south-central Brazil, with the main areas of production located in the south-east of the region. The state of Rio Grande do Sul contributes 27 per cent of the nation's total soya beans, and the state of Parana a total of 21 per cent of Brazilian beans (Spectrum Commodities 2012).

Soya beans are important because they have numerous uses and contain significant amounts of phytic acid, alpha-linolenic acid and isoflavones, all of which are considered important constituents of a healthy diet. They are also a significant and cheap source of protein for animal feeds, many prepackaged meals, vegetable oil and other processed products (*Wikipedia* 2012).

Argentina has been ranked as the world's third-largest producer of soya beans with an average annual output of 17 547 TMT; the country is also

the fourth-largest consumer of soya beans, with an average consumption of 14 810 TMT. Argentina is the third-largest exporter of soya beans, with average exports of 3101 TMT.

To the north of Argentina, Paraguay is the sixth-largest producer of soya beans, with an average production of 2535 TMT. However, Paraguay consumes only a small proportion of its total production, averaging 731 TMT of soya bean consumption. Paraguay is an exporter of soya beans with an average of 2083 TMT, ranking it as the world's fourth-largest exporter of soya beans. Soya beans are grown in the southernmost region of the country, with the major growing area occupying a belt along the south-east part of the nation (Spectrum Commodities 2012).

Representing more than a quarter of total Argentine exports, overseas sales of soya beans and their by-products make up the single largest grossing export for the country. Soy exports reached US\$17.3 billion in 2010 (INDEC 2012), equivalent to 25.4 per cent of the country's total exports for the year, an increase of 2.1 per cent on 2009 figures when the complex of soy exports represented 23.3 per cent (MercoPress 2011; see Table 7.1). Lagging far behind in terms of percentage contribution to national exports is the automobile industry, which generated US\$8.6 billion, that is, 12.6 per cent of the total income from exports (and about half for that generated by soya bean sales). Oil and gas came in third (US\$5.4 billion), representing 7.9 per cent of the country's total export values. This share has been dropping consistently since 2006 when it represented 14.4 per cent of Argentina's total exports. Figures for corn exports place this crop in fourth position (US\$3.3 billion) with 4.7 per cent of overseas sales. However, gold

Table 7.1 Argentina: values and percentages of the ten largest-earning exports, 2010

Product	US\$ billion	% of total national exports
Soybeans	17.3	25.4
Car industry	8.6	12.6
Oil and gas	5.4	7.9
Corn	3.3	4.7
Gold	2.01	3
Petrochemicals	1.8	2.7
Steel	1.6	2.3
Copper	1.5	2.2
Wheat	1.35	2
Meat	1.35	2

Source: Data from INDEC (2012).

Table 7.2 Leading importers of Latin American soybeans and soy-meal, 2009–2010

Country	Million tonnes TMT	% imports
China:		
Bean	55	59
Meal	0.3	1
European Union:		
Bean	14	15
Meal	23	40

Source: Data from USDA (2011, PSD Online; in Nassar et al. 2011: 6).

exports have more than trebled in recent years. In 2010, gold represented 3 per cent of total exports (US\$2.01 billion), an increase of 1.9 per cent on 2009 and 1 per cent up from 2007 figures. The surprising increase of gold exports may well be linked to the liberalizing of national regulations on international investment for the extractive and mining industries (INDEC 2012). The sale of petrochemicals represents 2.7 per cent (US\$1.8 billion); of steel, 2.3 per cent (US\$1.6 billion) and of copper, 2.2 per cent (US\$1.5 billion). The ranking of the first ten items is completed by wheat (US\$1.35 billion) and meat (US\$1.35 billion) which together account for 4 per cent of total exports.

In Argentina the agro-export model was consolidated via three driving forces: the government, which in 1996 swiftly approved genetically modified organism (GMO) cultivation regulation under market trade policies; via multinational agro-businesses (for example, Cargill, Dow, Bunge, Dupont, Monsanto and ADM) which have supplied seed, fertilizers and pesticides, and controlled the movement of freight to the European Union (EU) and China; and via large landholders who seized the opportunity to turn a remarkably quick profit from this business and their ownership of the land. The Argentine ‘soy boom’ brought record profits for some, among them policymakers involved in the approval of the 1996 GMO regulation who subsequently themselves became investors in the soy market (Trigona 2009).

The most prominent buyers for the soya bean produced in Latin America are China and the European Union (see Table 7.2). In the past ten years, China’s imports of soya beans have surpassed Europe’s: European imports decreased by 30 per cent while China’s increased by 280 per cent. Moreover, a growing Chinese middle class seems to be moving away from rice and towards a diet that includes more meat, even while the country’s once booming economy has started to cool down (Bronstein 2012). The

European Union, however, is still the main global importer of soya bean meal (Nassar et al. 2011). Yet, similar to the bean imports scenario, the European share of imports of soya bean meal has also decreased.

A combination of cheap land, lax regulations, specialized labour and advanced machinery has enabled this agricultural model to flourish in Argentina. Furthermore, the widespread production of soya beans has prompted Argentina to produce and become a prime market for renewable biodiesel fuel so that in 2006 the country was the world largest biodiesel oil producer from GM soya beans (Semino 2006).

Soya beans are grown in the central northern regions, particularly in the provinces of Cordoba, Santa Fe, Entre Rios, Buenos Aires and El Chaco. Accounting for 40 per cent of the country's output, the largest production of soya beans takes place in the province of Santa Fe (Spectrum Commodities 2012).

ENVIRONMENTAL AND SOCIAL FOOTPRINTS OF ECONOMIC SUCCESS

The success of the agricultural commodities boom in Argentina was driven by the Washington Consensus; however, it needs to be understood that it was not the trade liberalization reform policies that helped Argentina towards its remarkable recovery and economic growth in the 2000s. In fact, in real terms only 12 per cent of Argentina's gross domestic product (GDP) growth between 2002 and 2010 originated in the country's exports (Weisbrot 2012). According to Weisbrot et al. (2011), Argentina's economic expansion was led by a change of economic policy that proactively encouraged domestic consumption and investment.

Yet, despite the fact that only a relatively small percentage of GDP can be attributed to the agricultural sector exports, the unprecedented expansion of genetically modified monoculture in Argentina since the late 1990s has entailed substantial changes to land and water use. As a result, globalized, for-export agriculture in Latin America has brought about changes to traditional farming practices, natural resources availability, and to the life support function of the environment.

Genetically modified soya was introduced into Argentina in 1996, apparently without sufficient public or congressional consultation during the presidency of Carlos Menem (1989–99) and his governmental privatizations (Varela 1994). A few years later, in 2003, the National Agriculture Secretariat boasted that the soya harvest had reached the 36 million tonne mark with 98 per cent being exported to be processed into flour for human consumption in Asian countries and for animal feed in Europe (Valente

2003). In 2009, about half of the country's total cultivated area, a record 18 million hectares, was covered by transgenic soya beans (*ibid.*). In the words of a local farmer, the Argentine countryside had turned into a green desert (Valente 2003).

The proliferation of soy-fields in Argentina was achieved using direct planting at the expense of livestock rearing and a dramatic reduction in traditional crops such as maize, wheat, cotton, potato and pulses (Valente 2003). Previously, farmers had rotated crops to allow the soil to recover nutrients; or they had left land for grazing livestock, allowing the soil to 'rest' while using animal manure as the main fertilizer. This natural practice keeps the soil covered with dead vegetation, which decomposes to serve as a natural fertilizer, and protects the soil from erosion and the damage caused by extreme temperature shifts. Direct planting, on the other hand, by-passes the preparatory step of tilling and ploughing under the remnants of previous crops, which helps speed up the pace of production (Valente 2003).

The type of transgenic seeds planted in Latin America, and in Argentina in particular, is important: the commercial name for them is RoundupReady Soybeans, and for them to yield large, good-quality crops, enormous quantities of specialist herbicide and fertilizer are required. Monsanto, the agribusiness and biotechnology transnational, developed RoundupReady to be resistant to their own glyphosate-based herbicide, commercially named Roundup, which is used to kill the weeds that grow alongside the soya plant. The commercial rationale behind this chain of production (and destruction) is that by using Monsanto seeds farmers do not have to battle each specific weed; inevitably, farmers become dependent on Monsanto to obtain GM seeds and herbicide (Valente 2003).

Throughout Latin America, the planting of extensive as well as smaller tracts of land with genetically modified soy has triggered a catalogue of ecological damage, of which the most important is loss of biodiversity due to the replacement of natural ecosystems. Other damaging consequences are the disappearance and fragmentation of natural habitats; the deforestation of large wooded areas to make room for arable land; desertification; and soil depletion and erosion due to the change from diversified cultivation to monoculture. Wholesale spraying favours specific types of soya bean resistant to the herbicide; the intensive use of herbicide has contaminated the groundwater and soil; and the increased application of chemicals in large fields has given rise to additional resistant weeds (CDCA 2011).¹

A number of socio-environmental impacts have also been registered. Food self-sufficiency has been seriously compromised because the agro-export model uses up most of the available arable land, thus reducing

the land available for growing subsistence crops. Farm ownership in the hands of a few large landholders has prompted the disappearance of medium-sized and small producers and facilitated the involvement of multinationals in the agricultural sector. A further consequence of expanding agriculture for export has been the displacement of several indigenous and peasant communities, while highly mechanized seed planting and harvesting have contributed to increased unemployment in rural areas (CDCA 2011). Open access to the country's 'comparative advantages' advocated by the IMF, WB, IDB and the US Treasury Department has also meant that the amount of food produced for national consumption has diminished, its prices have risen, and Argentina has become more dependent on imported foodstuffs (Barr 2011). The soya export model has led to economic dependency on transnational investment and created an agricultural system that is heavily reliant on agrochemicals, GM seeds and expensive high-tech machinery.

Two of the most significant socio-environmental phenomena to emerge from the booming agricultural trade in Argentina have been the reduction in grazing lands for animal husbandry, and the appearance of soy fields in urban areas. It is likely that the reduction of grazing lands is the reason for the decline of livestock in the fields, cattle in particular having previously been a prime Argentine commodity, a decline which may well coincide with increased cattle rearing activity in the emerging economies thanks to animal feed grown on Latin American soil.

Finally, while the use of agrochemicals has been pivotal to the success of the agro-export model, agrochemicals seem also to be the main reason for inhabitants' illnesses and discomfort. The rush to profit from cash crops in Argentina has pushed producers to cultivate on the fringes of large cities, too. Consequently, as in rural areas, urban residents have been exposed to the effects of chemical fumigation in nearby fields.

The detrimental environmental and social impacts of the agro-export model in Latin America furnish solid reasons to criticize the Washington Consensus and the demands from governments in less developed countries to open up to this type of liberal globalized trade. Multinationals have not only appropriated regional natural resources but, ultimately, reaped a large part of the benefits, as evidenced by the strong presence of Monsanto and Dupont in Argentina.

Furthermore, the international success of agricultural sales has masked some of the health hazards of the uncontrolled expansion of the new export crops. The unusually high incidence of ill-health and mortality in the low-income neighbourhood of Ituzaingó Anexo, Cordoba, Argentina has been linked to the presence of contaminants in the area. Such a poignant reality is an irrefutable signal of the connection between the

agricultural sector liberalization approach and the threat to the essential function of nature as life-support for humans and animals.

THE CASE OF ILL-HEALTH IN ITUZAINGÓ ANEXO, CORDOBA: COMPARATIVE DISADVANTAGES?

The health problems triggered by the spraying of soya bean fields are not new to Argentina. Although health incidents have often been reported by victims in the countryside, the phenomenon has, alarmingly, now extended to suburban corners too. It is apparent that the state has not provided empirical data to measure pesticide impacts on the environment, human or animal health, making it too difficult to map or diagnose when and where cases of pesticide poisoning could occur. Critical information that attests to the consequences of exposure to agrochemicals is mostly available only in reports by health practitioners, the victims themselves, and from anecdotal evidence (Semino 2006).

For example, between 1995 and 2002, a notable increase in the incidence and treatment of skin disorders, hormone imbalances, respiratory disease and digestive problems was registered at the Mother and Infants Hospital (Materno Infantil) in the locality of San Roque, province of Entre Rios (Barr 2011). The town of San Roque is surrounded by GM soya bean farms and, despite the lack of scientific data, many believed the blame rested squarely on the shoulders of agrochemicals (*ibid.*). In 2001, the Paediatric Endocrinology Department seemed to have had severe difficulties in coping with the situation and claimed that no support had been forthcoming for a controlled study to determine the cause of such a surge in ill-health in the area (see Dr Daniel Verzeñassi, in Barr 2011).

Another case that illustrates the problem emerged from the town of Monte Cristo (with a population of 5286), in Cordoba province. The town lies on the border of a soya bean field and has been indiscriminately sprayed with pesticides. Additional pollutants are also emitted into the atmosphere from nearby grain dryers and silos. Between 2003 and 2004, 37 cases of cancer were recorded in the town (four of them leukaemia), 29 congenital malformations, six cases of asthma, and five of lupus. A high number of allergies was also recorded (Grupo de Reflexión Rural 2006). More recently, a family from the rural town of Villa María (also in Cordoba province) reported to the regional Crown Prosecutor the application of agrochemicals, via land fumigators, 20 metres away from their home. In 2010, the family's members had suffered severe symptoms, including sore eyes, stomach pains and skin rashes. The local doctor attributed those symptoms to typical poisoning due to exposure to agrochemi-

cases (Corresponsalía 2012). This particular case has been taken to a higher judicial court which charged the pilot of the Mosquito fumigator as well as the field's manager with breaking Laws 10.590 and 10.764 which forbid fumigation any closer than 2500 metres from built-up areas.

These examples are sufficiently stark as they are. However, the case of pesticide poisoning in Ituzaingó Anexo is of particular importance for two reasons. First, the incidence of ill-health and death in Ituzaingó is exceptionally high; and second, while similar contamination and ill-health have been identified in other parts of the country, no other case has been documented in such detail or so comprehensively, in a process initiated by victims in the neighbourhood in 2001. The account below draws on a review of historical and recently available information, opinions formed during semi-structured interviews with a representative of the group Mothers of Ituzaingó, and visits to the neighbourhood by the author.

Case Study: Ituzaingó Anexo, Cordoba

Ituzaingo is a low-income neighbourhood located on the city's outskirts with a population of 5000. The soya bean fields occupy lands to the north, south and east and are visible from residents' homes because of the proximity of the plantations (visits by the author, 2005, 2008). Despite the fact that municipal regulations forbid spraying any closer than 2500 metres from built-up areas, no controls had ever been implemented and soya bean growing and fumigation had continued (Aylon et al. 2006).

Between 2000 and 2009, 272 people died in Ituzaingó, 36 per cent of them ($n = 82$) from cancer (death from cancer represents 18 per cent of total deaths in Argentina); in 2012, there were 143 cancer sufferers; 23 children were born with genetic malformations; and there was a total of 274 spontaneous miscarriages (Matheu 2012; Oliva 2012). These are extremely high figures for a population of only 5000.

The afflicted neighbourhood started to fight back in December 2001 when some residents of Ituzaingó Anexo, mostly women, undertook a small house-to-house sample survey. The survey expanded. By February 2002, 40 cases of cancer and other serious diseases had been identified; by July 2002, an additional 200 cases of ill-health were found; and by November 2005, a total of 300 cases had been uncovered (Oliva 2012). The diseases that most often came to light were lupus, purpura, haemolytic anaemias, Hodgkins lymphoma, lymphatic tumours and leukaemia. Many children also suffered from asthma and recurrent paralysis. An increase in the rise of autoimmune diseases, hormone imbalances, allergies, and bronchial and skin problems was also identified (Barr 2011). While the expected

incidence of leukaemia is between 2 and 3 cases per 100 000 inhabitants, 13 leukaemia cases were registered per 5000 inhabitants in Ituzaingó alone (Redacción 2012). That is, Ituzaingó shows more than 600 per cent higher incidence of leukaemia than expected.

At the instigation of the Mothers of Ituzaingó, and in defiance of uncooperative government officials, soil, air and water environmental assessments were undertaken in 2002 by CEPROCOR (Centre of Excellence for Cordoba Products and Processes) under provincial government order (Aylon et al. 2006). The toxic components glyphosate, AMPA (aminomethylphosphonic acid), and endosulfan, a potent chemical used for pest control in cotton, tobacco, sorghum wheat and soya beans, among others, were identified. Endosulfan is banned in many countries for its devastating effects on health: it is a recognized endocrine disruptor that interferes with the hormonal mechanism in humans and animals and so can cause cancerous tumours, birth defects and other developmental disorders. Glyphosate has been associated with a high incidence of birth defects (Robinson 2011). The pesticide glyphosate is widely used in Argentina together with endosulfan to improve its fixation; it is known under the name of Roundup and produced and marketed by Monsanto (already heavily criticized for environmental pollution and damage to people's health) (Aranda 2008) and Dupont. Traces of glyphosate and endosulfan as well as of arsenic, lead and chromium were found in water tanks above the houses. Unwittingly, residents had been drinking dangerously contaminated water for years (Gatica 2005). Previous to the installation of the potable water network in Ituzaingó in 2002, the water supply (provided by the utility firm SABIA S.R.L.) was stored in water tanks on the rooftops of houses. The water storage tanks had not, however, been provided with covers, and as a consequence some of the components used in aerial fumigation of the nearby fields found their way into those domestic water tanks (Gatica 2005).

Important evidence of toxicity among the neighbourhood's residents emerged for the first time when blood tests were carried out on 30 children between four and 14 years of age by the Department of the Environment of the Municipality of Cordoba in 2006. The tests showed traces of pesticides in 77 per cent ($n = 23$) of the sample (Aranda 2008), particularly alpha-hexachlorocyclohexane, a component that has not been used in USA for decades (USA Department of Health 2005) – its manufacture is forbidden in Argentina under Law 22.289, enacted in 1980, due to its potential cancer-causing effect (Aylon et al. 2006). A much larger sample was tested for agrochemicals in 2010: then, among a sample of 142 children, as many as 80 per cent ($n = 114$) showed signs of above accepted levels of toxics (organic chlorades) in the blood (Redacción 2012; Magnani 2012a).

CHALLENGING MARKET LIBERALIZATION POLICY IN LATIN AMERICA: A LEGAL PRECEDENT

The Ituzaingó case is of particular significance in relation to social policy and the environment not only in Argentina but also throughout Latin America. In response to the deleterious consequences of the very agricultural model that had added massive wealth to the Argentina agro-export economy from the late 1990s to the present, a prolonged struggle against such a model emerged from Ituzaingó. One of the main outcomes of the resistance has been an unprecedented historic legal landmark challenge that has now been established for similar cases.

A wide array of strategies had been deployed in Ituzaingó to protect the local environment, address residents' ill-health and attain justice. For example, affected residents presented individual claims, communications had been made available, petitions signed, lawsuits initiated, and neighbours had demonstrated on the streets. Social and environmental organizations joined the struggle. The Mothers of Ituzaingó presented their case to the municipal authorities on a number of occasions, and although officialdom seemed to take note, spraying of nearby fields continued. The matter was brought to the attention of the Ministry of Health in Cordoba and the Mothers requested that tests be carried out on neighbourhood water supplies since they suspected these were contaminated with agrochemicals. For the most part, their requests went unanswered; the ministries only appeared to take notice when the victims threatened to publicize their concerns in the media (Gatica 2005).

For almost a decade, the Mothers of Ituzaingó petitioned and presented the case to various governmental bodies: the national government (in 2004, files were opened at the Secretary of Human Rights, Secretary of Environment, and the Secretary of Social Development), provincial government (Legislature, Cordoba Environmental Agency, Health Ministry, Agriculture Unit), and, also in 2004, to the municipal authorities (Departments of Deliberation, Health, and Environment) (Carrizo and Berger 2008). In 2005, the Mothers took the matter to an international forum and made a presentation of Cordoba's plight at the People's Health World Assembly held in Ecuador.

The legal struggle started in 2004 when a claimant (Sofia Gatica) filed a lawsuit against one of the soya bean producers; a further case was opened in 2008 by the then Secretary of Health of the Municipality of Cordoba (Medardo Ávila Vázquez) who denounced two producers for illegal fumigation next to Ituzaingó Anexo (Pedoni 2012). These legal procedures gathered momentum when those incriminated (the soya bean field owners and the pilot of the spray plane) were finally taken to court in the first trial of its kind in Argentina.

On 21 August 2012, the landmark prosecution on urban spraying that employs substances hazardous to health took place (a first hearing was held in June 2012). The trial dealt with the 2004 and 2008 lawsuits filed by Gatica and Vázquez for contamination by aerial and ground spraying causing damage to the health of approximately 1200 families dwelling in the neighbourhood of Ituzaingó Anexo. In legal terms, the offence qualified as ‘harmful contamination’ (*contaminación dolosa*); the stipulated penalty for this type of crime is between three and ten years in prison (Magnani 2012b). The trial at the Cordoba Municipal Tribunal was possibly the single most important episode in the struggle to defend the environment, health and victims’ dignity. Moreover, due to the judge’s ruling over the issue of toxic fumigation, it signals a historical moment for Latin America agricultural policy in general (Real World Radio 2012).

Lengthy deliberation preceded the difficult decision made by the judges on a burning issue that had come under the spotlight of the judicial process for the very first time. In this case, the Tribunal decided to reject the defendant’s argument against the legitimacy of the lawsuits advanced by the two claimants (Sofía Gatica and Medardo Ávila Vázquez) and condemned the perpetrators for the crime of ‘harmful contamination’.

In an unparalleled move, the court reached the conclusion that sentences were required for one of the producers and the pilot for fumigating soya bean fields with glyphosate and endosulfan in Ituzaingó. The defendants pleaded guilty to violation of Article 55 of the National Law of Hazardous Waste (24.501) which is linked to Article 200 in the Criminal Code (Pedoni 2012). The ruling also established that Regulation 10.505 together with the provincial Law on Agro-chemicals, which establishes minimum distances, regulations and permits, had been violated (Panero 2012).

Litvinoff (2012) rightly argues that ‘nothing [has] remained the same since they denounced the problems in the neighbourhood ten years ago, and nothing will be as it was following the precedent established at the Courts of the city of Cordoba yesterday’ (ibid.: 2A). The political struggle had accomplished much even before the court rulings, since the residents had started reporting to the authorities and demonstrating to publicize their grievances and express their frustration. For example, in 2002 potable water was connected in the area to replace the former roof tanks water supply; and an ordinance was put in place in 2003 to move fumigation away, prohibiting it nearer than 1500 metres from houses (although the ordinance was never respected). Furthermore, drawing on this case, new ordinances were enacted (for example, fumigation beyond 1500 metres from urban areas) in favour of all affected neighbourhoods; a provincial law that restricts agrochemical fumigation near urban areas was enacted; and a debate over the probable health impacts of agro-toxics took off.

Crucially, after the ruling, nobody who fumigates illegally can be under any illusions as to its criminality (Litvinoff 2012).

Importantly, the struggle against toxic fumigation to safeguard the life support function of the local environment attracted the attention not only of municipal and provincial authorities, but also of those at the highest level. In 2009, Argentina's President Cristina Kirchner acknowledged the severity of the situation in Ituzaingó and, having recognized that the problem was the responsibility of municipal and provincial authorities, she requested the national Ministry of Health to conduct an investigation (Piqué and Aranda 2009).

The legal process that took place in the city of Cordoba has been portrayed as a leader in this area of jurisprudence (Pedoni 2012; Matheu 2012). The ensuing verdict and the precedent established are relevant not only for other towns in Argentina (for example, Cordoba, Santa Fe, El Chaco, Buenos Aires and Entre Ríos), but also to potential cases in two other major Latin American producers of soya beans, Brazil and Paraguay.

CONCLUSION

It might still be too soon to know exactly how the Argentine government will react to the outcome of the trial and how the abuses inherent in the country's agro-export market model will be addressed. In part, the very sector and liberalized model of agricultural production are precisely what help to bring in the funds necessary to pay for the various governments which, since the late 1990s, have promoted and supported the liberalization of the agricultural sector.

It is questionable whether the policy of trade liberalization in Argentina has resulted in poverty reduction or achieved economic stability as the Washington Consensus promises. The environmental and human costs that have been analysed above are aspects of the development policy that have hitherto been little discussed. The Ituzaingó case evidences two sides of the same coin: on one side, the strength and permanence of the globalization and production model; on the other, the cracks in the same system and warning signs for the environment as well as the model's deleterious health impacts.

The judge's ruling over toxic fumigation in the city of Cordoba and the ensuing sentences should represent a crucial step to awake the nation to the severe conflict between its successful agro-export economy, and the protection of the environment and people's health. The legal precedent that has been established through this case is of vital importance for future similar causes. However, the judge's ruling did not seek to ascertain the

government's responsibility – for example, the Secretary of Environment, the Secretary of Social Development, Health Ministry and Ministry of Agriculture – for overlooking the severe health problem in Ituzaingó for so long and facilitating the very agriculture that has caused so much ill-health.

Moreover, no initiatives from the provincial or national governments have been put forward to pay compensation, offer relocation or provide aid to the affected families. For example, in 1978, the New York State Government and the US government directly supported the residents of Love Canal on the most appalling environmental tragedy in US history. Emergency measures were promptly taken to protect the residents: the homes affected, by both chemical leach and corroding waste breaking up through the ground, were purchased. Also, for the first time, the US Senate approved emergency financial aid for this type of disaster and in excess of 200 families were evacuated (see, e.g., Beck 1979). New regulations followed regarding the disposal of hazardous chemical waste.

In the short and medium terms, Argentina's provincial and national governments should now issue a rule offering assistance to families who have been directly affected by pesticide poisoning, lost family members or are currently coping with illnesses. Also, existing laws 10.590 and 10.764, forbidding fumigation any closer than 2500 metres from built-up areas, ought to be enforced by the government, while any failure to fully comply with them ought to incur heavy penalty on the culprits. Finally, it is recommended that local and provincial authorities work together with mobilization groups – for example, Mothers of Ituzaingó, FUNAM (Environmental Defence Foundation) and the GRR (Rural Reflection Group) – for these could provide invaluable information to uncover lack of compliance, detect increasing ill-health and protect the surrounding environment.

NOTE

1. The following sources were used by CDCA (Centro di Documentazione sui Conflitti Ambientali) to compile the summary of ecological and social impacts:
 - TV documentary *Hambre de Soja* di Marcelo Vinas;
 - interview with Dr Rodolfo Paramo – <http://www.grr.org.ar/campanapdf/vi>;
 - Greenpeace Argentina – Bosques;
 - campaign and group *Parente de Fumigar* (Stop Fumigating);
 - *Pueblos Fumigados* – 'Report on the problem of the use of pesticides in the main soy provinces in Argentina' ('Informe sobre la problematica del uso de plaguicidas en las principales provincias sojeras de la Argentina');
 - Manifesto on the future of seeds – <http://www.asud.net/images/doc/mani>;
 - International Commission on the Future of Food and Agriculture;

- article 'Banderilleros' – <http://www.medioymedio.com.ar/infor>;
- text of Santa Fe Court of Appeal sentence;
- 'Glifosato condemned in the air' ('Glifosato condenados en el aire') – <http://www.medioymedio.com.ar/nacio>.

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8. Environmental and social policies in Japan

Yasuko Kameyama

In Japanese modern history, the end of the Second World War in 1945 marked an absolute turning point in nearly all dimensions, including politics, the economy and society. The Tokyo metropolitan area and many other cities were physically destroyed, and people's traditional ways of thinking and values were simultaneously denied. Restoration in the post-war era was thus the starting point for Japan's industrialization, rapid economic growth, economic prosperity and many of the other new issues that Japan faces today. The same can be said for Japan's environmental and social policies.

During the six decades of the post-war era, environmental problems and the policies to deal with them were considered to have little direct relationship with social welfare and social security policies. Environmental and social policies were developed almost independently of each other from a procedural point of view. In most cases, the two types of policies were developed and implemented by the relevant ministries and agencies that had the authority to do so. Policy-making processes involve different types of stakeholders, pressure groups, industries and politicians.

There are some groups of academic experts in Japan who are knowledgeable in both the environmental and social policy arenas. One is a group of environmental sociologists, who are interested in studying environmental problems from sociological perspectives (Iijima 1994; Kada 2002; Hasegawa 2004; Torigoe 2004). These experts have been influential in elucidating how environmental pollution has affected local people's daily lives, and how those harmed by pollution were relieved, both economically and socially. They have also made contributions in understanding recent social movements regarding anti-nuclear energy policy. Nevertheless, the scope of these studies is restricted to local environmental problems that have a direct relation with social movements and societal behaviour, and do not go far enough into the realm of social policies.

Another is a group of experts on Japan's social welfare policies, who are also interested in environmental problems (Maruo et al. 2001; Hiroi 2005). Their works have greatly stimulated debates on how Japanese social welfare policies should evolve under various economic and environmental constraints, but not have been able to send out concrete messages regarding environmental policy.

The aim of this chapter is not only to describe Japanese environmental problems from sociological perspectives, nor just to deal with environmental problems in the realm of social policies, but to illustrate the common features between environmental and social policies in Japan. The outcome of this exercise could help us recognize the best available policies to be implemented to construct a better future for Japan.

Japan's post-war history will be divided into three periods in this chapter. The first period is between the 1950s and the mid-1980s, when Japan experienced rapid growth in terms of the size of both its economy and its population. This period is referred to as the 'expansion stage' in this chapter. The second period is from the late 1980s until 2010, in which the economy was stagnant or stable, the population peaked and began to decrease, and the ageing of the population became apparent. This second period is called the 'contraction stage'. A third stage began when the great earthquake and tsunami hit the north-eastern region of Japan on March 11, 2011. The period after the earthquake has just begun, so it is difficult to determine what to name it. Nevertheless, there is a clear distinction between the years before and after the event, so this chapter deals with these recent years as a distinct third period.

The chapter starts with a brief explanation of the development of Japan's environmental policies, followed by a brief description of social policies in Japan. Then, a comparison of policy developments in both areas is made to find common backgrounds. Finally, an introduction of the third stage is presented to forecast the future of environmental and social policies in Japan.

ENVIRONMENTAL POLICY IN JAPAN

Environmental Policy in the Expansion Stage

Although some amount of environmental pollution in Japan predates the Second World War era (Wilkening 2004), major problems with industrial pollution became evident in the 1950s. After the war, the Japanese people worked hard to catch up with Western industrialized countries (Johnson 1982). The government prioritized rapid industrialization, without much consideration of harmful pollutants that were discharged into the atmosphere, rivers and the ocean. Because Japan is a relatively small country with limited space for habitable areas, industrial complexes are often located in highly populated areas. Contamination resulting from industrial production processes led not only to environmental destruction but also to serious health hazards, including four well-known pollution-related

tragedies that emerged throughout Japan: Minamata Disease, Niigata Minamata Disease, Itai-itai Disease and Yokkaich Asthma (OECD 1977).

Minamata Disease was caused by mercury contamination of the ocean and rivers. Mercury waste was dumped into waterways and ultimately made its way to the sea, where fish absorbed the mercury through their skin. Humans who consumed the contaminated fish were exposed to high levels of mercury. The first case was reported in 1956 as a patient suffering from neurological symptoms of unknown cause. Investigations were carried out mainly by Kumamoto University, and by the end of the same year, the university reported that the disease was a type of heavy metal poisoning transmitted via fish and shellfish. However, because of limited scientific knowledge and experience with the disease, more than a decade passed until the cause was clear. It was only in 1968 that the government concluded that the disease was caused by effluents discharged by factories in the neighbourhood. Nearly 3000 people had been certified as having Minamata Disease by March 2001 (Ministry of the Environment 2012). Similar symptoms were observed in other areas in Japan, including Niigata in 1965.

Itai-itai ('Ouch-ouch') Disease occurred from the pre-war period in Toyama, but was recognized as caused by water contamination (cadmium) in 1961. Nearly 100 people have been designated as patients of the disease.

Patients suffering from asthma as a result of air pollution have been observed in many cities in Japan, but those in Yokkaich City were considered to be the worst case. Air pollution in Yokkaich reached its worst level in about 1963–64 after the successive launch of two industrial complexes (Committee on Japan's Experience in the Battle against Air Pollution 1997). In 1972, judgment at the Yokkaich pollution trial dismissed claims by the corporate defendants that they had taken precautionary measures based on the latest technology. Certified asthma sufferers in Yokkaich City totalled nearly 2000.

The structure of local pollution was relatively simple. On one side, there were industries that polluted the local environment, which in many cases ultimately led to health hazards in the surrounding areas. On the other side were the citizens whose health was damaged as a consequence of the pollutants in their environment. Although the structure of the problem was simple, it took time for the national government to take preventative action. For example, many of the victims of Minamata Disease were fishermen and their families, who had held little political power (Oiwa et al. 2001). The reason it took so much time until the cause of this health hazard was scientifically confirmed may be at least partially a result of the patients' lack of political power.

In some other cases, the pollutants harmed people in the neighbour-

hoods of the industrial complexes, and many of those residents were employed by the company that was polluting the area (Walker and Cronon 2011). In these cases, it was difficult for the employees to sue their employers, because they were afraid of being laid off. The victims were sometimes offered small amounts of condolence payments from the companies, but such payments were made mainly so that companies could maintain their ability to pollute. The employees had to tolerate their illnesses to maintain their jobs. This structural problem also contributed to the slow response of the national government in pollution abatement legislation (Broadbent 1998).

In general, it was not the national but rather the local municipal governments' reactions that led to pollution abatement policies (Matsuno 2007). In 1964, Yokohama City and a power company signed a pollution control agreement (PCA) for the first time in Japan. Other cities followed. The cumulative effect of these local movements was the gradual creation of a nationwide desire for people to live in a cleaner, safer environment.

After a long time, and with strong pressure from the people, the Japanese government finally passed many laws to prevent or minimize local pollution. The 64th Annual Meeting of the Japanese Diet in 1970 was called the 'Pollution Diet', because they passed 15 pieces of legislation concerning pollution and decided to establish a national environmental agency within the Japanese government. Industries were expected to comply with various regulations to meet specified standards. Compensation to people harmed by pollution was provided by both government and industries.

The Environment Agency, established in 1971, consisted of government officials from various ministries. Many shifted from the Ministry of Health and Welfare (today's Ministry of Health, Labour and Welfare), the Ministry of International Trade and Industry (today's Ministry of Economy, Trade and Industry) and the Pollution Abatement Office within the Prime Minister's Office. Because of the historical background of the agency and its constituents, its expected major role was to improve the quality of ambient air and water and to help people who were suffering from health hazards resulting from contamination. The agency put less priority on other plausible roles that it could have taken, such as a leadership role in wildlife and natural resource conservation.

Various pollution abatement policies were further promoted because of the two oil crises in the 1970s. The price of oil quadrupled in a short period, which stimulated industries' willingness to invest in energy-saving technologies. With these new energy-efficient technologies in widespread use, Japan's environmental quality greatly improved by the end of the 1970s (Japan Environment Agency 1983).

Environmental Policy in the Contraction Stage

Japan's rapid economic growth made it one of world's major economies by the early 1980s. People became less concerned about the environment in terms of local pollution, thinking that pollution was a thing of the past (PMO 1984). Meanwhile, two new types of issues became apparent.

The first issue remained at the domestic, local level. With the improvement in the level of local pollution, people began to demand a higher level of environmental amenity. These demands included implementation of policies for sound waste management and material uses (three Rs: reduce, reuse and recycle), and conservation of local natural habitats.

The other issue was a series of environmental problems taken up at the international level, often called 'global environmental problems'. Not only Japan, but the whole world began to debate issues such as acid rain, destruction of the ozone layer, climate change and loss of biological diversity. In addition, Japanese companies that had invested in developing countries, especially in Southeast Asia, began to receive harsh criticism from various environmental non-governmental organizations (NGOs) for destroying local environments (Dauvergne 1997). Development of prawn farms, for example, was said to have decreased areas of mangrove swamp in Thailand, Indonesia and Vietnam. Although prawns are exported to various countries, Japan was, and still is, the largest importer of prawns globally. Although this type of local environmental destruction in developing countries was caused by economic globalization in general, these types of regional environmental problems in developing countries were also considered as components of debates in Japan on global environmental problems.

The Japanese government became concerned about criticism from abroad and gradually started taking positive action towards environmentally sound policies to improve its international reputation. From a foreign policy perspective, 'international contribution' was considered to be the key to Japan's status as an accepted member of the world community (Busby 2010: 95).

In the international arena, the United Nations Conference for Environment and Development (UNCED), held in Rio de Janeiro in June 1992, was one of the most notable landmarks of the world's environmental movements. Some of the most well-known multilateral environmental agreements such as the United Nations Framework Convention on Climate Change (UNFCCC) and Convention on Biological Diversity were opened for ratification. Japanese politicians of the time were strongly influenced by the discussions at high-level sessions of the UNCED on global environmental conservation (Tabb 1995).

Influenced by international movement towards a more environmentally sound world, Japanese environmental policies also evolved from targeting abatement of local pollution into global and regional environmental conservation. To lay out the fundamental architecture of the new scope of environmental policies, the Basic Environment Law was enacted in 1993. The law intended to converge and succeed two traditional basic laws, the Nature Protection Law and the Basic Law for Pollution Control. The new law also prescribed that the Japanese government should periodically develop Basic Plans for environmental policies. The first Environment Basic Plan was published in 1994 and it has been updated four times. With an increasing number of new issues to deal with, the Environment Agency was restructured and called the Ministry of the Environment (MOE) in 2001. The Ministry of Health and Welfare had previously been responsible for waste management policies, but this responsibility was integrated into the new MOE.

In terms of local environmental policy, efficient material use and waste management became one of the most important pillars. The Basic Law for Establishing the Recycling-based Society was enacted in 2000. Other laws were laid out according to the scope of the material: the Package Recycling Law in 1995, the Home Electric Appliances Recycling Law in 1998, and the Automobile Recycling Law in 2005.

As for global environmental policy, the Japanese government as well as high-level politicians welcomed hosting the third Conference of the Parties to the UNFCCC (COP3) in 1997 in Kyoto to contribute to improving Japan's reputation overseas (Kawashima 2000). The agreement reached at the meeting was the Kyoto Protocol (Grubb et al. 1999; Oberthür and Ott 1999). In the Kyoto Protocol, Japan agreed to reduce its greenhouse gas (GHG) emissions by 6 per cent from the emissions level in 1990, for the five years from 2008 to 2012 (the first commitment period). Ordinary Japanese citizens became well informed about climate change as a result of Japan hosting the Kyoto conference, and were basically supportive of the agreement. Stakeholders from industrial sectors, however, were furious with the outcome. They had believed that Japan had achieved one of the most energy-efficient economies in the world, so it would be difficult to fulfil this emissions reduction target without negatively affecting economic activities (Kawashima 2001). The criticism from Japanese industries grew greater in 2001 when the United States, under the George W. Bush administration, announced its withdrawal from the Kyoto Protocol. Without the United States, then the largest GHG emitter in the world, the Kyoto Protocol would not be effective in terms of mitigating climate change. Japanese industries lobbied that the Kyoto Protocol was no longer an environmentally effective treaty; thus, Japan should follow the United States

and withdraw from the Kyoto Protocol. Although such an assertion was partially true, Japan decided to remain in the Kyoto Protocol, especially because Japan, as the host of COP3, felt responsibility for the agreement (Schreurs 2007).

The Kyoto Protocol entered into force in 2005. Japan reluctantly committed to its emissions reduction target for the first commitment period. The Japanese government implemented the Kyoto Protocol Target Achievement Plan in 2005 to support various measures to save energy, further improve energy efficiency, and promote carbon-free energy sources, including nuclear power (Watanabe 2011). For the second commitment period, however, Japan emphasized that the Kyoto Protocol's emissions reduction commitments could not be effective in mitigating climate change without the meaningful participation of the United States as well as other large GHG emitters such as China and India.

From 2007 to 2009, discussions were conducted in Japan on the country's mid-term emissions reduction target for the year 2020. Prime ministers during those years were reluctant to set stringent emissions reduction targets. Japanese industries strongly called for a 'fair' emissions target. For them, the term 'fair' meant equalization of the marginal abatement cost, which was recognized as achievement of an impartial emission reduction cost per unit of carbon dioxide (CO₂) emission across all developed countries as well as some major emerging economies (Nippon Keidanren 2007). This criterion is closer to an economic efficiency criterion than an equity criterion, but in any case, it was the perception of Japanese industries on climate change mitigation policies and it is how the Japanese media framed the climate change debate in Japan. The industry groups emphasized that industries in other countries should reach the same level of energy efficiency as Japanese industries before Japan committed to another stringent emissions reduction target. On the other hand, few discussions were made from the perspective of Japan's historical cumulative emissions (representing a concurrent amount of responsibility for causing climate change), gross domestic product (GDP) per capita (representing the level of economic wealth), and Japan's responsibility in international society to bear a certain burden of the cost of climate change mitigation. Almost no debates were made on the level within which the global temperature should be maintained, in order to minimize the adverse effects of climate change.

Discussions on mid-term emissions reduction targets held from November 2008 to June 2009 under the Taro Aso Cabinet were heavily focused on the economic burden each household would have to bear if a certain emissions reduction target was chosen. The industries continued to stress the loss of international competitiveness under the circumstance in which neither the United States nor China faced such emissions con-

straints. In June 2009, the Japanese government announced that it would aim at a 15 per cent reduction (taking 2005 as the baseline) by 2020. Because there was about an 8 per cent growth in emissions from 1990 to 2005, the target was equal to a 7 per cent reduction from 1990, almost the same level as the Kyoto target for the years 2008 to 2012.

The long-lasting governance by the Liberal Democratic Party (LDP) terminated when the party lost the election in August 2009. When Yukio Hatoyama of the Japan Democratic Party became Prime Minister in September 2009, he announced he would reconsider the emissions reduction target, and set a new target of 25 per cent from the 1990 level. This figure was chosen because all Annex I countries to the UNFCCC (that is, industrialized countries) were to reduce their emissions between 25 per cent and 40 per cent from 1990 levels by 2020 if the world were to aim at limiting global mean temperature rise to less than 2°C from the pre-industrialization age. This target was announced at the Copenhagen meeting (COP15). The negotiation under the UNFCCC itself failed to reach an agreement, and only a political agreement, the Copenhagen Accords, was taken note of at the final hour of COP15.

SOCIAL POLICY IN JAPAN

Social Policy in the Expansion Stage

Japan's post-war social policy also dates back to 1945. Compared with its pollution abatement policies that were developed only after the level of environmental degradation became harmful, Japan's social policy development was relatively more progressive. Many people were in need of governmental support to reduce poverty and attain a minimum standard of living.

The Socialist Cabinet of the Katayama administration enacted various legislation to secure people's labour, income, health, education and other aspects of basic welfare. Passing of the Unemployment Compensation Act and the Unemployment Insurance Act are examples of fundamental legal institutions of the time (Odaka 2002).

Construction of a basic welfare system was sustained by high economic growth, almost 10 per cent per year. Political leaders and government officials of the time considered that the best way to promote post-war recovery in Japan was to concentrate on economic growth through rapid industrialization. As long as economic growth was maintained, jobs would be created, people's income would increase, government tax revenues would also expand, and expansion of revenues would increase the capacity of the government to fund more comprehensive social welfare systems.

The Japanese economy experienced remarkable growth in the 1950s and 1960s, and people began to realize the importance of various social safety-nets (Ministry of Health, Labor and Welfare 2006). Budgets for improved social security, health insurance, pensions, labour conditions and education expanded accordingly. The conservative political party, the LDP, continued to invest in further economic growth while building up social policies. The Minimum Wage Act and National Pension Act were introduced in 1959. One of the major breakthroughs was the achievement of a universal 'pensions for all, health insurance for all' system in 1961.

Further development of the social security system in Japan occurred in the early 1970s. The year 1973 was called 'the first year of welfare' (Maruo 2012). Social security expenditures, including for social services such as medical care services and personal social services, began to expand rapidly. The proportion of social security benefits to national income increased from 7 per cent in 1970 to 16.4 per cent in 1994. The National Life-Cycle Plan was announced by then Prime Minister Miki in the mid-1970s. The plan consisted of four pillars: housing, new working rules and education, a national minimum social security system including pension and medical insurance, and care for the elderly. Although the plan was not fully implemented because of unstable political conditions, the idea of a socially safe society was generally supported by the public (PMO 1973).

The Ministry of Health and Welfare was primarily responsible for health insurance and social welfare. Its establishment in 1938 was intended to improve nutrition, advance public hygiene, and later to support people who lost family members in the war. The labour-related section within the Ministry of Health and Welfare became independent as the Ministry of Labour in 1947 to deal exclusively with policies related to labour. The two ministries were assigned a great deal of administrative authority to strengthen various social systems.

In this early stage of development, Japan did not aim at achieving the fully developed social policies established, for example, in Scandinavian countries (Esping-Andersen 1999). The self-help principle had long been generally supported by most people. Opinion surveys conducted in 1976 and 1983 revealed a majority of people favouring the stance that 'all citizens, with exception of the elderly and the physically and mentally handicapped, must be financially on their own with no assistance rendered by the social welfare system' (Odaka 2002: 4). Therefore, funding for the Japanese-style social system could be explained as a mixture of both public and private sources. For instance, there had traditionally been an implicit contract between employees and employers on lifetime employment. This type of culture was the basis for Japan's low unemployment rate, and the costs to the government to support unemployed workers were kept

relatively low. In this manner, Japan's social safety-net was developed by a certain level of burden-sharing among the government, private companies and families.

A slowdown of economic growth in the 1980s prompted the Japanese government to assess various fundamental social policies to see whether those policies still worked in a changing society. The need to care for elderly people started to become more relevant, and care was viewed not only in monetary terms, such as providing a pension, but also in the promotion of services such as nursing and residences for the elderly.

From a gender perspective, overall Japanese social policy was based on the traditional notion of a male-centric society (Osawa 2011). Typical post-war Japanese families consisted of a full-time working husband, an unemployed stay-at-home housewife, and two or three children. Under this type of family structure, basic social security systems such as pension systems and health insurance systems were systematically oriented towards male income earners. The Japanese lifetime employment system enabled a male breadwinner to expect sufficient health insurance and pension after retirement to cover both himself and his wife. It was actually economically disadvantageous for Japanese housewives to work or to divorce after their husbands' retirement. Japanese society slowly started to deal with the gender gap in the 1980s. For example, the Equal Employment Opportunity Law, first enacted in 1972, was amended in 1986, 1997 and 1999. The amendments opened the door for female workers to be employed and receive equal treatment, although the actual implementation of the law was limited and slow.

Social Policy in the Contraction Stage

Things began to change in the 1990s, when tangible economic growth came to an end. Low levels of national economic growth led to a decrease in the amount of funds available for social security expenditures. In the 2000s, it became more apparent that the size of the population would begin to decrease in about 2005, which in turn would lead to a rapidly ageing society.

Social security in this era faced new issues. The first and the most serious one was the population age structure, which began to change slowly in the early 1980s. The birth rate dropped dramatically, reaching the lowest rate in the post-war era in 1989. The then government expected that the downward trend would be temporary, but the trend has continued into the 2000s. The 2010 population census showed that 23 per cent of the total population of Japan was over 65 years old (Statistics Bureau of Japan 2011). This rate was much higher than that of many other developed

countries. In a parallel manner, the country's economic growth had stalled since the end of the 'bubble economy' in 1990. It was therefore necessary for the Japanese government to minimize expenditures for social security, while trying to maintain a minimum level of support for the ever-increasing number of elderly residents.

The first Gold Plan was introduced in 1989 to promote social welfare for the elderly. However, because the rate of social ageing proceeded much faster than was projected at that time, the plan was modified in 1994. This plan emphasized the importance of care and support at individuals' homes. The subsequent Gold Plan 21 further elaborated programmes to increase the number of residences exclusively for elderly people.

Another plan, the Angel Plan, targeted the care of babies and small children. The first Angel Plan emphasized the basic position that the upbringing of babies and small children was not only the responsibility of the respective families but also of society as a whole. Expenditures were allocated to increase the number of day-care centres in Japan. The new Angel Plan, implemented in 1999, expanded the original programme to include other related elements, such as the employment of single mothers, the health care of mothers and children, and education.

As a result of the economic slowdown, various measures had to be taken to reduce government expenditures in these and other similar plans. Traditionally, health insurance covered all medical expenses of elderly people, but the system has been modified several times since the late 1990s to the present day, so that elderly people are asked to pay 10–30 per cent of the cost of medical services. Similarly, the age at which recipients can receive government pensions has increased from 60 to 65 years of age. Under the Koizumi Cabinet, the National Pension Law was amended in 2004, and this was one of the most contentious political issues during his Cabinet years. The amended law was intended to raise the pension rate to be paid by each individual and to delay the eligibility for government payment of pensions from 60 to 65 years old. Elderly people who were healthy and active were expected to extend their retirement age so that they would not require social services.

In the contraction stage, the employment environment also began to change. Japanese companies used to hire workers for lifetime employment with seniority wages. This system worked well to supply a kind of informal social capital in the country. After the economy began to slow down, however, private companies were required to reduce labour costs. This has led to an increasing number of non-permanent contract workers since the late 1990s (Keizer 2009). As many male breadwinners became less capable of earning enough income to support their families, the behaviour of females also began to change. An increasing number of females delayed

marriage and continued working full time. The number of unmarried single males and females increased, which in turn led to fewer babies being born in Japan. Many of the increasing number of part-time and non-permanent contract employees were either young or female. These non-permanent workers were generally paid according to their performance and not seniority. An income gap between high- and low-performing employees began to emerge, as did a gap between permanent and non-permanent workers (Ministry of Health, Labor and Welfare 2013).

In 2001, the new Cabinet of Junichiro Koizumi called for structural reforms to address these issues. The Ministry of Health and Welfare and the Ministry of Labour were merged to become the Ministry of Health, Labour and Welfare. Issues of social welfare and labour were interrelated in many ways. To secure a sufficient budget for social welfare, it was crucial to decrease the unemployment rate and increase the employment opportunities for both male and female workers. In addition to amendments to the Equal Employment Opportunity Law and a series of Angel Plans, the government supported female workers in various ways. In 2010, under the Japan Democratic Party Cabinet, financial support for families with children under 15 years old was introduced. Although the scheme was terminated two years later for various reasons, many local governments continue to offer similar financial support.

NEXUS BETWEEN ENVIRONMENTAL POLICY AND SOCIAL POLICY

Japan's environmental and social policies evolved on the basis of their respective histories and backgrounds, following separate trajectories and with mutually independent stakeholders. Nevertheless, there are some crossroads between the two that are worth investigating. Environmental and social policies in the first two stages are summarized in Table 8.1.

The Expansion Stage

Environmental and social policies in the expansion stage were triggered by strong economic initiatives by the government and industries, supported by informal social networks of traditional Japanese family and community systems. Rapid industrialization and economic growth were key for both policies, but from opposite directions. From an environmental perspective, the desire of political leaders and the government to create economic prosperity was the cause of environmental deterioration and health hazards. In other words, for at least the first two decades of the post-war era, the

Table 8.1 *Summary of the expansion and contraction stages in Japan*

		Expansion stage	Contraction stage
Time-frame		1950s to mid-1980s	Late 1980s to 2010
Economy		Rapid growth of around 10% per year	Little or almost no growth
Population		Stable growth of around 1% per year	Hit a peak in 2004 and thereafter decreased
Environmental policy	Major problems	Local pollution (air and water contamination, destruction of natural forests, hazardous waste disposal, etc.)	Global problems (climate change, acid rain, etc.) Local level amenities (waste management, landscape conservation)
	Cause of the problems	Pollutants, mainly from heavy industry	Individuals' lifestyle Industries' production processes
	Policies, laws	Nature Protection Law (1957) Basic Law for Pollution Control (1967) Compensation Law for Pollution-Related Health Damage (1973)	Basic Environment Law (1993) Basic Law for Establishing the Recycling-based Society (2000) Kyoto Protocol Target Achievement Plan (2005) Environment Basic Plans (1994, 2000, 2006, 2012)
Social policy	Major problems	Lack of basic safety-net for weaker people in society (elderly, poor, disabled, unemployed, female, small children without parents, etc.)	Budgetary constraints to support social policies Increase in the unemployment rate Increase in the number of single-parent families
	Cause of the problems	Lack of basic social institutions, when compared with most democratic Western countries	Rapidly ageing society due to low birth rate Little economic growth Disruption of the traditional informal social safety-nets

Table 8.1 (continued)

	Expansion stage	Contraction stage
Policies	Unemployment Compensation Law (1947)	Amendment of National Pension Law (2004)
	Amendment of National Health Insurance Law (1958)	Amendment of Health Insurance Systems (2006)
	National Pension Law (1959)	Financial support for children (2010)

environment was sacrificed and compensation for damage was delayed because of the Japanese people’s prioritization of economic prosperity. Economic growth, on the other hand, pushed Japan to create a fundamental institutional structure of social welfare. Actually, it was also a reason why people supported the larger notion of economic prosperity. In this way, Japan succeeded in keeping the unemployment rate low for a long period, with lifetime employment and nationwide health insurance covering all people in the country.

The two policies were developed at least partially hand in hand. Victims of polluted environments were often those on the periphery of society, such as the poor, small children and the elderly. Providing compensation to these relatively weaker people in society was consistent with the then current social policy. For most other cases, however, it was only after the basic needs of the people were fulfilled that people become aware of the importance of a healthy natural environment.

Industries and private companies were causes and consequences of both environmental and social policies in Japan, so they were expected to play key roles in the policy implementation stages. Especially in small towns, a large-scale company often dominated the local labour market. The residents were employed for life, which may have made it easier for companies to offer compensation for any health damage resulting from local pollution caused by the company. The pension system also relied heavily on Japanese employment practices and placed a great deal of financial burden on private companies.

Because of this historical background, Japanese environmental policies are deeply rooted in industrial activities, health and society. There are relatively few ethical arguments concerning, for example, the ecological movement, conservation and justice (Kagawa-Fox 2012), concepts that

are less related to industrial pollution. Although there are arguments that Buddhism teaches universal compassion and that the Buddhist perspective can stimulate ecological values (Broadbent 1998: 142), most local movements related to environmental policies in the 1960s and 1970s called for pollution abatement rather than ecological values.

The philosophy behind Japanese social policies also seems to have little to do with Japanese people's religious or traditional values. Japanese policymaking after 1945 was greatly affected by the United States as a consequence of the American occupation after the war, and the principles of a capitalistic democracy spread across post-war Japan. Under such circumstances, Japanese political leaders framed choices about the basic national direction in terms of what was required to accommodate Japan given the prevailing 'trends of the times' (Curtis 1999: 234), without much contemplation of what was 'right' or 'just'.

Another common feature of the two policies is they make the best use of traditional social capital and informal institutions that have governed Japanese society. Informal institutions can be defined as 'social norms or networks that supplement or supplant formal laws and institutions; where they work well, they can lower the costs and risks of economic transactions, thereby improving information flows and spreading risks' (World Bank 2002: 8). In Japan, such informal institutions had been observed both within and among families, communities, private companies and divisions of government. The environmental policies stemmed from many formal laws legislated by the National Diet and implemented by the central government. In addition, local governments and factories concluded thousands of PCAs that often went beyond the requirements of national formal laws (Imura 2005: 348). The PCAs were based on mutual trust rather than any type of formal contract, and this system of PCAs worked well in Japanese society.

A similar situation was observed with social policies. Much of what can be thought of as social welfare was supplied by individual households and private companies. Traditionally in Japan, three generations – grandparents, parents and children – lived in a single household, where grandparents took care of children while fathers worked outside the home, and mothers did housekeeping. When necessary, elderly family members were taken care of, primarily by housewives, in the family home.

The Contraction Stage

Environmental and social welfare policies showed contrasting developments in the contraction stage. With a lagging economy, industries were hesitant to support stringent emission reduction targets for Japan's GHGs.

Such debates were made exclusively in relative terms, specifically in comparison with the situations of the United States and China. Meanwhile, in general, Japanese consumers' preferences were directed towards environmentally sound products and lifestyles (Sampei and Aoyagi-Usui 2009). In general, more people sought a quiet and healthy lifestyle.

On the other hand, the influence of the economic contraction on social policies was straightforward. The government did not have enough funds to sufficiently support society's neediest members. In most cases, those in need were not people harmed by environmental pollution. Rather, help from informal safety-nets such as family ties and community-based networks had become more difficult to obtain. Social welfare policies in this time period had to address the problem of an increased number of people in need, yet had less funding available and therefore tried to reduce expenditures related to social services to a minimum level.

A superficial observation of policymaking in this time period indicates few common bases of the two policies, but a deeper examination reveals certain social circumstances underlying the two policy arenas.

One common nexus is the actualization of the generation gap between young and old. In many ways, the older generation – those people born around the time of the Second World War – have experienced continuous prosperity. Their generation achieved almost full employment for an extended period, and almost all people in this generation felt that the future would be even better. Conversely, the younger generation suffered from a high unemployment rate and felt uncertain whether the future would be better. They had to worry about a huge fiscal deficit of the national government, climate change, and many other potentially irreversible global environmental threats (PMO 2011). It can be said that both the environmental and social policies in Japan in the contraction stage were based on an increasing uneasiness of the young generation due to an uncertain future. Results of a public opinion survey held every year show that levels of uneasiness of the Japanese people have not been resolved.

The second commonality is the aim of reducing the gender gap. With the breakdown of the traditional Japanese family system, females gradually became less restrained by household work, and empowerment of female workers in society was a primary aim in social policies (Kohara 2007). Social norms have changed slowly so that female workers can continue working, or return to work after having a child (PMO 2012a). From an environmental policy perspective, involvement of females in decision-making processes is said to shift environmental policies in a more environmentally friendly direction (United Nations 2005).

The third nexus is the activation of citizens' groups, NGOs, or non-profit organizations (NPOs). Under the government's budgetary constraints, and

with limited support from traditional informal safety-nets, the Japanese community as a whole was in need of new types of informal-sector service providers to supply common welfare services. Traditionally, in Japan, NGOs and NPOs were not popular, and they obtained little support from citizens (PMO 2011). A turning point was in 1995, when a large-scale earthquake hit the Awaji–Kobe area (Imada 2003). Since then, the importance of volunteer activities has become familiar in Japan. The Law for the Promotion of Non-Profit Organizations was enacted in 1998. Although there are no official statistics that monitor the number of NPOs in Japan, there is clear evidence that NGOs and NPOs play a much larger role in society, particularly in the arenas of the environment and social welfare.

JAPAN'S FUTURE IN A NEW STAGE?

On 11 March 2011, a magnitude 9 earthquake hit the north-eastern region of Japan, followed by a 10 metre tsunami that inundated 56 100 hectares of land (GSI 2011; PMO 2012b). The total number of deaths caused by the earthquake and tsunami has reached more than 18 000. The earthquake also damaged the Fukushima Daiichi nuclear power plant located by the shore in Fukushima Prefecture, to the point that it reached meltdown. Radioactive substances were dispersed over a large area, even reaching the Tokyo metropolitan area more than 200 km away. This event has since affected both environmental and social policies.

From the perspective of environmental policy, strong opposition against the use of nuclear power plants rapidly developed throughout the country. Before the earthquake, nuclear power plants supplied about 26 per cent of all electricity produced in Japan. The government had planned to build more plants to achieve ambitious CO₂ emissions reduction targets. Before the earthquake, there was little opposition to the increased use of nuclear power plants. Renewable energy sources such as solar and wind were considered too expensive, as compared with nuclear- and coal-powered plants.

The perception of Japanese citizens towards nuclear power shifted after the accident. Many people demanded the immediate and total phase-out of nuclear power plants in Japan. There were some industrial sectors, however, that still supported nuclear power, saying that such a serious earthquake was not likely to happen again in the near future. The Energy–Environment Council was set up under the Cabinet in autumn 2011 to develop several options on energy supply for the year 2030. Then, for each option, three levels of climate change policies were considered. The most ambitious climate policy required rapid diffusion of the most energy-efficient instruments, using renewable energy, as well as changing

people's lifestyles and attitudes to save as much energy as possible. The least ambitious climate policy assumed the use of coal-powered electricity generation plants and no lifestyle changes. Of course, the former policy scenario requires more initial investment than the latter.

In September 2012, the Energy–Environment Council finalized its report, recommending the zero-nuclear option in the future, but it also strongly emphasized further energy saving and the promotion of renewable energy to respond to climate change. Even with this emphasis, under the zero-nuclear option, it is considered almost impossible for Japan to meet its 25 per cent emission reduction target by 2020. A plausible way to meet the current target is to make extra efforts to reduce emissions in areas other than domestic emissions from fossil fuel combustion. Efforts include reducing emissions of GHGs other than CO₂, such as chlorofluorocarbons (CFCs) and hydrofluorocarbons (HFCs) used as aerosol propellants and refrigerants. Development of new carbon market schemes, known as bilateral offsetting and crediting mechanisms, has also been considered.

In terms of social policies, the shrinking trends of the contraction stage have been continuing, along with a declining birth rate and continued societal ageing. With limited funds, the government needs to identify those most in need and cut any extra expenditures. After the earthquake, the government's budgetary constraints became even tighter than before, because expenditures desperately need to be allocated to severely damaged areas in the earthquake region.

It is notable that activities related to environmental and social policies after the earthquake have been developed not by the government but rather by the citizens, in a bottom-up manner. It seems that those who had previously been in a silent majority stood up to make their voices heard on the dangerous intersection of nuclear and natural hazards.

Compared to previous debates that were led by the government and industry representatives, people's understanding and judgement regarding environmental and social policies are now viewed by the citizens as indispensable. In the two previous stages, calculation of costs required for introduction of policies used to be the central item of debate among government officials and industry representatives. In many cases, only short-term costs and benefits were considered. The criterion of concern was the effect on Japan's economic activities, with little consideration from an ethical point of view. After the earthquake in 2011, however, judgements are being made while considering acceptable actions from the perspective of social justice and equity. Such solutions may be more costly than other options, but the citizens seem willing to incur the costs if safety and happiness are secured.

Given what has occurred in the arenas of environmental and social

policies after the earthquake, this third stage of Japan's post-war history could be called the 'sustainability stage' if the recent trend were to continue. Here, the term 'sustainable' implies a notion of achievement of a high quality of life in ways that are ecologically sustainable (IUCN et al. 1992).

Aiming for a sustainable future seems to be the only way for the Japanese people to overcome the current situation in which all three elements – economic, societal and environmental – need fundamental recovery (Hiroi 2005). To facilitate enhancement of a sustainable future, additional changes may be required.

First, filling the gaps between the generations, genders, rich and poor, and urban megacities and rural towns is indeed the means to secure not only social welfare but also environmental resources. People's awareness of environmental issues is raised only when they have achieved a minimum standard of living. Second, changes in people's perceptions of the economy need to be further mobilized though increased debate on justice and equity. The sole use of the economy and economic efficiency as the criteria for judgement and evaluation has hampered the Japanese people's ability to debate what should be done in Japanese society. Judgements on environmental and social policies require evaluations not only from the perspective of economic efficiency, but also from the perspective of justice.

CONCLUSION

Japan's post-war history illustrated how Japan's environment and social policies evolved under some fundamental circumstances and constraints. In many cases, the two fields of policies were affected by the economic status of the country, but were also stimulated by the Japanese people's mindset as to what is important, and what needs to be prioritized within Japanese society.

Will Japan proceed to the 'sustainable' road, or the second economic 'expansion' road? The choice will surely affect the country's future environment and social policies.

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9. Degrowth for sustainability, equality and poverty reduction: some lessons from Cuba

Karen Bell

INTRODUCTION

Increased economic growth has been widely and consistently advocated as a solution to poverty and inequality. Yet many environmentalists are opposed to limitless growth on the grounds that it is ecologically unsustainable. In particular, the ‘degrowth’ movement that has recently emerged in Northern Europe has challenged the paradigm of growth, promoting instead an alternative agenda of reducing production and consumption in order to attain sustainability and social justice. Yet, ironically, the rise of the degrowth movement has coincided with a severe economic recession in the wealthier countries and the result of this does, indeed, seem to have increased hardship and inequity as businesses collapse and jobs are lost (e.g., see JRF 2012). This situation forces us to consider whether degrowth is feasible in a market economy, which appears to depend on growth; and if not, what this tells us about the macro-policies necessary to become an equal, just and, at the same time, ecological society. This chapter explores this debate, drawing on the relevant literature, as well as the author’s own empirical work on Cuba, a country which has been widely recognized for its social achievements in spite of many years of low or negative growth.

Economic growth – defined here as an increase in the productivity of goods and services, as measured by gross domestic product (GDP) or gross national product (GNP) – is generally considered to bring jobs and prosperity, as well as increasing state revenues which can be used to address social problems (e.g. DfID 2000; Norberg 2001; World Bank 2001; Bhagwati 2007). This paradigmatic discourse assumes that ever-expanding growth is ‘good’, ‘normal’ or, at least, ‘tolerable’ and, of particular relevance here, that it is good for the poor (e.g. DfID 2000; Townsend 2000; World Bank 2001; Dollar and Kraay 2002). Even those poverty experts who consider growth to be insufficient to end poverty consider it to be a necessary ingredient or a ‘precondition’ (Townsend 2000: 42). Thus, the consensus opinion is now that economic growth, alongside redistribution

of the benefits of such growth, would be the best strategy for poverty reduction (e.g. DfID 2000; World Bank 2001).

THE ECOLOGICAL CASE AGAINST GROWTH

In the midst of this consensus, however, there has also been an ongoing challenge to continuous economic growth on the grounds that it is not compatible with a finite planet. The idea that the planet has its limits first appeared on the international agenda with the Club of Rome's report on *The Limits to Growth* (Meadows et al. 1972). This showed that, if the production and pollution trends of the 1970s were to continue, 'the limits to growth on this planet will be reached sometime within the next one hundred years' (1972: 29). Twenty years later, 1700 of the world's leading scientists, including the majority of Nobel laureates in the sciences, reinforced this message, issuing an appeal which said:

The earth is finite. Its ability to absorb wastes and destructive effluent is finite. Its ability to provide food and energy is finite. Its ability to provide for growing numbers of people is finite. And we are fast approaching many of the earth's limits. Current economic practices which damage the environment, in both developed and underdeveloped nations, cannot be continued without the risk that vital global systems will be damaged beyond repair . . . The developed nations are the largest polluters in the world today. They must greatly reduce their over-consumption if we are to reduce pressures on resources and the global environment. (Union of Concerned Scientists 1992)

More recent studies have confirmed the Club of Rome's predictions that resources, in particular fossil fuels, are unlikely to last to the end of the century, and that the environment is being irreversibly destroyed (Turner 2008; Ayres and Warr 2009; Rockstrom et al. 2009; Pollard 2010). Alongside these recent findings, there has been a resurgence of interest in addressing these environmental problems through reducing economic growth. The nascent 'degrowth' movement of European intellectuals are the most active proponents of these ideas, debating them at their recent conferences on Economic Degrowth for Ecological Sustainability and Social Equity in Paris (2008) and Barcelona (2010).

Economic degrowth, therefore, is both a concept and a grassroots movement. As a social movement, it has grown out of experiences as diverse as cooperative housing, squatting, 'reclaim the streets' and alternative medicine. Its academic roots lie in ecological economics, social ecology and economic anthropology. The work of Andre Gorz and Ivan Illich, as well as Schumacher's classic, *Small is Beautiful* (1973)

and Gandhian economics (see Kumarappa 1946) have been particularly influential.

Key academic figures, such as Georgescu-Roegen (1971), Daly (1977) and, more recently, Schneider et al. (2010) and Martinez-Alier et al. (2010) predict that, without degrowth, the increasing use of resources and production of waste means there will be accelerated and irreversible destruction of the environment. Unlike the Club of Rome's focus, however, degrowth proponents are not normally concerned with population growth, but rather with consumption patterns (since it is now predicted that the global population will stabilize and, very likely, begin to decline before the end of the century) (Lappé et al. 1998; Lutz et al. 2001).¹ The movement's aims include voluntarily reducing consumption in order to avoid further environmental catastrophe (Barcelona conference, 2010). However, this does not imply that individuals are personally responsible because they consume too much and that, therefore, citizens individually choosing to decrease their consumption will solve the environmental crises. It is, rather, a policy goal, to move away from growth as the main objective of the modern economy towards its opposite, a reduction in GDP; that is, contraction (see www.degrowth.eu).

However, there have been strong objections to degrowth on both environmental and social grounds as will be discussed in the next sections, beginning with the environmental debate and then turning to the social critique.

THE ECOLOGICAL CASE AGAINST DEGROWTH

There are a range of ecological arguments against degrowth. Firstly, there is the view that it is not necessary to degrow because it is possible for growth (perhaps in a different form) to be environmentally sustainable (e.g. Brundtland 1987; Porritt 2005 [2007]). Thus, the Brundtland Commission report claimed that economic growth and environmental sustainability could be combined as 'sustainable development' (Brundtland 1987). It is even argued that growth actually improves the environment and so it is positively necessary to grow in order to achieve sustainability (e.g. Grossman and Krueger 1995; Mol 1995, 2003; Mol and Spaargaren 2000). The 'environmental Kuznet's curve' (EKC) is particularly drawn upon as evidence of this, as it predicts that although pollution increases as a poor country becomes wealthier, after a certain point, as more resources become available for environmental improvement, there is a reversal of this trend, leading to an inverted U-shape curve of environmental degradation over time (Grossman and Krueger 1995).

The view that a new form of economic growth can be less harmful, or even benefit the environment, is based on the idea that economic growth can be 'decoupled' from environmental harm (ecological modernization) through a shift from the manufacture of goods to the provision of services (dematerialization); and/or the replacement of products and resources with 'greener' alternatives and the use of new technologies (substitution); and/or more reuse and recycling (eco-efficiency). In this way, it is envisaged that growth can continue while resource extraction and waste decline (e.g. Brundtland 1987; Mol 1995, 2003; Hawken et al. 1999; Gore 2000; Mol and Spaargaren 2000; Porritt 2005). It is usually considered that these changes will be achieved through a combination of market signals and public policy. Thus, there is hope that 'green capitalism' will marry the pursuit of environmental protection with the power of the market (e.g. Mol 1995, 2003; Mol and Spaargaren 2000). Environmentally friendly businesses will offer eco-efficient solutions, as well as being more profitable, flexible and innovative (e.g. see Hawken et al. 1999; Gore 2000; Porritt 2005 [2007]). Therefore, according to this view, degrowth is unnecessary and misguided, even from a purely environmental point of view.

However, these arguments for growth on environmental grounds, when investigated further, are unconvincing as they are based on generalizations and extrapolations from partial evidence. There is some evidence for the EKC, in that rising GDP levels in already affluent countries have been accompanied by reduced emissions for certain pollutants (notably nitrogen dioxide, carbon monoxide and sulphur dioxide) at a local scale (Grossman and Krueger 1995). However, for a number of other environmental impacts, the evidence is fragile or contradicts the hypothesis, for example with regard to resource use (Spangenberg 2001; Kumar and Aggarwal 2003); biodiversity (Dietz 2000), energy use, and carbon dioxide emissions (Azomahou and Van Phu 2001; Galeotti et al. 2006). Moreover, reduced emission levels in wealthier countries are likely to be a result of outsourcing polluting industries to poorer countries.² Thus, recent studies indicate that, in the longer term, the EKC tends to be N-shaped instead of the inverted U-shape (Friedl and Getzner 2003; Martinez-Zarzoso and Bengochea-Morancho 2004; Noce 2011). It seems that pollution levels increase as a country becomes less poor, then begin to decrease, but rise again with greater wealth so that total pollution emissions tend to rise with increasing income rather than follow an inverted U-shaped curve (Stern 2004; Noce 2011).

It could be argued that pollution begins to increase again with greater wealth because the countries concerned have not made a concerted effort to implement ecological modernization policies. Therefore, we need to develop the political will to do this through public education of the need

for, and effectiveness of, such policies. However, the extent to which this is possible is highly contentious since there are structural influences which restrict individual and organizational 'choices'.

Several analysts (e.g. Næss and Høyer 2009) argue that the scope for decoupling growth in production and consumption from environmental degradation, no matter how strongly desired, is limited. Whatever inventiveness that a growth economy encourages seems to generate unnecessary products for the wealthier members of society (who can afford to pay for them), rather than meeting basic needs across the board. Furthermore, it is argued, greater efficiency in the use of one resource will increase profits, stimulating and leading to even greater consumption of that resource (Jevons 1866; Leonard 2010). The notion that advanced industrial societies are 'dematerializing' has also been severely criticized by several analysts (e.g. Martínez-Alier 2003). Duchin's (1998) analysis of household lifestyles supports this, revealing the high material needs to meet the consumption patterns of those employed in the 'post-industrial' sector. The growth in finance and speculation creates the illusion that growth is delinked from the material world but, actually, these activities require an energy-dependent economy (Kovel 2002).

Furthermore, many left-wing environmentalists are highly critical of the idea that 'green capitalism' can work because they consider that capitalism is inherently destructive to the environment. A market economy or capitalist system is based on the production logic of economic growth. A constant stream of new commodities is necessary to maintain profits and be competitive against rival firms. When there is a slump in demand, needs must be artificially created through advertising. The media and advertising aim to convince people that they 'need' certain consumption goods and 'want' to replace those they already have, even when they are still functioning perfectly (see Leonard 2010). This results in a situation of overproduction at the same time as underproduction; that is, products are made that are not needed and are unaffordable to those who do need them. Thus, Kidron (1974) estimated that 60 per cent of production could be considered waste, for example providing for the arms industry, advertising or luxuries for the wealthy.

Moreover, it is argued, the profit motive under capitalism means it is logical to try to externalize costs (that is, get someone else to pay them), including onto the environment (Martínez-Alier 2003). In addition, this drive for profit encourages cost cutting, putting pressure on corporations to choose the cheapest rather than the most sustainable process. Furthermore, in general, a culture develops among political leaders in capitalist countries based on the assumption that what is good for capitalist business is good for the country (Magdoff and Foster 2010). Thus, it is

argued, the state has played a very limited role in environmental protection, largely restricted to regulating the most obvious pollution, with virtually no attempt to restrict resource withdrawals (Schnaiberg et al. 2000).

What is more, the emphasis on growth has meant that, in order to grow the economy, poor countries have been encouraged to take out loans. A number of authors argue that repayment of debt is a significant factor promoting destruction of the environment in the Global South (e.g. George 1991; Bello 1993; Gonzalez 2001). The World Bank and the IMF often require export-led structural adjustment as a condition of loans. These pressures have resulted in unsustainable resource extraction, for example open cast mining and deforestation to produce export commodities such as gold, tin, coal, coffee, cacao and cotton. Increased production has meant declining prices for primary commodities, causing governments of the South to attempt to still further increase production by intensifying extraction, creating environmental damage and displacement of poor people (see e.g. Cheru 1992; Hansen-Kuhn 1993; Lubeck 1992; Tisdell 1994; Gonzalez 2001). These case studies from Latin and Central America, Africa and Asia indicate that such policies have increased soil erosion, toxic pollution, flooding, the loss of biodiversity and landslides.

Therefore, after weighing up the ecological arguments for and against growth or degrowth, it seems that the most compelling case is that growth should be avoided on environmental grounds. Though it is, to some extent, valid to argue that it is the quality of growth that matters and not growth itself, often this inevitably seems to involve 'greening' products that should probably not be produced at all (e.g. 'green' ammunition: 'lead-free' bullets made by a Swedish arms manufacturer; Nammo 2012). Therefore, whilst ecological modernization may make some specific micro-level improvements, overall a growth-based economy is environmentally damaging. However, my concern is also with poverty and inequality, so I will now consider whether degrowth is a viable means of achieving social, as well as ecological, goals.

THE SOCIAL CASE AGAINST DEGROWTH

Some would argue that if growth and ecological sustainability are not compatible, we should still choose growth, at least in the short term, in order to meet human needs. This seems to be the mindset of many policymakers. Hence, the lack of action on climate change mitigation appears to be a result of the threat to economic growth (Thorning and Illarionov 2005). However, because of the dangerous implications of this way of thinking for the environment, as outlined earlier, it is important to question not only whether this is the correct choice, but whether this choice is necessary at all.

Thus, this section will examine the evidence for the argument that growth is necessary to reduce poverty and inequality and increase 'well-being'.

There is evidence to show that when growth ceases or slows down under the capitalist system, unemployment and poverty increase. For example, a study by Magdoff and Foster (2010) found that, over the last 60 years in the United States, unemployment increased every year, except in the 13 years when the GDP grew at greater than 5 percent. Certainly, it seems that for poor countries, growth improves living conditions in that it helps to provide access to sanitation and clean water (Galeotti et al. 2006). However, although some analysts consider that growth will reduce poverty to some extent, it is seen to be a blunt instrument, since it is distribution neutral (e.g. Dagdeviran et al. 2000; Townsend and Gordon 2002). Thus, Townsend and Gordon (2002) argue that growth, alone, is not sufficient to reduce poverty without accompanying redistributive measures. They point to rapid growth periods in regions of the world, such as South Asia, where the number of income-poor continued to increase, concluding: 'Clearly social equity has been the missing link between economic growth and poverty reduction' (2002: 388). In another study, Besley and Burgess (2003) showed that there would have to be impossible rates of growth in the countries of the developing world in order to halve poverty by 2015. Furthermore, recent evidence shows that growth does not always increase the number of jobs and, even when it does, it may just increase the numbers of the 'working poor', rather than alleviating poverty (Melamed et al. 2011). Moreover, a number of studies (e.g. Deninger and Squire 1996; Chen and Ravallion 1997; Easterly 1999; Dollar and Kraay 2002) suggest that growth does not have an impact on inequality, and some authors consider that growth actually increases inequality (e.g. Harvey 2006; Woodward and Simms 2006; Majid 2009, 2011). Therefore, many poverty analysts argue that, in order for growth to reduce poverty, social policy must translate growth into addressing poverty and inequality, primarily through progressive taxation (e.g. Townsend and Gordon 2002). Thus, there is considerable evidence to show that growth, per se, does not automatically reduce poverty and inequality or create jobs. But is growth a necessary condition to reduce poverty, as is claimed? Is growth plus redistribution the way forward?

Majid (2009: 8) presents some evidence to show that growth is not necessary to reduce poverty and inequality. In a geographical and historical survey comparing growth and poverty reduction in developing countries around the world, he found that:

while it is obvious that even positive per capita income growth is only often and not always associated with declining poverty rates, what is also quite clear is that

there are more recent historical episodes in the developing world with declining poverty rates and negative growth than those of increasing poverty rates and negative growth.

Thus, whether there is growth or degrowth, there is more likely to be declining than increasing poverty rates in recent years (at least, up to 2009). It seems that redistribution, rather than growth, may be more important to decrease levels of poverty and inequality. Gordon (2004) argues that a relatively modest amount of redistribution would more than meet the Millennium Development Goals to halve world poverty by 2015, whilst economic growth, by itself, is unlikely to do so. Thus, redistribution of current levels of wealth may be enough to reduce poverty, even without growth. A United Nations Children's (Emergency) Fund (UNICEF) study supports this view, showing that to eradicate child poverty forever, most countries would require an investment of less than 0.5 per cent of their GNP, if it could be targeted perfectly (Gordon et al. 2003). This relatively small amount could be derived from environmental taxation to also increase ecological benefits. Moreover, a study by Dagdeviren et al. (2000: 29) comparing three possible scenarios – distribution-neutral growth; redistribution and growth; and redistribution of current income – concluded that 'redistribution of current income and assets, or redistribution of an economy's growth increment is the most effective form of poverty reduction for most countries'. Therefore, redistribution has the most impact on reducing poverty, with or without growth. Growth is probably not necessary, then, to reduce poverty and inequality, and certainly not the most effective method, as both can be reduced through redistribution.

This is even more likely to be the case in the developed countries, once basic needs are met. Easterlin's (1974: 112) seminal paper seriously undermined the assumption that economic growth improves human well-being, showing, rather, that it is equality with those we are in contact with that contributes most to happiness. He stated, 'there is a "consumption norm" which exists in a given society at a given time, and which enters into the reference standard of virtually everyone . . . leading those below the norm to feel less happy and those above the norm to feel more happy'. Thus, in a series of influential papers, Easterlin (1974, 1995, 2005a, 2005b, 2010) argued that economists' emphasis on growth is misguided, because there is no statistically significant evidence of a link between a country's GDP and the subjective well-being of its citizens, though richer individuals in any given country report higher levels of well-being than those on lower incomes. This is known as the Easterlin paradox, which posits that well-being is determined by relative, rather than absolute, income. Since then, these findings have been repeatedly confirmed in the burgeoning literature

on the economics of happiness (e.g. Helliwell et al. 2009; Layard 2005). According to some authors, quality of life may even begin to deteriorate if growth continues beyond a threshold level, without redistribution (Max-Neef 1995; Wilkinson and Pickett 2009). However, the weak link between well-being and economic growth in high-consumption economies has recently been questioned (Sacks et al. 2010). Sacks et al.'s paper reports that people living in countries that experience high increases in GDP report higher levels of life satisfaction than those who do not live in such nations, at least in the short and medium term. Sacks et al. do not, however, look at whether redistribution also occurred in these high-growth countries, or the extent to which basic needs were met. It would be helpful to follow up this work with further research that might explain this contradictory evidence.

It is clearly necessary to meet basic needs to enable well-being. All of the well-being studies show that life satisfaction is tied to meeting basic needs for housing, fuel, health, education and a social life. However, it should not require endless growth to satisfy these essential needs. Though there are various strands of thought in the degrowth movement, it is evident that the main leaders are committed to the notion that ecological sustainability should go hand in hand with the eradication of poverty and inequality. Thus, Schneider et al. (2010: 512) define degrowth as 'an equitable down-scaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term'. It is envisioned that degrowth will be the means by which not just basic needs, but human aspirations, can be satisfied without growth, so that 'GDP can go down and, nevertheless, other dimensions of life can improve'. Degrowth will mean that people will live at a significantly lower level of consumption than the middle classes of today, but although 'poorer' in terms of individual material goods, they will be richer in terms of health, public goods and human relationships (Magdoff and Foster 2010).

CUBA AS AN EXAMPLE OF POSITIVE DEGROWTH

There is already one country in the world that has achieved this level of well-being: Cuba. In a widely publicized study, Cuba was found to be the only country in the world to have achieved sustainable development (high human development alongside a sustainable ecological footprint) (Moran et al. 2008). The NEF's (2012) 'Happy Planet Index' also repeatedly rates Cuba highly. Thus, the country has inspired many in the degrowth movement by how it continued to meet human development goals throughout the 'Special Period'³ when it was in a state of involuntary degrowth (see, for

example, the documentary *Power of Community* (Morgan 2006), and how it continues to sustain and improve human well-being, with a relatively low GDP.

In 2008, I set out to investigate how Cuba had accomplished this in a study which evaluated the distributional, substantial and procedural aspects of the country's environmental programmes and policies (see Bell forthcoming). Firstly, I carried out an institutional analysis, mapping organizations, laws and regulations, and reviewed secondary sources such as non-governmental organizations (NGO) and academic publications and media articles. Following this, from December 2008 to March 2009, I undertook fieldwork in Cuba, using participant observation techniques (living in the community, taking part in assemblies, local activities and rallies), as well as in-depth interviews with key actors. I was based in Havana for nine of the 15 weeks of the fieldwork, as most of my potential interviewees were located there. However, I also travelled fairly extensively, visiting ten other towns, cities and villages across the country. The total number of interviews was 41, involving 69 participants, made up of people representing state institutions (21), people representing civil society organizations (17), experts (6), workers (9) and residents (16). Content analysis was also performed on key documents (for example, local and national strategy reports).

As a result of this work, I identified a number of progressive, innovative and pragmatic programmes and policies, which had enabled sustainability whilst at the same time meeting social needs and reducing poverty. Many of these programmes could be implemented in both developing and developed countries now, if they were found to be feasible and appropriate to local circumstances. They include:

- Localized production and consumption.
- Prevalence of organic agriculture.
- Investment in public transport, which is provided at virtually no cost to citizens.
- Decentralized energy systems.
- Shared leisure facilities.
- Free use of community facilities, such as meeting rooms.
- 'Transformation workshop' community development projects.
- Doctors trained in natural medicine and environmental effects on health.
- Environmental community development workers (armies of previously unemployed young people trained to address sustainability issues in their own communities).
- Accessible local government officers.

- Restricted car ownership, according to need.
- Mass consultations before any significant environmental reforms.
- Free access to legal services with regard to environmental issues.
- Minimal packaging and advertising.
- Nationalized public transport and utilities.
- Local employment.
- Rents capped to affordable levels.
- Nationalization of vacant housing.
- Free universal provision of healthcare, education and social services.
- A ceiling on maximum wages (though this has recently been removed).
- Free or low-cost provision of safe, low-energy kitchen equipment.
- A labour-intensive, as opposed to resource-intensive, employment base.

All these policies fit within the parameters of degrowth, requiring much less individual consumption and, at the same time, disproportionately benefiting the poorest. Furthermore, these policies actually increase employment, without growth. Though Cuba's transition was not smooth,⁴ because of the economic shock it sustained; in other circumstances, where degrowth is a managed process of reorganizing society, a similar period of difficulty may be avoided.

What is unusual about Cuba, though, is that although there have been different phases within the Cuban Revolution, with swings between more and less socialist influences on policy, there has consistently been a commitment to equality and social welfare (e.g. see Saney 2004; Kapcia 2008; Yaffe 2009). These macroeconomic and social policies, based on the principles of universality and equitable access, have enabled a generally equal society and have reduced extremes of poverty (Rodríguez and Carrizo-Moreno 1987). UN statistics on human development show that Cuba continues to rate highly on the main dimensions of well-being – life expectancy, education and standard of living – and this score improves year on year (UNDP 2011a). Moreover, Cuba reaches these standards with a relatively low GDP.

Underlying these policies is the commitment to 'social protection', as was explained to me: 'Everything in Cuba is subsumed to social protection. It is impossible to sack someone in Cuba. If you give up your job, the Government try very hard to find you another one. Social protection is always the priority' (fieldnotes, 18 December 2008; informal conversation with Ministry of Basic Industry, MINBAS, employee).

Cuba's collective spirit and organizational base, cultivated through the education system and the mass organizations, also seem to have enabled

these policies. As a number of those interviewed mentioned, the level of educational attainment of the population is a factor that has helped improve the environment, through creating better-informed and more demanding citizens. Many highlighted the forcefulness of the communities and their high levels of expectations, often comparing themselves with citizens of the first world, rather than the third world. One interviewee said: ‘People complain about transport. Then we put on some new buses. Then they say they don’t come often enough. People are demanding – always raising the level’ (Interview, 26 February 2009; Delegate, Poder Popular, Habana del Este). Therefore, the evidence from Cuba indicates that a government committed to social justice, alongside an educated, demanding and organized population, seem to be the key ingredients for simultaneous environmental and social advancement.

COMPATIBILITY OF DEGROWTH WITH THE REDUCTION OF POVERTY AND INEQUALITY

The evidence overall, then, seems to show that growth has often reduced poverty but that it is certainly not necessary to do so, and that poverty and inequality can also be tackled within negative growth situations. Thus, rather than continue to debate whether to go down the path of growth or degrowth, because of the strong ecological case for degrowth, we should instead ask: under what conditions does poverty decrease with negative growth? This question needs to be explored in further research and should be a focus of further debate within the degrowth movement. To reduce poverty in a situation of degrowth, the reduction in consumption and production should be managed to occur in a way that most benefits society, preserves jobs and redistributes wealth. The evidence points to the importance of redistribution and a focus on meeting basic needs. Therefore, degrowth needs to be primarily about redistribution.

On a global scale, this could mean that some nations will actually need to continue to grow economically. Many in the degrowth movement are adamant that those nations and people who do not have enough should be enabled to consume more to meet their basic needs (e.g. Næss and Høyer 2009). Thus, most proponents of degrowth do not consider that the poorer nations should downscale production and consumption, but that they should resist a uniform path to development (e.g. Escobar 1992; Latouche 2007). In particular, they emphasize that the development model should not be based on cheap exports of commodities to the wealthier nations. The proposed strategy of contraction and convergence on greenhouse gas emissions conceived by the Global Commons Institute (GCI) in the early

1990s is an example of a global policy that could be taken up in order to increase redistribution within a degrowth context. Contraction and convergence means that every country would be required to bring its emissions per capita to a level which is equal for all countries.

However, such proposed global redistributions overlook that there is much inequality within nations, so that advocating a broad policy for entire regions of the world will be problematic. Thus, as Martínez-Alier (2010) argues, there is a need for an alliance between the environmental justice and the degrowth movements. Environmental justice, as a concept and a social movement, focuses on environmental inequities that occur both within, as well as between, countries (see Bell forthcoming). It highlights the distribution of environmental benefits and burdens, drawing attention to the extent to which people living on low incomes are more likely to be burdened by environmental harm, less likely to access environmental goods and more likely to be vulnerable to environmental risks. Furthermore, it emphasizes that, although low-income communities are often seen as agents of environmental degradation – resource stripping, ‘overpopulating’, not caring about the environment, burdening the world’s resources, lacking the ability to forgo present needs for the future, and so on – they are actually less likely to cause environmental harm and more likely to be the recipients of those harms. Therefore, it will be important to bring an environmental justice perspective to any debates about contraction and convergence.

IS DEGROWTH POSSIBLE WITHIN A CAPITALIST ECONOMY?

Many degrowth theorists, whilst often pointing to Cuba as a good example, ignore that Cuba is a socialist country and so, frequently, do not consider that this may be one of the reasons it was able to be so successful without a high GDP. It is not that the degrowth movement completely ignores the question of capitalism but that, when degrowth analysts turn their attention to it, they often come up with vague or inconclusive answers. Thus, Serge Latouche does consider whether capitalism and degrowth are compatible but presents contradictory opinions on the matter (see Bellamy Foster 2010a). Similarly, after describing a ‘less capitalistic’ degrowth society, Tim Jackson (2009: 202) asks: ‘Is it still capitalism? Does it really matter? For those for whom it does matter, perhaps we could just paraphrase Star Trek’s Spock and agree that it’s capitalism Jim. But not as we know it.’

This reluctance to discuss capitalism within the degrowth movement

seems to be based on beliefs that capitalism is a system that cannot be changed; or is too difficult to change; or not appropriate to try to change when we have such immediately difficult environmental problems to address. For example, Tim Jackson (2009: 172) warns that talk of ending capitalism is risky because: 'the spectre of a new barbarism lurks in the wings. A world constrained for resources, threatened with climate change, struggling for economic stability: how long could we maintain civil society in such a world if we have already torn down every institutional structure we can lay our hands on?' Thus, perhaps because we have generally accepted the dominant discourse on capitalism's intractability or because we fear being diverted away from focusing on environmental issues, the degrowth movement has largely failed to address the issue of capitalism.

Many argue that it is not possible to generalize about capitalism as there are a number of varieties within the typology. Furthermore, it is argued, there are many overlaps with what is often considered 'the alternative' economic system: socialism. Both socialist and capitalist countries regulate the economy and the environment, to some extent, so that there are no purely free-market or state-controlled economies (Gough 1994; Jackson 2009; Markandya 2009). Because there are so many variants of these economic systems, Jackson (2009: 201) asserts that the debate over capitalism is 'far too polarized. The reality is that pure state ownership and pure private ownership are just two variants in a quite wide spectrum of possibilities'. Even so, capitalism does have certain essential characteristics, whatever its forms, and so, I argue, should be seen as a distinct process.

Thus, while recognizing the limitations of simplistic typologies, it is important to say what distinguishes capitalism from other systems. Historically, the term 'capitalism' has been applied in numerous ways, with varying attempts to discern its essence (e.g. Marx, Weber, Sombart, Schumpeter). There is still no consensus on its meaning and usage because definitions reflect underlying ideologies. Thus, whilst Sombart (1902) considered capitalism to be about free and competitive markets, Marx referred to the 'capitalist mode of production' to distinguish a social relationship within which labour was commodified and exploited through the appropriation of surplus value. In line with this latter view, as well as economic theorists such as Mandel (1975) and Cleaver (2000), I consider capitalism here in terms of its particular defining processes of commodification and competition, which are driven by the profit motive.

Though some forms of capitalism are clearly less socially and environmentally harmful, there is no capitalist country that has achieved sustainable development. Sweden is often offered as a possible model as it has been a global pioneer in environmental protection legislation and is currently much less unequal and less prone to many social problems than

Table 9.1 International environmental and economic datasets

	Cuba	Sweden
Ecological footprint ¹	1.9	5.71
Happy Planet Index ²	56.2	46.2
Happy Planet Index global ranking (of 151 countries) ²	12th	52nd
Non-carbon dioxide (CO ₂) greenhouse gases per capita ³	1.4	2.1
CO ₂ emissions per capita ³	2.8	5.3
Growth rate of GDP, 2010 ⁴	0.89	6.5

Notes and sources:

1. Ecological footprint in global hectares per person, 2008 data. Source: ‘Ecological footprint in global hectares per person, 2008 data’, (WWF 2012).
2. Source: NEF (2012).
3. Source: UNDP (2011b).
4. Growth rate of GDP/breakdown at constant 2005 prices in (total value added). Source: United Nations Statistical Division 2012.

many other capitalist countries (Wilkinson and Pickett 2009). However Sweden, whilst pursuing a ‘green growth’ strategy, maintains a very high ecological footprint (WWF 2012), high levels of urban air pollution (City of Stockholm Environment and Health Administration 2006: 2), one of the highest rate of electrical consumption in the world, a commitment to nuclear power (Sweden.se 2012), and an economy built on cars, oil and ‘fast-fashion’ furniture and clothes. As a result, we can see that Cuba outperforms Sweden in almost all environmental datasets, at a much lower rate of growth (see Table 9.1).

Thus, if we are convinced of the need to degrow, then we must ask ourselves whether degrowth policies could be enacted within a capitalist market economy, based on competition, commodification and profit. This seems unlikely since, as discussed earlier, production and consumption are driven and organized so that capitalism can survive, rather than for the purposes of meeting human need. There is no rational way to prioritize under a capitalist system, in which the market decides how commodities are allocated (Magdoff and Foster 2010) and what the employment levels will be. Thus, benefits and costs are distributed according to social, economic and political power. We do not see a wholesale conversion to energy-efficient mass transport, or the capping of rents, because it could never generate as much profit. Many argue that any practical attempt to degrow the economy within a market system would lead to a loss of jobs and even greater inequities (e.g. Bellamy Foster 2010a; Harvey 2010; Magdoff and Foster 2010). If profit means cutting employment when the

economy degrows, then this is what will happen. Thus, for example, Sony has just announced it will cut its global workforce by 6 per cent because, despite selling 20 million TV sets a year, it has to eliminate workers in order to restore the company to profitability (*Guardian* 2012). But it is not just employment levels that will be affected. The price of commodities may also rise with increasing scarcity within a degrowth economy, so that those on low incomes will find it hard to buy what they need. Thus, within the capitalist system, degrowth may well increase unemployment and hardship for the poorer sections of society, so compounding the inequalities that already exist.

Several degrowth analysts recognize this tension between capitalism and growth, but still consider that it is possible for capitalist societies to degrow (e.g. Victor 2008; Jackson 2009). Jackson (2009) bases his argument on the fact that there are already some capitalist economies that do not grow. He points to Baumol et al.'s (2007) typology of different forms of capitalism, each with differing degrees of growth or no growth. However, though there may be a few exceptions, in general capitalism and growth tend to go together, as is shown from studies of post-communist states (e.g. Pelipas and Chubrik 2008). Moreover, although capitalist countries with low or no growth may exist, such as Burundi, Guinea Bissau and Ethiopia, they do not appear to be countries which could be considered socially just, because of their high levels of poverty. Thus, they cannot be offered as evidence that socially just degrowth and capitalism are compatible.

Furthermore, degrowth might be kept in check within capitalism by those who believe it will threaten their profits. Any attempt to degrow the economy, or even to strictly regulate environmental harms, would probably be strongly resisted by those who benefit from capitalism, that is, those with wealth and power. As Bellamy Foster (2010b) describes, any mix of taxation, regulation, nationalization and efficiency sufficient to harness private capital for ecological ends would find itself in constant conflict with the capitalist economy. Faber (2008) describes the vested interests that would need to be confronted as the 'polluter-industrial complex'. In a similar vein, Schnaiberg's (1980) 'treadmill of production' theory stresses the inherent need for capitalist businesses to grow, to replace costly labour with technology, and increase the use of resources through a self-reinforcing mechanism of ever more production and consumption. The theory explains how a powerful coalition of capital, state and labour develops in support of continued growth, making it difficult, if not impossible, for environmental advocates to halt the resulting 'treadmill'.

Thus, in capitalist countries, the state inevitably supports the needs of business. Taking the example of excessive waste from packaging in the UK,

for instance, there have been attempts to persuade producers to reduce packaging (e.g. Defra 2006), as well as specific legislation which requires packaging to be minimized (the 1997 Packaging and Packaging Waste Directive (94/62/EC)). Yet retailers have only reduced packaging waste by 0.4 per cent since a voluntary pledge was made to do so (Wrap 2011). It appears that businesses have not been willing to reduce their packaging, and governments been equally unwilling to regulate this as a result of commercial interests. As one NGO describes, 'the problem is that packaging is driven by the desire to promote brands and make money' (Green Choices 2012: 1). There is a clear and direct conflict between environmental protection and corporate profits. Hence, environmental reforms currently remain limited, allowed a marginal existence only insofar as they do not interfere with the basic health of the economic system. Therefore, degrowth appears to be incompatible with capitalism, since it contradicts its basic tenets: to make a profit in order to grow and, thereby, avoid collapse.

Evidence from the current economic situation in the wealthier countries seems to confirm that degrowth is not compatible with capitalism. Although it is too early to assess the full impact of the recent recession, there does indeed seem to be evidence that poverty and inequality have increased (e.g. MacInnes et al. 2010; JRF 2012). Yet the kind of programmes which improve well-being whilst reducing growth, similar to those of Cuba, that have been advocated by progressive elements of the degrowth movement, are not being implemented or even discussed. Thus, most on the progressive left of the degrowth movement would consider the current economic situation to be deeply problematic, except to the extent that it can be seen as an opportunity for change (Martinez-Allier 2009). However Keynesianism, which calls for an increase in public expenditure, in order for citizens to buy more cars, houses and consumer goods in an attempt to deal with the unused productive capacity resulting from a drop in demand, is generally rejected. Keynes's ideas were developed as a short-term measure to escape the depression of 1929 and were developed when there was little recognition of the limits to resources or contamination. Instead, a temporary 'Green Keynesianism' or 'Green New Deal' has been advocated as a solution to the recession (Martínez-Alier 2009). This should be genuinely green, however, and not just an apparent green fix. Thus public investment, necessary to contain the rise in unemployment, should be channelled into sustainable energy production, home insulation and mass public transport, rather than subsidizing the purchase of electric cars, for example. Also many jobs could be created that would meet basic needs and improve well-being, such as improved care services, without having any negative environmental impact. Furthermore, as Cuba exemplifies, jobs can be created and maintained through using labour, rather than

resources (for example, tea could once again be served in reusable cups by human beings, rather than in disposable plastic by vending machines).

These labour-intensive policies are unlikely, however, to be achieved under a market system, which requires businesses to cost cut in order to compete, externalizing those costs onto society and the environment. There is, then, a case for moving away from the capitalist system if it is preventing us from achieving a socially and ecologically just society. The campaigns and pressure to bring about some of the policies advocated here may help to dislodge this system, as people become more aware of what is necessary and what is hindering progress. Yet, when capitalism is questioned, the response is generally to assert that there have been equivalent, if not worse, problems under the alternative: socialism or communism (e.g. Feshbach and Friendly 1992; Riskin 2007).

This may be explained by the role of 'global hegemonic environmental values' (Bell forthcoming). The environmental catastrophes of these countries appear to be based on a globally shared 'contaminating culture' that favours productivism, industrialization, militarization and the use of hazardous chemicals (Faber and O'Connor 1993; Levins 2005; Edelman 2007; Bellamy Foster 2008). Cuba's Director of Science and Environment made this point, arguing that although capitalism is inherently damaging to the environment because it depends on harmful patterns of production and consumption, socialism does not necessarily lead to a healthy environment:

It does not mean that, with socialism, the environment automatically improves. For example, what happened in Europe, with the countries of Eastern Europe, there were a thousand disasters. That is to say, socialism creates a better opportunity but this opportunity has to be built upon and materialised but I think yes, that socialism is an advantage . . . But I emphasise, it is not automatic, you have to try to create a socialist system where the environmental agenda is driven well, otherwise you will still have environmental problems. Nothing is given, it has to be achieved. (Interview, 15 January 2009, Dr Orlando Rey Santos, Director, CITMA)

This is an important observation because it shows that, when the political economy changes, there is not an immediate shift to ecological values. This seems to highlight the need to build these values, as a counter-hegemonic ideology. Even in Cuba there are social currents which maintain a strong commitment to an industrialized, highly technological form of growth. This can most clearly be observed with regard to Cuba's biotech industry. I was told that the government was pursuing this path:

because of the industrial mentality in the whole world and the blind trust in the objectivity of science in Cuba and the wider world. They want to insert a gene without thinking of the consequences that it could bring. They think it would

be an easy solution to the problem of food production . . . Everywhere there are different mentalities – progressive, backward, atomistic, holistic – these are paradigms that conflict in modern societies and Cuba is no different . . . the technocrats in Cuba think the same as those in England . . . Profit is the motive in the capitalist countries but, in Cuba, it is the concern of the state to feed the people . . . but it is an atomistic technology that sees the world in a simple way . . . The idea that man can dominate nature is an anthropocentric vision of the environment that does not respect the natural cycles and this has consequences. (interview, 16 October 2010, Fernando Funes-Monzote, Professor of Agro-Ecology, University of Matanzas)

Thus, many socialists argue that we now need a redefined and re-focused socialism which is both socialist and ecological (e.g. Mellor 2006; McKibben 2007).

CONCLUSION

In the light of this discussion, what macro-policies do we need, then, to become an equal, just and ecological society? If the majority of the world's leading scientists are correct, we must reduce our consumption in order to reduce pressure on the environment, otherwise resource depletion and waste production will eventually destroy the possibilities for continual economic growth anyway. Therefore, we will have to degrow, and the sooner the better. The overall evidence shows that this should not increase poverty and inequality, and could reduce it. The implication of the literature, and my own empirical work on Cuba, makes a strong case for redistribution of wealth, instead of overall economic growth, as a means to improve human quality of life. In a degrowth situation, redistribution will become even more vital as we cannot assume that the cake will get bigger. Thus, redistribution is the key to degrowth, poverty reduction, social justice and sustainability.

Continuing to grow within a capitalist system does not seem to achieve social or ecological justice, for the reasons outlined above. This does not mean that if we replace capitalism with another system we will have ecological and social justice, because of the role of hegemonic values, but it may be that capitalism is preventing us from solving these injustices. Thus, it is probably necessary but insufficient to replace it.

However, many might point out the practical problems in making such a radical shift towards degrowth or away from capitalism. If we have not been able to achieve sustainable growth or green capitalism, how much more difficult would it be to completely change our economic system, as I am suggesting? This is an important consideration and there is much to be debated.

Though a need for major change may seem too challenging, the extent

of our current social and ecological crises point to the urgent need for such a paradigm shift. In my opinion, once the majority of the public have a full understanding of the crises (which many now have) combined with hope that something could easily be done (which most seem to have lost), I consider that it would be achievable within a year. In the same way that countries can mobilize for war, they could mobilize for peace, in the sense of an end to the worst of human and ecological suffering. This would require fully acknowledging the situation, debating what really needs to happen, campaigning to persuade others of the need for and possibility of change, and mobilizing to enact that change. It would particularly require much stronger links between the environmental movement, labour unions and deprived communities. Importantly, environmentalists and proponents of degrowth need to take the problems of poverty and unemployment more seriously. Especially now, when many people are desperate for jobs, it appears callous to speak of deliberately shrinking the economy without ensuring there is decent and meaningful work where people can produce for the good of society. Equally, those now concerned about poverty should no longer treat the economy as an abstract mechanism of distribution, but one which is embedded in a finite and living biosphere.

Campaigns for degrowth policies that could increase social and ecological well-being, including many of the policies that Cuba has used, would certainly be resisted by those with capitalist interests. But in the process of trying to secure these changes, we will very likely evolve into a different system anyway. If the system that we are living under does not allow us to do what is right and necessary, then it would seem rational to try to change it. A carefully considered degrowth strategy with redistribution as the primary strategy can help us to do this and, thereby, to move towards both social and environmental justice.

NOTES

1. In general, population growth is inversely related to poverty so that, when needs are met, especially the education of women, populations will decline anyway (Lappé et al. 1998).
2. A recent study by Davis and Caldeira (2010) shows that the United States outsources 10.8 per cent of its CO₂ emissions abroad, while European nations outsource 20 per cent to 50 per cent of their carbon dioxide (CO₂) emissions, mostly to developing countries. Nearly 25 per cent of China's CO₂ emissions, for instance, are the result of manufacturing goods for other countries. Those pollutants that seem to diminish as countries become wealthier are those that can be outsourced. They are caused, not only by the internal combustion engine, but also by burning fossil fuel (nitrogen dioxide, NO₂; sulphur dioxide, SO₂) and smelting (carbon monoxide, CO).
3. Cuba had been pushed towards an economic dependency on the Soviet Union and the Eastern European Community for Economic Cooperation (COMECON) as a result of the United States blockade which, since 1963, has prohibited commercial business with

the island. After COMECON collapsed in 1989 and the US blockade tightened, the country faced an economic disaster. Cuba's markets for exports were lost, as were most access to imports and, consequently, its GDP fell by more than 48 per cent. In Cuba this era was referred to as the 'Special Period in Peacetime', implying the need for measures that would normally apply in wartime, in order to cushion the effect of the crisis on the population.

4. Although there was, indeed, an increase in poverty in Cuba at the beginning of the Special Period, this was because Cuba's economy declined rapidly and without warning, by 48 per cent within a year. However, no health, education or social services were cut, and former levels of wealth have now been restored (Morris 2011).

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10. Sustainability and the social economy in Canada: from resource reliance to resilience?

Julie L. MacArthur

Canadians are caught in the classic sustainability double bind: on the one hand, the economy is uniquely dependent on natural resource exploitation for a G8 country; on the other, the environmental risk these activities pose to ecosystems requires them to be scaled back significantly. Narrowly construed economic growth has long won out in this competition over environmental protection and sustainability. This prioritization has intensified since 2007 with a federal Conservative government in Ottawa. Instead of grappling with the systemic socio-economic restructuring required to build towards economic, environmental and social sustainability, Canadian policymakers are increasingly focused on voluntarism and market-based governance (Girard et al. 2010). These policy choices exacerbate rather than solve sustainability challenges, contributing to what ecological footprint scholar William Rees calls this ‘generalized human ecological dysfunction’ (Rees 2012). It is within this context that bottom-up social innovations from civil society and social economy actors have emerged across Canada. This chapter assesses whether institutional innovations taking place in the Canadian social economy provide a mechanism to facilitate sustainability in the face of an environmentally hostile federal policy regime.

An account of progress towards sustainability in Canada based on the elite corridors of Ottawa is certainly grim. This sparsely populated country disproportionately influences the world’s climate. In the energy sector alone it holds the world’s third-largest oil reserves. Canada has been specifically singled out as one of the worst emitters of carbon dioxide (CO₂) per capita and is one of the slowest Organisation for Economic Co-operation and Development (OECD) countries to develop new renewable sources of power such as solar and wind (Homer-Dixon 2009; Nikiforuk 2008; Paehlke 2008). A heavy emphasis on resource development exists despite increasingly dire warnings from scientists that human activities are forcing planetary-scale transitions ‘with the potential to transform Earth rapidly and irreversibly into a state unknown in human experience’ (Barnosky et al. 2012). Canadian policy action on environmental issues like climate change is most accurately characterized as ‘abysmal’ (Jaccard and Simpson

2007; McLeod-Kilmurray and Smith 2010). However, important subnational dynamics and differences exist: these include deep political conflicts over resource extraction and transport, as well as a growing movement to support meaningful connections between economic, social and environmental needs – the social economy.

For the purposes of this chapter, ‘sustainability’ refers to a process of restructuring socio-economic systems in order to enhance rather than erode the quality of life on Earth. This formulation challenges ecological modernization’s focus on neoclassical economic growth, and the ‘decoupling’ of the economy from both social justice and environmental degradation (Barry 2012; Blauert and Zadek 1998; Connelly et al. 2011). The social economy may contribute to deepening sustainability in a range of ways, which include a differential treatment of profit, a focus on expanded notions of worth and development, as well as a tendency of some organizations within it to revitalize democratic practices (McMurtry 2009). The ‘social economy’ is an umbrella term for diverse organizations globally (co-operatives, farmers’ collectives, charities, mutuals) united in their prioritization of local and social goals over profit (Amin 2009). These projects address social, economic and environmental challenges, though not always prioritized in that order or all at once. They also illustrate diverse ways of providing necessary services that are not centered on private profit or state centralization. However, the impact of these organizations on sustainability at a broader scale is contested. On one hand, the grassroots activities of social economy organizations may help to provide sustainable on-the-ground economic alternatives. On the other, they may actually – perhaps even unintentionally – support broader regimes that are eroding sustainability.

The first section of the chapter that follows explores intersections between environmental critiques of ecological modernization and the practices and discourses of the ‘social economy’. It illustrates how a sustainable economy may, in fact, be a social economy. The next section highlights key features of Canadian sustainability challenges at this particular juncture. These include, for example, a focus on voluntarism and marketization, scaling back environmental capacity through the defunding or elimination of state agencies, and heavy emphasis on the private sector as a basis for economic growth. The third section illustrates the types of projects (in renewable electricity, food and forestry) and actors that have emerged in the social economy in Canada. I argue that while many of these groups have emerged in response to the failures of the neoliberal state, they are no substitute for mass political mobilization; rather, they can and do serve as demonstration projects and sites of grassroots eco-social innovation. A fourth section draws conclusions.

SUSTAINABILITY AND THE SOCIAL ECONOMY

Important insights have emerged from green political economy research into the role of alternative economic structures and local governance on environmental outcomes. In particular, scholars have challenged the assumption that economic growth, conventionally conceived, can produce the shift in human behaviour required to stabilize ecological life-support systems (Barry 2012; Canaan 2000). According to Fitzpatrick and Cahill, green criticisms center on a number of key points: first, indiscriminate economic growth and consumer capitalism are ecologically destructive; second, 'masculinist' and 'productivist' economies built on full-time wage earning overemphasize materialism and hierarchy rather than care; and finally, existing governance arrangements are insufficiently designed for individual autonomy and control (Fitzpatrick and Cahill 2002). An important element of this latter critique is that representative (as opposed to participatory or deliberative) democracy emphasizes passivity and consumerist attitudes over the common good. As a result of these criticisms, new models of governance and more empowering institutional forms are required.

In fact, political economists stretching back to Karl Polanyi and Karl Marx before him cautioned that neoclassical conceptions of the economy as a separate sphere from social (and environmental) realms represent flawed, even dangerous, idealizations. The natural environment forms the basis for life and thus needs to be accorded centrality both in theory and in policy practice. There is no economy without society, no society without the life-support that the Earth provides. These insights echo the efforts of scholars to construct 'embedded' and 'thick' notions of sustainability (as distinct from a 'three pillars' approach wherein economic considerations are usually accorded primacy in practice) (Daly 1996; Lehtonen 2004). This has included calls to 'bring the social back in' (Johnston et al. 2006b; Lehtonen 2004) to sustainability discourses. This is in response to the recognition that issues of group cohesion, distributive justice and human flourishing (Sen 1999) are essential to securing political will for policy action and local resilience. The social economy thus holds great appeal for those interested in sustainability since organizations within it integrate considerations of social justice, inclusivity and empowerment into locally based institutions.

For Canadian social economy scholars:

the social economy refers to the set of activities and organizations stemming from collective entrepreneurship, organized around the following principles and operating rules: 1) the purpose of a social economy enterprise is to serve its members or the community rather than to simply make profit. 2) It operates at arm's length from the state. 3) It promotes a democratic management

process involving all users and/or workers through its statutes and the way it does business. 4) It defends the primacy of individuals and work over capital in the distribution of its surplus and its revenues. 5) It bases its activities on the principles of participation and individual and collective empowerment. The social economy therefore encompasses all co-operative and mutual movements and associations. The social economy can be developed in all sectors that meet the needs of the people and community. (Laville et al. 2007: 186)

Social economy organizations address the three critiques of mainstream structures by Fitzpatrick and Cahill above: growth, productivism and a narrow wage focus and hierarchal governance. For Graham Smith (2005), social economy organizations may play a role in developing ecological citizenship and enhancing sustainability due to the ethos and structure of its organizations. He argues that the ethos orients them towards ‘mutual, communal, or general interests’ and their structure to ‘unusual patterns in the division of labour between power and authority’ (Smith 2005: 278–9). He also points out that the skill development taking place in them is more broadly inclusive of actors outside formal political processes. This, in turn, can underpin broader citizen engagement and plug important gaps in green deliberative thinking. In this model, citizens develop their capacities and governance is enhanced through important feedback loops connecting local conditions to policy advocacy. Likewise, democratic theorist Carole Pateman has argued that ‘only if the individual could become self-governing in the workplace, only if industry was organized on a participatory basis, could . . . [they] gain the familiarity with democratic procedures and develop the necessary “democratic character” for an effective system of large-scale democracy’ (Pateman 1970: 39). The grassroots and local basis of social economy organizations thus can play an important role in facilitating participatory democracy and in ‘bringing the social back in’ to the practice of environmental sustainability.

However, there are two important and divergent perspectives on the role that the social economy can play in advancing sustainability: one optimistic in terms of eco-localism and one more sceptical regarding the ongoing role of green neoliberalism.

In the first view, the social economy represents an important path to building an eco-local sustainable future. Scale is reduced as much as possible and participatory organizations working with locally appropriate resources form the basis of an economy. In this view social economy developments can help to provide test projects for an eventual broad penetration into the wider society to build resilience. Building widespread sustainable institutions and resilience is particularly important as climate change intensifies and communities are forced to adapt to new environmental threats and economic shocks. Eric Olin Wright’s work in the Real Utopias

project is instructive here as he analyzes the various mechanisms – from ruptural breaks through to interstitial and symbiotic transitions – through which organizational innovations may scale up to provoke transformative social change (Fung and Wright 2003; Wright 2010). Fred Curtis illustrates the eco-local arguments clearly:

Economic sustainability is best secured by the creation of local or regional self-reliant, community economies . . . Drawing on the experience of local currencies, community corporations, regional food economies and other locally oriented efforts, eco-local theory presents a new analysis of the ‘economy of place’. It focuses on locally symbiotic capital, positive externalities of self-reliance and negative externalities of long-distance trade, and its specific concepts and analyses of the economy, efficiency and economies of scale, and consumption and welfare. (Curtis 2002: 83)

Important critiques have also arisen over the effectiveness of basing sustainable transitions on an eco-local or social economy model. Social economy organizations, particularly in market liberal states like Canada, serve as a supporting mechanism for broadly ‘unsustainable’ actions. The activities of the social economy often operating in ‘abandoned niches’ may serve to provide a clean up or ‘flanking’ function that serves broader processes of state accumulation and legitimation. In areas like health care and social housing, social economy organizations have stepped in to fill roles in public–private partnerships, and alternative service provision (Restakis and Lindquist 2001). Co-operatives, non-profits and other social economy institutions are well suited to play these gap-filling roles, requiring less profit, with generally local and democratic organizational structures, and a tradition of volunteerism and service. By providing volunteer hours, supporting marginalized populations as well as a culture of ‘self help’ and service downloading, social economy groups have and continue to support – albeit perhaps unintentionally – deeply unsustainable politico-economic arrangements (Graefe 2006). In this view, since many social economy actors are in fact private, and engage in market activity, they do not challenge the roll-back of government and the primacy of economic growth.

On the environmental front, explicitly ‘green’ social economy initiatives may also facilitate the appropriation of radical environmental discourses by market greens through a form of green neoliberalism (Toke 2000). While the rise of environmental issues has led to pressures on states to take action, it has largely been channelled via market mechanisms. Murray Bookchin points out that ‘decentralism, small-scale communities, local autonomy, even mutual aid and communalism are not intrinsically ecological or emancipatory’ (Bookchin 1987). Hence, just as it is important to ‘bring the social back in’ to sustainability, within the social economy literature it may be time to ‘bring the political back in’ to our analysis. Indeed,

macro-level political economy dynamics at provincial, national and international levels form a fundamental constraint on the social economy's potential. Ash Amin argues that there are important differences between the activities in various regimes: in countries with highly liberalized welfare states (Britain, Denmark), social economy organizations are more likely to be co-opted by neoliberal processes (Amin 2009: 15–17). In countries with weak market economies the social economy has a less circumscribed role and 'has begun to stand for post-capitalist possibility' in countries like Brazil and Argentina (Amin 2009: 15–16). In the Canadian context, Johnston et al. highlight the importance of not idealizing local but focusing instead on 'multi-scaled' governance interventions that address the institutional challenges to sustainability at federal and provincial levels (Johnston et al. 2006a). Wright and Fung point to the need for the development of what they call 'countervailing power' to move social economy initiatives from a gap-filling role to a more significant and perhaps transformational one (Fung and Wright 2003). These cautions are appropriate here because issues of community capacity and distribution are often ignored when sustainability advocates fetishize the local (Albo 2006; Hahnel 2007).

These two perspectives – eco-local or green neoliberal – are not, of course, mutually exclusive. An organization can be both useful for meeting community needs and problematic given a broader exploitative set of relationships. It can play an important role in mediating, translating and sometimes challenging socio-economic norms, dominant structures, and modes of governance. While in one sense social economy groups may be responding to the roll-back policies initiated in other areas of a given society by policymakers and private sector actors, they are also active participants in accepting or reshaping these processes (MacArthur 2012). Social economy organizations also exhibit a diversity in forms, intents and democratic aims (Carter 1996). Unpacking if, how and where these play out in different ways can set the foundation for a more informed and nuanced assessment of the social economy potential for sustainability. The subsequent sections of this chapter address the particular national drivers of unsustainability in Canada today as well as how some social economy actors have responded.

(UN)SUSTAINABILITY IN CANADIAN PUBLIC POLICY

Canada has emerged out of the 2008 financial crisis relatively unscathed. Canadians, however, have not. Real wages are stagnating, household debt is at record levels and environmental legislation is being eroded by deep cuts to both regulatory requirements and budgets (Adkin 2009;

Campion-Smith 2011; Crawford and Faruqui 2012; Teeple 2000). Progress toward sustainability in Canada is hampered by two factors: a historic and deeply embedded reliance on resource extraction and export, as well as an ideologically driven emphasis on markets and private profit codified in policy choices at both federal and provincial levels. Taken together, these forces are driving an increased emphasis on materialism and productivism. Rather than decoupling economic growth from environmental degradation, what has been decoupled is the link between economic growth and human advancement and well-being (Clarkson 2002; Findlay et al. 2010; Teeple 2000). While it is important to note that provincial governments are constitutionally allocated power over resources and some areas of environmental policymaking, this section focuses on the federal government in Ottawa. This choice is, in part, due to the need to limit the scope of this chapter. It is also due to the fact that addressing sustainability at a systemic level requires a level of coordination, leadership and redistribution that is beyond the scope of any one province (Jaccard and Simpson 2007; David Macdonald 2009).

Dig, Dam, Drill

Canada remains, to a significant degree, a staples economy: highly materials oriented and centered on primary commodities. This poses particular challenges for advancing sustainability. Historian Harold Innis's 'staples theory' of Canadian economic development illustrated how the fur, fish, lumber and grain resources of the country led to a pattern of uneven development and an exploitative system where capital-rich 'heartlands' exploited resource-rich 'hinterlands' (Innis 1930). In this model, resource policy and the economic development that accompanied it in Canada was organized for the benefit of European – later American, and soon perhaps Chinese – consumption. Transportation links, ownership structures and the distribution of benefits are therefore largely organized for world markets as opposed to local resilience. These systems of dependent development create asymmetries between the broader populations in extractive areas and the financiers in Toronto, London and New York. Not only does this create distributive conflicts between differing regions (urban and rural; coastal and prairie), but it also places primary resource extraction as a central driver of the economy.

Canadian natural resource wealth cannot be understated, nor can the environmental impact of the export orientation of most provinces. To give readers an idea of just how significant the resource economy is, according to the federal department of Natural Resources (NRCAN) Canada has 10 percent of the world's forests (397 million hectares) and is the world's

second-largest forest product exporter; it is the world's largest producer of potash, the second-largest uranium producer, and is in the top ten in production of nickel, zinc, gold, copper and diamonds (Drohan 2012: 7); the country has the third-largest proven oil reserves in the world, as well as significant natural gas and water resources. Canada is also the world's sixth-largest exporter of petroleum and electricity, and third-largest natural gas exporter – and all this with a population smaller than Algeria. In 2010, primary and downstream natural resource industries accounted for 11.5 percent of Canada's gross domestic product (GDP), 52.6 percent of the country's domestic exports, and 763 000 jobs (Natural Resources Canada 2012). To the extent that environmental sustainability requires a transition to heavily reduced material throughput and a shift towards value-added and service sectors, this heavily materialist orientation is problematic.

This resource intensity is accompanied by heavy environmental impacts. The National GHG Inventory Report from Environment Canada demonstrates that energy production and use – from stationary combustion sources, fugitive sources and transportation – accounts for 81 percent of Canada's 2010 greenhouse gas (GHG) emissions. Moreover, impacts of forestry generated almost 10 percent of the country's GHG emissions in 2010 (68 metric tonnes, MT, CO₂ equivalent of a total 692) (Environment Canada 2012). Environmentally, the impacts on the climate (GHGs), air quality, human health, animal habitats and species destruction from extractive industries are well documented (IPCC 2007). According to the World Meteorological Organization, the last decade has been one of extreme weather events due to climate change, including heat waves, droughts, floods, and increased hurricane and cyclone activity (World Meteorological Organization 2012).

Export and growth-oriented resource extraction is also problematic for economic sustainability in Canada. Energy resources and systems in particular provide for the economic foundation for modern societies and, as such, form a crucial part of the transition towards sustainability. However, Canadian oil resources are unique in the top five countries (by proven reserves) as they are not controlled by public companies (Hussain 2012). As a result, the rents from these environmentally damaging activities are in many cases leaving the country, even though they contribute to aggregate GDP figures. Hence, even a focus solely on economic development, rather than sustainability, more broadly points to the need to reform industry policy (Drohan 2012).

However, the emphasis has been on private resource development and expansion, rather than sustainability and security, and persists despite ten of the warmest years on record. The government's focus on the short-term interests of resource sectors over environmental concerns has also led to

international censure. For example, Canada is the most decorated 'fossil of the year recipient' (Climate Action Network 2011), and in 2009 George Monbiot lamented that 'Canada is now to climate change as Japan is to whaling' (Monbiot 2009). Entrenched private interests in oil, gas, forestry and mining industries continue to disproportionately shape federal and provincial social, economic and environmental policies (Douglas MacDonald 2007; David Macdonald 2009). A vacuum in sustainability leadership exists at the federal level which leads to uncertainty, poor coordination between the provinces and equity issues in implementation of environmental initiatives (David Macdonald 2009).

To Market, To Market

The failure to adequately address sustainability is ideologically as well as materially based. The Canadian state has followed the neoliberal trend in most OECD countries: placing private sector actors at the center of economic development and sustainable development strategies; prioritizing markets and voluntarism over 'command-and-control' regulation; and eroding the Keynesian welfare state (KWS) developed in the post-war era through ideologically driven austerity measures (Douglas MacDonald 2007; McBride 2005). Rather than veering away from environmentally damaging resource industries, the federal government has been doubling down. In policy terms this has involved facilitating the expansion of resource exports via development of new pipelines for natural gas and bitumen to Asia and new trade agreements to bring new investment capital into these lucrative sectors, with unprecedented investor protection against local and provincial regulations.

Both Liberal and Conservative federal governments have, since the 1990s, adopted neoliberal social and economic policies. They have also paid lip service to sustainability by making marginal moves – for example, through the creation of a National Roundtable of the Environment and Economy and the appointment of a federal Commissioner for Sustainable Development – without taking on the deeper materialist orientation of the Canadian economy. Funding cuts to public services continue to roll back the ability of the state to address the challenges to come. Under the Conservative government, the primacy of markets continues, but is also paired with the steady erosion of the foothold environmental policies gained during the 1970s and 1980s. Indeed, Prime Minister Harper has publicly called for Canada to become an 'energy superpower' (Akin 2012). Natural Resources Canada's (NRCAN) definition of sustainable development in 2012 is: 'to improve the quality of life of Canadians by creating a sustainable resource advantage'. One very recent initiative is the

Canada–China Foreign Investment Promotion and Protection Agreement (FIPA) which came into force in November 2012. It will be in effect for at least 30 years and includes strong extra-judicial investor protection mechanisms that may threaten aboriginal self-government as well as labour and environmental measures. The unprecedented Clause 28, for example, allows Chinese companies to sue Canadian governments via closed-door arbitration for regulations that would compromise even minority-owned investments (Harten 2012).

The FIPA is only one of a broad range of trade agreements being negotiated by the Canadian government in order to secure radical investor protection rights at the international level. One particularly problematic issue emerging in recent years is that the federal government is responsible for defending trade challenges, but in many cases the provincial governments are the target of the challenge and their policies put them at odds with a Conservative federal government. This is the case with the World Trade Organization (WTO) challenge by the European Union (EU) and Japan to local content requirements in Ontario's Green Energy and Economy Act (Howlett et al. 2012) as well as the recent Lone Pine Resources North American Free Trade Agreement (NAFTA) Chapter 11 challenge to Quebec's ban on hydraulic fracturing, or 'fracking' (Gray 2012). Clearly, the locally appropriate development and democratization of control that many political economists see as necessary for sustainability is incompatible with Canadian resource policies, ownership structures and trade practices (Barry 2012; Lee and Card 2012).

The federal commitment to voluntarism and free market principles has met with predictable results. Not only has Canada officially withdrawn from the Kyoto Protocol, but it is failing even to meet the weaker GHG targets set under Copenhagen. Canada's greenhouse gas emissions grew steadily from 1990 to 2004, driven in large part by fossil fuel industries. They have since declined from a high of 751 megatonnes (Mt) in 2007 to 692 in 2010 mostly due to increased conservation in the electricity sector and a decline in manufacturing output (and employment) following the global financial crisis (Environment Canada 2012). These emissions levels are not equally distributed across the country. They are highest in fossil-fuel-rich Alberta at 233.3 Mt and the populous (12.8 million) manufacturing heart of Ontario at 171.3 Mt. While greenhouse gas emissions have either remained steady or declined compared to 1990 levels in almost every province and territory in Canada, they grew in the western provinces of Alberta (by 41 percent), Saskatchewan (by 67 percent) and British Columbia (by 14 percent) between 1990 and 2010, due primarily to increases in fossil fuel extraction for export (Environment Canada 2012).

The largest federal attacks on the environmental protection since the

issue first gained prominence in the 1970s have taken place since the Conservatives gained a majority government in 2011. They have all been aimed at 'streamlining' environmental assessment processes, opening up resource industries to new investment and downsizing government. An omnibus budget bill (C-38), which became law in June 2012, amended more than 60 different federal Acts. It included provisions to give the Cabinet power to override and fast-track environmental assessments, and to allow charitable status of environmental organizations to be revoked if they participate in 'political activities' (and it allocated \$8 million for a review of charities and their political activities). It limited the focus of the Fisheries Act to protect only fish supporting commercial, recreational or aboriginal fisheries and changes protection from 'any harm' against fish to 'permanent harm'. Bill C-38 also made it more difficult to collect employment insurance, and cut funding to the national broadcaster.

A second part of the omnibus budget bill tabled in October 2012 amends the Navigable Waters Protection Act, Fisheries Act and Environmental Assessment Act. These changes include exempting major pipeline and interprovincial power line developers from having to prove the impact of projects on navigable waterways (Government of Canada 2012). It also included the elimination funding for the National Roundtable on the Environment and the Economy as well as the Canadian Foundation for Climate and Atmospheric Science and the Hazardous Materials Information Review Commission. These cuts are on top of earlier elimination of 800 staff and researcher positions at Environment Canada in 2011 and a further 137 in 2012, together with 344 staff at the Canadian Food Inspection Agency. In total, federal public job losses are projected to reach 29600 over the next three years (to 2015) (May 2012). These policy changes are in addition to the years of cutbacks to social programs, increasing income inequality and the decoupling of economic recovery from the fortunes of average Canadians. As a result, there has been significant mobilization at the grassroots level from the Federation of Canadian Municipalities, Aboriginal and First Nations (via Idle No More most recently) environmental NGOs, former ministers, and scientists across the country (Fitzpatrick 2012; Hume 2012; Sinoski 2012).

This social friction illustrates both the domestic need and the desire to build a more resilient and more sustainable Canada. These include: using scarce and environmentally sensitive resources with more caution; arranging power and rents more equitably and democratically; less emphasis on growth of extractive industries; and more focus on enhancing employment conditions. For Bill Rees this means: 'Implementing an equity-oriented planned economic contraction in turn requires that the underpinning values of society shift from competitive individualism, greed, and narrow

self-interest – all sanctioned by the prevailing narrative – toward community, cooperation, and our common interest in surviving with dignity’ (Rees 2012: 10–11). In short: socializing, democratizing and dematerializing the Canadian economy.

THE SOCIAL ECONOMY IN CANADA

For more than a century social economy organizations have operated in Canada. If you include the practices of eco-localism and reciprocity in many aboriginal communities, the social economy footprint stretches back even further (Natcher 2009). The activities of non-profits, co-operatives and mutuals demonstrate the long-standing importance and existence of a plural economy in Canada. From food banks to producer co-operatives, credit unions to daycare centers, and grocery stores to rural electricity distribution, social economy groups have been providing vital services to diverse communities for many years. In many cases these organizations emerged in response to discrimination (as with French-Canadians’ access to credit in a banking industry dominated by Anglophones) and lack of access to fair terms of trade (as with grain and dairy farmers). The exact constitution of each organization with respect to governance, market activity – formal or informal – and profit varies. This makes drawing hard and fast lines around the social economy and measuring exact numbers (in membership and GDP terms) difficult.

From data collected on just two organizational types – non-profits and co-operatives – the size and scope of the social economy sector starts to take shape (it is, however, generally accepted that formal numbers provided greatly underestimate its contribution due to the prevalence of informal and non-market activities). According to Hall et al. the non-profit and voluntary sector accounts for 6.8 percent of Canada’s GDP. If volunteer work is incorporated, this amounts to 8.5 percent of national GDP (Hall et al. 2005). Co-operatives, both financial and non-financial, are also very active, employing over 150 000 people and serving more than 18 million members. Credit unions (called *caisses populaires* in Quebec) have one of the highest per-capita membership rates in the world, covering 33 percent of the country’s population in 2007 and holding CA\$209 billion in assets (Co-operatives Secretariat 2010a).

The co-operative sector in the country in particular is growing steadily. According to the federal Co-operatives Secretariat based in Canada’s Department of Agriculture, between 1930 and 2007, the number of co-operatives more than quadrupled from 1100 to 5700 and membership grew almost eightfold from 756 000 to 6 638 000, outpacing population growth

in the country by a multiple of three (Co-operatives Secretariat 2010b: iv). Co-operatives serve 17.4 million members and employ 142 948 employees, and co-operatives employed 11 per cent more people from 1998 (78 662) to 2007 (87 221). This is important for building community resilience; in a 2008 study, the Quebec Ministry of Industry and Commerce study found that co-operatives have almost twice the survival rate compared to other businesses in that province, with the co-operative advantage (gap between the two rates) growing as time goes on (Clément and Bouchard 2008).

There are important subnational differences in the social economy. These correspond to three rather distinct 'social economies' existing in Canada that loosely correspond to important cleavages within society: Anglophone (English), Francophone (French) and Aboriginal (McMurtry 2009). Each subset of the social economy intersects with provincial and federal governments in unique ways. In English Canada the social economy is, for the most part, fragmented from provincial and federal policymaking (Nova Scotia and Manitoba have stronger policy supports in place) (Adeler 2009; LeBlanc 2006). Provincial governments have constitutional authority over health, housing, education, natural resources and electricity; they also have distinct statutes detailing what comprises a co-operative in each jurisdiction. The focus on community economic development (CED) and on formal and established sectors (co-operatives, credit unions, non-profits) is also stronger in the Anglophone (English-speaking) social economy. By contrast, the social economy in Quebec plays a more central role in public policy and service provision, and is more inclusive of non-market activity. For Mendell and Neamtan, on Quebec: 'by placing the social economy squarely into the center of economic activity, as a key and significant producer of goods and services under different organizational structures, it has assumed a level of legitimacy that is gradually moving it from the margins to the mainstream' (Mendell and Neamtan 2010: 63).

Aboriginal peoples in Canada, which include First Nations, Métis and Inuit populations, have distinctive development challenges. Most also have constitutionally prescribed rights that make the federal government a more direct influence on social economy initiatives. These include important issues of land and resource rights, as well as persistent underdevelopment in areas of health and housing. According to social economy scholar Wanda Wuttunee: 'Aboriginal peoples have been practicing key elements of Social Economy (such as economic activity in the service of community, social goals rather than profit driving economic decisions, and democratic decision making) from time immemorial' (Wuttunee 2010: 207). Aboriginal social economy projects also help to develop skills, community capacity and capital in areas with persistent issues of socio-economic

exclusion. Perhaps most importantly, these are also communities with the longest histories of appropriate resource management.

While these distinct relationships between Anglophones, Francophones and aboriginal actors point to different policy tools and political cultures, cross-cutting issue of environmental sustainability confront communities across the country, whether urban or rural, Francophone, Anglophone or Aboriginal. In each, policy moves toward further resource exploitation set the backdrop and limiting context for social economy innovations. These innovations include, but are not limited to: managing local forests, food, water systems and electric utilities. Projects range from the very small (biodiesel distribution) to the very large and technologically complex (rural electric utilities powering thousands of homes) (MacArthur 2012). They also range from distribution of goods and services through to generation processing and retailing of everything from oil to solar panels, wood waste and biodiesel. These projects most obviously impact sustainability where they contribute to reducing materials use and harmful resource extraction. However, in areas of home and health care, food production and distribution as well as art and culture, social economy initiatives address the 'social' side of sustainability. This range of viable 'on-the-ground' institutional and technological models can strengthen sustainable transitions and enhance resilience by providing best-practice models (Lehtonen 2004).

Earlier in this chapter the importance of a differential treatment of profit, expanded notions of worth and development for people, and revitalization of democratic power via practices of deliberation and economic democracy were raised. These core contributions from social economy projects are discussed in the following sections with reference to specific social economy organizations operating in Canada today.

Profit: Resilience and Revitalization in Community Forestry

While some social economy organizations may be structured as social enterprises in order to increase the incomes of local actors, they are also uniquely positioned to address social and environmental areas of need because high returns are not central to the organizational purpose. Social economy organizations provide one way to maintain employment when global markets collapse. This is particularly important for rural communities in Canada which are dependent on resource extraction.

A number of sustainability issues plague the forestry sector in Canada. The softwood lumber crisis in 2000 and the collapse of the housing construction market in the United States have led to very difficult times for the forestry sector, especially communities in the provinces of Quebec and British Columbia. According to the Canadian Forest Service, 'about

200 Canadian communities depend on the forest industry for at least 50 percent of their economic base. Most of these communities are rural or remote' (Natural Resources Canada 2013). While Canada retains significant forest cover, issues of old-growth deforestation persist, as do concerns over the sustainability of the level and nature of logging practices (Ambus and Hoberg 2011; McCarthy 2005). Logging remains one of the most dangerous industries to work in, in the country. The profitability pressures from large corporate ownership in the industry impact both working conditions (in wages as well as health and safety) as well as environmental impacts (in terms of deforestation, soil erosion and CO₂ emissions).

In Quebec, a network of forestry co-operatives has developed in order to retain forestry jobs in woodlot management and processing. Residents of the town of Sacre Coeur, for example, formed the Societe d'Exploitation de Sacre-Coeur and, with the help of one of Quebec's many credit unions and the provincial government, bought a local mill that was going to be closed in 1984. What resulted was Boisaco Inc.: a three-way ownership partnership between a loggers' co-operative (Cofor), a millworkers' co-operative (Unisaco) and a consortium of local businesses. According to one researcher, the company:

has divided profit according to a formula that would seem out of place in the corporate world. Twenty-seven per cent is shared equally as dividends among the three shareholders; eighteen per cent goes to workers' bonuses, while fifty-five per cent . . . is targeted – once taxes have been paid – to research and development. Part of this fifty-five per cent is also allocated to a rainy-day fund. (Scott 2010)

Two hundred people are employed in this rural town of 2000, and it has expanded so that the worker co-operative also owns a portion of other local businesses, so that they can help finance the local economy and prevent rural devitalization. The only mills open and functioning in the lower St Lawrence region of Quebec are co-operatives, because they can function with just 3 per cent returns (personal interview, 16 May 2010). Co-operatives in Quebec are also leading social economy bio-energy (mostly from wood-waste) initiatives (MacArthur 2012).

Outside Quebec, social economy forestry is also gaining traction. Community forests have led to increased employment in vulnerable rural areas in British Columbia (BC), and indeed in other places across Canada. Community forestry is defined by the United Nations Food and Agriculture Organization (FAO 1978) as 'any situation that intimately involves local people in forestry activity'. Community forests engage a number of stakeholders that typically include government (municipal or provincial), industrial and community groups in management of a forest resource in ways

that meet local and social needs. Industry-centered community forests do not fit within a social-economy umbrella, but those that are more community centered do. Community ownership and management of the resources is one way to increase the economic multiplier from resource exploitation. It also provides a mechanism to increase resilience (as in the Boisaco example) to weather the vagaries of international markets.

Since 1993, the Revelstoke Community Forest Corporation (RCFC) in British Columbia has managed one of the largest – at 120 000 hectares – of 58 community forests in the province. Confronted in the 1980s and 1990s with dwindling local employment, the community mobilized in order to ensure that more of the resource was used in a way that benefited the local population. They partnered with three local sawmills: Downie Timber, Joe Kozek Sawmills and Cascade Cedar. This involved advocating that the provincial government reduce the area of a privately owned tree farm license (TFL 23), prevent the sale of cutting rights to a US firm and reduce the cutting rights of Federated Co-operatives (interestingly, another social economy actor) due to inadequate levels of local processing (Weir and Pearce 1995). In 1998 and 2003 the province of British Columbia initiated policies aimed at addressing problems with forestry management (including clearcutting and unsafe working conditions) and devolving some responsibility for the sector (Ambus and Hoberg 2011). Community forests in BC now represent 1.5 percent of the annual harvest in the province (BC Community Forest Association 2013).

Community forests have faced criticism, however, for overemphasizing the economic side of the sustainability ledger at the expense of environmental and social considerations (McCarthy 2005). The focus in many projects continues to be on employment – narrowly construed – rather than on biodiversity or broader sustainability measures. Continued reliance on logging and wood processing as an economic driver is also problematic from an environmental perspective. While forests are ‘renewable’ and may be more sustainably managed through replanting initiatives, there is little evidence that the social economy forestry projects present much of a challenge to the industry more broadly. With that said, both co-operative and community forestry do represent a departure, particularly in terms of the actors involved in project decision-making, from earlier modes of forestry governance centered on large industrial ownership (Howlett and Brownsey 2008).

People: Capacity Building and Work in Local Food

Social economy initiatives have also engaged new and diverse populations in projects and, in some cases, focus on the creation of meaningful and

rewarding work for volunteers and paid employees. One way to help reduce the impacts of large-scale energy use for transportation is scaling down as much as possible the food miles travelled (Connelly et al. 2011). The Canadian population is overwhelmingly concentrated in urban areas and along the 49th parallel. As with most industrialized countries, obesity and health-related issues associated with food (food safety, nutrition, access) are posing serious challenges to both citizen health and public finances. For poor Canadians, particularly those in urban centers, access to fresh and nutritious food can be difficult. These problems are attributed, in part, to a disconnect between food consumers and producers brought on by an increasingly industrialized and concentrated food system (Connelly et al. 2011). Community gardens in urban centers may not be sufficient to feed a dense population, but they do play an important role in education, training and food awareness. Two projects illustrated in this section – Loutet Farm and The Big Carrot – draw attention to both the consumption and the production side of food sustainability issues. These projects also illustrate alternative food structures and can help to build political capital for policy change. They link workers, consumers and producers into a healthier local food economy.

Loutet Farm in North Vancouver is a social economy initiative addressing the rising issue of urban poverty and food education. Located in British Columbia's Lower Mainland region, it is part of the Edible Garden Project. The farm is a social enterprise with the mission to build a 'plant to plate' food system. It is a partnership between the North Shore Neighbourhood House (a non-profit charity), the City of North Vancouver and the University of British Columbia (UBC) (and its UBC Farm). The design and goals of the project are to employ underutilized public parkland and:

operate as an economically viable urban farm within a residential area. Funds generated through the sale of the produce will be directed back into the operations of the farm while creating valuable green-collar jobs for north shore residents. In addition, the farm will offer a range of courses centered on sustainable food production for both adults and children and will engage the local community in farm activities. (Edible Garden Project 2013)

The project is notable in that it addresses multiple aspects of sustainability in the food system. Not only does the Loutet Farm repurpose urban space for education and food production, but the broader Edible Garden Project (EGP) also involves ten other garden plots where the food is donated to food-insecure people locally. Volunteers learn new skills and socialize while increasing the awareness and availability of fresh local produce. In fact, according to the farm, 'in 2010, almost 3000 lbs of produce was collected from both generous produce donors in the com-

munity and from our EGP garden sites and was distributed both to the Harvest Project and directly to residents of social housing complexes on the North Shore' (Edible Garden Project 2013).

Social economy networks have played a key role in the farm's development. Project partners include Vancity (one of Canada's largest credit unions), Mountain Equipment Co-op (an outdoor-wear consumer co-operative with 3.3 million members across the country) and the United Way of the Lower Mainland (a charity that focuses its work on poverty and homelessness). These multisectoral connections between financial, consumer and producer groups in the social economy are significant insofar as they demonstrate a degree of self-sustaining and self-reinforcing development. This networked support is crucial for strengthening the effectiveness of the social economy (Wright 2010).

The Big Carrot in Toronto is a worker-owned organic food co-operative in Canada's largest urban center. Started in 1983, the co-operative now has 70 worker-members who invest \$1 per share. The employees of this organic store share 70 percent of annual profits based on hours worked. The remaining 30 percent is allocated to the running of the business, other worker co-operatives and community groups (The Big Carrot 2012). It includes a holistic dispensary, an on-site nutritionist and a juice bar, and products that are free from a range of items, including artificial preservatives and flavours, highly refined sugar, corn-based fructose, antibiotics, hormones and preservatives in meat products, and hydrogenated oils. What is particularly interesting about The Big Carrot, and other social economy projects like it, is the more direct connection between the control and quality of the products and consumer-employees. In this case, the organization's workers also sit on the governance boards, overseeing community donations and approving developments in the store. As with the Loutet Farm, The Big Carrot is also part of a broader network; in this case it is Carrot Common: a connection of 17 stores sharing the building with The Big Carrot including the Carrot Cache (a fund that support organic farmers and worker co-ops) and the Co-operative Resource Pool of Ontario (another co-operative funding source). The Common includes a second floor that has been developed as a natural health center, and the partners have subsidized the rent of several community-based groups such as the Workers Ownership Development Foundation and A-Way Courier Service, which provides employment for ex-psychiatric patients. The mall has a large roof deck available to community groups to hold social and fund-raising benefits. Carrot Common is also continually looking for ways of utilizing the property for innovative ideas, such as creating a 'wild garden' on the property, in partnership with the Evergreen Foundation (The Big Carrot 2012).

Power: Policy Access and Competition

Social economy projects are emerging in some cases despite extremely competitive markets and relatively impermeable policy regimes. This is certainly the case with renewable energy and the electricity sector. However, despite many challenges with financing, site access and complex technological barriers, social economy actors are in limited cases playing important roles in the energy sector on both the production and the consumption sides in Canada (MacArthur 2012). Their role in advancing sustainability in the electricity sector varies significantly from province to province, since each province has a different ownership regime and dominant power source (Tampier 2006). In some, heavy reliance on non-renewable sources together with elite-dominated policy regimes have created grassroots pressure from actors to develop 'community power'. The development of a community power sector in many provinces, most notably Ontario, over the past 15 years is significant because in many cases it unites social economy institutions with explicit moves to 'green' energy. It is, however, important to note that in provinces like BC, Manitoba and Quebec relatively green hydropower accounts for more than 70 per cent of installed electric capacity. The power sector is an essential piece in reducing greenhouse gas emissions in many provinces and it is also so clearly removed from local control; thus, it is perhaps one of the most obvious places where social economy and sustainability overlap. Research suggests that social economy resource initiatives can play a key role in combating NIMBY-ism (not in my back yard), by engaging community members and giving them a stake in resource projects (Hoffman and High-Pippert 2009; Loring 2007).

One of the first projects like this was the Toronto Renewable Energy Co-operative's (TREC) Windshare turbine project (spun off as the Windshare Co-operative). The 750 kilowatt (650 kW actual installed capacity) Windshare turbine at Toronto's exhibition place is the first urban 100 percent community (municipal and co-operative) wind generation in North America and these 'urban wind pioneers' made a significant impact on community energy beyond the city of Toronto (Anonymous 2010). TREC started the project in 1999 and completed in 2002. The Windshare turbine is a 50:50 joint venture between a municipal power utility – Toronto Hydro (Energy Services Inc) – and the Windshare Co-operative. Windshare has more than 600 co-op members, 99 per cent of whom are from Toronto. Minimum investment was \$500 per member, and the average investment in the project was between \$1000 and \$2000. According to the President, Evan Ferrari, new community members wanted to join the project even when they were fully subscribed, so \$250 000 is now waiting in a trust account to be put toward future projects. The total cost of construction

and installation of the turbine was \$1.8 million, with \$800 000 of this put up by the co-operative (Anonymous 2010; Lipp 2005). Today, the project generates enough electricity to power 200 homes (personal interview, 23 July 2009). The revenues from the project circulate back to members through dividends set by the board and approved by the membership. More than this, though, the TREC experience spawned a range of other actors across that province to pursue local energy projects. TREC is also involved in creating solar energy co-operatives and providing co-operative education and consulting for other interested parties.

Environmental advocates, together with a range of renewable energy proponents, lobbied strongly for the Green Energy and Economy Act (GEA), which among other things provided extra financial incentives for social economy, first nations and community groups to invest in – in some cases developing outright – renewable energy projects (Green Energy Act Alliance 2011; Ontario Ministry of Energy 2013). One of the post-GEA social economy projects is the Pukwis Community Wind Park, a partnership between the Chippewas of Georgina Island and the Pukwis Energy Co-operative. This \$55 million 20 MW project 80 kilometers from Toronto was awarded a feed-in tariff (FIT) in 2010 that secures both the First Nations and the community groups. This grants them 15 cents per kilowatt hour instead of the regular FIT rate of 13.5 cents. Once operational, this would have been the first joint community and aboriginal project in Canada, with a 51 per cent First Nation share in the project, and a 49 per cent co-operative share (Kopperson 2010; Pukwis Energy Co-op 2011). As of October 2012 the project was on long-term hold. In fact, despite the community and First Nations feed-in tariffs, fewer than ten projects from these groups have managed to bring a project to fruition in Ontario. In large part this is due to the significant challenges of participating in a technologically complex sector and competing with large private actors for financing and sites.

Outside Ontario, renewable energy co-operatives, community organizations and non-profits are also pushing for more renewable energy in provincial power sectors. The Spark Energy Co-operative in Alberta was formed in 2010 to increase the amount of renewable electricity development in Canada's most coal-reliant province. The co-operative is a power retailer in Alberta's electricity marketplace; members buy shares, and purchase their power through the co-op. The co-op then uses the funds to buy wind solar and biomass electricity from the Alberta Powerpool and reinvests 70 percent of the co-operative's surplus in renewable energy projects (Spark Energy Co-operative 2012). The membership decides on which projects to invest in. In Alberta, without a Green Energy Act or significant provincial policy incentives for a switch to new renewables, the

mobilization by community and co-operative actors in this way is quite innovative, as are the networks that people within Spark have been making with other environmental and non-profit groups in that province.

The relationship between social economy organizations and the broader private sector is both important and problematic. A few key limitations affecting new electricity generation co-operatives illustrate this. First, very rarely are generation projects 100 per cent owned by co-operatives. Ownership and control ranges from 100 per cent co-operative and community, First Nations ownership in the case of the now-stalled Pukwis Energy Co-op in Ontario, to a minority share in a limited partnership, such as that between Peace Energy Co-operative and Aeolis Wind Power on the Bear Mountain Wind project in BC (MacArthur 2012). A sliding scale thus exists, with a project solely owned by members at one end, and a project owned by a private or public sector entity at the other. Most projects are a combination, falling somewhere in the middle. Private sector partners are sometimes keen to work with social economy groups like co-operatives, because they help to provide local legitimacy for a project, which can speed the project approval process. In an industry where years of feasibility studies and approvals are necessary, it can mean significant amounts of wasted time and money if local resistance leads to a project being cancelled. Given the diversity of social economy projects, can they credibly provide a mechanism to facilitate sustainability in the face of an environmentally hostile federal policy regime?

CONCLUSIONS: FROM LOCAL PROJECTS TO NATIONAL POLICY

At the outset of this chapter I presented the argument for how and why enthusiasm exists for seeing the social economy as a route to build sustainable futures in a heavily resource-reliant Canada. In the face of state policies that actively undermine – rather than support – sustainability, it is natural to look to other avenues of social change. However, no simple relationship exists between social economy organizations and systemic transformation. Capacity building at local levels is occurring, certainly, but it is both provoked and limited by cuts to social services and environmental protections taking place. While there are a diverse and important range of cases of social economy and community resource management in these provinces, contemporary macro-societal moves constrain their ability to scale up to transformative levels. Canada's 'healthy' GDP and job numbers in comparison to other G8 countries in 2012 merely mask a deep erosion of public support systems protecting employment rights, the environment,

women, public health care and social security. Clearly, the policy regime needs to change radically for sustainability in any meaningful sense to take root. Barring an about-face by the Conservative government, or radical overhaul of political culture and voting behaviour, this shift seems unlikely without sustained public education and the development of alternative economies. It is in these latter areas that social economy organizations may 'punch above their weight' in provoking sustainable transitions in this country.

The projects in forestry, food and renewable energy discussed above suggest diverse and, in most cases, less destructive practices in human, economic and environmental terms. This is in part because they include a range of stakeholders into decision-making fora. Institutionally reconnecting consumers to producers in this way represents a key normative and operational departure from business as usual in Canada (Princen 2001). It also encourages new, perhaps politically cynical, actors to engage with concrete policy problems. Social economy organizations also play a role in 'modeling the possible', in demonstrating new technologies, management methods or institutional forms. As more organizations emerge, whether they succeed or fail, public learning takes place about a wider range of economic and social arrangements. In the case of renewable energy, the rhetoric of free and open markets to all actors is belied by the advantages and higher project success rates enjoyed by large multinationals. These initiatives contribute, whether successful or not, to developing more informed, aware and mobilized constituencies. This contribution to transitions is particularly useful when the policy regimes and powerful actors are unwilling or unable to effect change. Through social economy networks, pressure emerges for legislative and regulatory change, as well as behavioural and organizational change.

Given a significant degree of penetration and networked mobilization, the social economy shapes, as well as is shaped by, public policy. Securing local control of resources for local needs and resilience enables a degree of leveraging, policy learning and joint advocacy with other social economy actors. These grassroots developments can draw lessons from other jurisdictions (whether municipal, provincial or international) where innovative social economy projects have worked and have resisted co-optation. Again this is not to say that policy change is straightforward or easily accomplished. Indeed, Ash Amin argues that what is required for more effective social economy development is a particular reconfiguration of public policy processes:

It is also about building a mode of governance suited to the experimental, hybrid (e.g. combination of market and welfare functions), collaborative and democratic character of the social economy . . . within government itself it

means breaking down departmental barriers, perhaps with the help of transversal policymaking or a dedicated office of the third sector, to ensure that integrated policies for the social economy can be developed (and not at risk from being undermined by other government policies). (Amin 2009: 19–20)

This is a tall order, but as discussed in this chapter, in some parts of Canada the social economy has a long history and significant institutional support (as in Quebec).

Ultimately, the scope and scale of the challenges facing not only relatively resource-wealthy Canadians but citizens from around the world require significant political action, not just at the local, but also at the national and global level. The very local (and often depoliticized) attributes that make social economy projects so appealing as vehicles for engagement and mobilization also make them problematic, because they can be ghettoized from broader political moves toward sustainability and environmental justice. A transition towards embedded sustainability requires such a fundamental reorientation of our resource sectors, of the key actors in them and the normative principles underpinning their development. As such, a revolution by stealth is unlikely in Canada. That is not to say that these test projects hold little value, or have not served to help specific communities weather particular storms; they certainly have, but power rarely transfers hands easily. Despite the obstacles, social economy organizations still provide an important anchor to move from resource reliance towards resilience in Canada.

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11. Using markets to achieve environmental ends: reconciling social equity issues in contemporary water policy in Australia

Karen Hussey

INTRODUCTION

The twentieth century was a watershed for the development of environmental policy and law, with the adoption and dissemination of key principles relating to ‘precaution’, ‘polluter-pays’, ‘inter- and intra-generational equity’ and ‘sustainable development’ (Dovers and Hussey 2013). Indeed the post-Second World War period saw hundreds of multilateral environmental agreements signed, and the introduction or consolidation of domestic legislation relating to water and marine resources, land use, biodiversity conservation, the protection of endangered species, waste and pollution control, as well as legislation pertaining to procedural processes such as environmental impact assessment. There has also been an extensive body of covenants and international agreements signed which formally identify and declare a range of human rights, which both directly and indirectly shape domestic environmental policy and law. Among the rights protected by these covenants are the rights to life, to the enjoyment of a standard of living adequate for health and well-being, to protection from disease and access to adequate food (Gleick 1990: 490). The rights of women and children to access water are also protected under international law.¹

In addition to advancements made in national and international law, perhaps the most remarkable parallel development in recent years has been the rise and dominance of neoliberal economic theory in shaping environmental policy. Distilled to its most basic, this development has seen traditional environmental regulation supplemented by ‘the market’ as the preferred means for delivering environmental ends. ‘Marketization’ can be divided into two general forms: the advocacy and use of market mechanisms (such as tradable rights, offsets, and so on) and the reform of public institutions to adhere to ‘market principles’ (privatization, corporatization, contracting out, and so on) (Dovers and Wild River 2003). However, the shift towards using markets to realize environmental goals lays bare complex and often contested ideas about economic development, environmental protection and social welfare. Interestingly, a critical

success factor in the establishment of market-based instruments is the role of robust and coherent governance arrangements and legal frameworks to support and enforce them, and we are now seeing a fascinating dialectic between the pursuit of longer-term social justice issues enshrined in the aforementioned human rights doctrine, and the potential of market-based instruments to address shorter-term equity issues in the allocation and use of natural resources.

Nowhere has the ready acceptance of economic rationalism been more marked than in Australia, where two decades of reforms have seen a fundamental transformation in how natural resources are perceived and 'managed'. In Australia, the creation of markets to meet environmental ends now extends beyond taxes on point-source pollution to include tradable markets for fish and marine stocks, biodiversity conservation, water resources (to manage both quality and quantity) and, most recently, greenhouse gas and carbon sequestration: if it can be measured, we can and will establish a market for it. But how are social equity issues addressed in this new paradigm of environmental policy? How are earlier achievements, made through legal doctrine, dealt with in these new, market-based instruments? And, ultimately, what are the implications for society of embracing policy interventions whose *sine qua non* is economic efficiency?

Using Australia's national water policy reforms – embodied in the 2004 National Water Initiative (NWI) – in this chapter I explore the opportunities, limitations and possible consequences of a shift towards market-based instruments for Australian society. I begin with a brief overview of the rationale for, and types of, market-based instruments that emerged in the last decade or so. Then, turning to my case study, I examine in detail the social equity considerations inherent in contemporary water resource management. I am particularly interested in the implications of water markets and pricing for rural and urban communities and the extent to which Indigenous interests have been accommodated in Australia's flagship water policy. My critique is made significantly easier by virtue of the fact that biennial assessments of the NWI have been undertaken since its introduction in 2004, with the most recent (2011) assessment shedding considerable light on the benefits and costs to Australian society of the reform programme. Finally, I present my conclusions and offer some reflections on the possible consequences of the 'marketization' of environmental policy for society.

THE RISE OF MARKET-BASED INSTRUMENTS

The most basic definition of environmental policy instruments is 'structured activities aimed at changing other activities in society towards

environmental goals' (Tietenberg 1990: 17). However, the options for how those altered behaviours are achieved vary enormously. While there is evidence of some attempts at regulating for environmental ends in the period before 1972, 'most of the important events in the history of the globalization of environment have occurred since 1970' (Braithwaite and Drahos 2000: 256). Even within the last 30 years, though, both the objectives and the form of regulation have shifted. In the 1970s, environmental regulation was principally concerned with protecting the international trading regime (as opposed to meeting environmental objectives) and was largely based on command-and-control regulation (Howlett 2004). However, dissatisfaction with the prescriptive nature of the classic command-and-control approach, together with its perceived economic inefficiency and inflexibility, saw the Organisation for Economic Co-operation and Development (OECD) countries develop new regulatory tools. Since the early 1990s there has been a fundamental shift in the type of regulatory tools and policy instruments used by governments for environmental protection, to include so-called 'market-based instruments'.

Market-based instruments are regulations that encourage behaviour through market signals rather than through explicit directives regarding pollution control levels or methods (Stavins 2002). These policy instruments, such as tradable permits or pollution charges, are often described as 'harnessing market forces' because if they are well designed and implemented, they encourage firms (and/or individuals) to undertake pollution control efforts that are in their own interests and that collectively meet policy goals. Market-based instruments can be classified into three major categories: price-based, rights-based and market friction (see Table 11.1).

Proponents of market-based instruments argue that the advantages lie in three areas. First, they correct market failure through the use of pricing signals which internalize the costs of environmental degradation and thereby provide a realistic valuation of environmental services. Second, they address pollution problems at the source, rather than 'end of pipe' discharges, by the use of incentives for conservation and technological change. And finally, within the suite of new tools are those that reduce the regulatory burden on business by prescribing neither targets nor technologies. Hence one of the most important features of these new approaches is that they promote the idea that private actors, private law and market mechanisms should have a central role to play in environmental regulation. For these reasons, Karliner (1997:41) argues they are the 'best, most preferable and most efficient method for transforming business practices'. However, though the rise of market-based instruments in the last 15 years has been rapid and expansive, in the main, policymakers have embraced a 'regulatory mix' of environmental policy instruments, arguing that a combination of

Table 11.1 *Classification of MBIs*

Classification	Description	Examples
Price-based	<p>There are two types of price-based market mechanisms:</p> <ol style="list-style-type: none"> 1. Setting or modifying prices to incorporate the cost of environmental degradation. For example, pollution charge systems assess a fee or tax on the amount of pollution that a firm or source generates. Consequently, it is worthwhile for the firm to reduce emissions to the point where its marginal abatement cost is equal to the tax rate. 2. Utilizing market mechanisms to allocate payments for ecosystem services. For example, through stewardship payments or auctions for conservation on private land. 	<p>Emission charges User charges Product charges Performance bonds Non-compliance fees Subsidies (materials and financial) Removal of perverse subsidies/taxes Deposit-refund systems Auctions, tenders, i.e. for biodiversity conservation measures</p>
Rights-based	<p>Under a tradable permit system, an allowable overall level of pollution (or extraction) is established and allocated among firms (or users) in the form of permits. Firms (or users) that keep their emission (or extraction) levels below their allotted level may sell their surplus permits to other firms (or users) or use them to offset excess emissions (extraction) in other parts of their facilities.</p>	<p>Tradable permits, rights or quotas Offset schemes</p>
Market friction	<p>Substantial gains can be made in environmental protection simply by reducing existing frictions in market activity. Three types of market friction reductions are discernible:</p> <ol style="list-style-type: none"> 1. market creation for inputs/outputs associated with environmental quality, as with measures that facilitate the voluntary exchange of water rights and thus promote more efficient allocation and use of scarce water supplies; 	<p>Extension / education programmes Research programmes designed to facilitate market exchanges Labelling Information disclosure</p>

Table 11.1 (continued)

Classification	Description	Examples
Market friction	2. liability rules that encourage firms to consider the potential environmental damages of their decisions; and 3. information programmes, such as energy-efficiency product labelling requirements.	

Sources: Stavins (2002), Whitten et al. (2003), Lockie (2012).

instruments, allowing for different contexts, will be more effective than traditional regulatory approaches alone (Gunningham and Grabosky 1998).

As articulated above, the key reason for the adoption of market-based instruments (MBIs) is their potential to deliver the same outcome as a command and control mechanism but generally at lower financial cost to industry and at lower overall net social cost (Whitten et al. 2003: 4). In Australia, a number of studies have assessed market-based biodiversity conservation programmes, specifically those that either establish auctions or provide stewardship payments for private landholders to achieve particular biodiversity conservation goals on their land. With a decade of implementation to draw on, researchers have found that beyond achieving the environmental objectives of the programmes, participating landowners have also benefited from their engagement.² Greiner (2013) states that, conceptually, social benefits can arise by MBIs providing: (1) income diversification opportunities for farming households and therefore new livelihoods for primary producers; (2) new economic opportunities for poor landholders and indigenous communities in return for the provision of environmental services, thereby helping to reduce poverty and dependence on social welfare; and (3) alternative income sources in rural and remote regions, thereby helping to retain rural populations and diversify rural economies, particularly in areas where there are few other opportunities.

However, social costs can also arise, for example, by MBIs: (1) imposing costs on pollution activities of businesses which cannot be offset or passed on to customers, thereby reducing enterprise viability and possibly forcing lay-off of workers or closure of businesses; (2) exacerbating wealth inequality in regions by excluding landholders with low security of tenure from participation; or (3) the ending of MBI programmes leaving participants disadvantaged in comparison to non-participants (Greiner 2013). Thus, while the advantages of market-based instruments have been

well documented and recognized, the potential for market mechanisms to have serious, negative implications for society is real. In the next section I explore the extent to which Australia's recent flagship water policy – arguably the '*piece de résistance*' of a market-based instrument – accounts for social equity issues in its design, implementation and review.

A CASE STUDY: CONTEMPORARY WATER POLICY IN AUSTRALIA

As population and development pressures have grown within many of the world's river basins, securing sufficient and safe water resources for consumptive purposes has become one of the most significant challenges of the twenty-first century. Indeed the fight for scarce water resources has become a source of conflict at the local and regional scales (for instance between landholders, and urban–rural sectors), as well as at the global scale, as disputes between Arabs and Israelis, Indians and Bangladeshis, Americans and Mexicans, and among all ten Nile basin co-riparians, attest (Wolf 1999). At the heart of such conflicts are questions of allocation priorities, legal rights, economic efficiency, environmental sustainability and, inevitably, considerations of justice, equity and human rights. But the dynamic nature of water resource management – including highly variable climatic conditions, terrain, land use and development priorities, and gaps in scientific understanding of surface and groundwater systems – means that successfully developing and implementing policy is no mean feat.

To date, considerations of social justice and welfare in relation to water resources have largely been restricted to the developing-world context, where populations' access to water for basic human needs is severely limited. Scholarship has also focused on the international dimensions of water resource management, incorporating the challenges of transboundary waterways and the equitable allocation of water between nation-states (see Giordano and Pietz 2011; Connell 2011; Campbell 2011; Kramer 2011). However, the interface between social justice, equity and environmental resources – particularly for water – exists at a number of different levels, and recent water policy reforms in industrialized countries raise important questions. Recent reforms in Australia provide an excellent case in point.

Water Policy Reforms in Australia: The National Water Initiative

Australia has moved to a system of natural resource management that is governed by the principles of neoclassical economics and the belief that

the individual pursuit of self-interest will reallocate water to the most efficient and high-value uses (Eckersley 1995). There is now a reliance on property rights (crucially, their durability and security) and market-based instruments. These principles have been applied across sectors, including marine fisheries management, carbon emissions and sequestration, biodiversity conservation, and now water resource management. In the latter domain, the policy framework is focused principally on two instruments as the most efficient means for allocating scarce water resources: water trading and full cost recovery pricing. However, the shift in policy to one advocating market solutions raises important questions in relation to how basic resources should be distributed and redistributed. As Connor and Dovers (2004: 120) state:

Above all, a change in the property rights regime changes the logic of access to resources and how that access is distributed and redistributed. In so doing, it drives a transformation in the social construction of fairness or equity. Under PRIs, ecological integrity and economic efficiency achieve parity with, and may altogether trump equity, as the traditional first priority in distributional logic of resource access.

Thus, while the design and implementation of Australia's water reform agenda has been applauded domestically and internationally, its very intent – to reallocate water between users using market signals – has very real implications for Australian society.

The 2004 National Water Initiative is the culmination of a long history of water reform in Australia, but it is particularly distinctive owing to the varied ideas and realities that have pushed it forward. The first of these concerned the increasing urgency of water scarcity as a result of rising numbers of water 'users' (including the environment), increased climate variability and the frequency and intensity of drought, and growing cognizance of the physical and economic limitations to expanding supply. Certainly, a body with some influence in the development of the NWI – the Wentworth Group of Concerned Scientists – did much to highlight the urgency and unsustainability of Australia's natural resource management practices:

Our land management practices over the past 200 years have left a landscape in which freshwater rivers are choking with sand, where topsoil is being blown into the Tasman Sea, where salt is destroying the rivers and land like a cancer, and where many of our native plants and animals are heading for extinction. (2002: 3)

That these imperatives were persuasive is evident in the NWI's emphasis on environmentally sustainable levels of extraction. However, the equally

persuasive economic rationalism discourse (based on neoliberal philosophies and neoclassical economics) was already permeating Australia's policy style, across policy domains (Hussey and Dovers 2007). In the context of the NWI, these ideas were focused on efficiency of water use and the central role of the market to achieve it. The result was a framework heavily reliant on the establishment of efficient water markets, which required revision of the water allocation regime across jurisdictions. However, the changes to the allocation regime were in turn subject to significant advocacy in the formulation stages, stressing the need for security and predictability of water entitlements for extractive users, in particular for irrigated agriculture.

At this point it is useful to separate two related yet different imperatives in the allocation aspects of the NWI: the first, a social imperative, relies on public subsidy and long-term planning; the second, an economic imperative, advances the primacy of efficiency and market forces. The former is the social imperative of maintaining water-dependent communities even where they 'will never be economically viable but need to be maintained to meet social and public health obligations'.³ The second relates to the economic imperative of productivity, competition in export trade, and efficiency in inputs. Both of these provisions are reflected in the Preamble of the NWI:

The Parties agree to implement this National Water Initiative in recognition of the continuing national imperative to increase productivity and efficiency of Australia's water use, the need to service rural and urban communities, and to ensure the health of river and groundwater systems by establishing clear pathways to return all systems to environmentally sustainable levels of extraction.⁴

To achieve these three goals, the NWI was designed to address critical issues of overallocation, inefficiencies, inconsistencies and lack of coordination across jurisdictions, and inadequate water planning. It includes key milestones such as the immediate removal of barriers to temporary trades in water, and the implementation of compatible and publicly accessible and reliable water registers. However, it was the establishment by 2007 of compatible institutional and regulatory arrangements to facilitate intra- and interstate water trading that is the key objective of the NWI, from which everything else follows. In the following section I examine three aspects of the NWI which have direct implications for particular communities, as well as for society more broadly: (1) water trading in the rural sector; (2) full cost recovery pricing in the urban sector; and (3) the incorporation of rights specific to Indigenous Australians.

IMPACTS OF WATER MARKETS ON RURAL COMMUNITIES

The economic principle behind competitive markets for water is that they allow water to be traded so that those users with the highest marginal value (after accounting for transport and transaction costs) are able to purchase water from lower-value uses. In theory, this exchange is welfare-enhancing to the buyer and the seller and it promotes efficiency. Trading establishes the market price – that changes with environmental conditions and economic circumstances – which signals to all water users its relative value (Grafton and Peterson 2007). In Australia's water trading system, there are two types of permits or 'rights' that can be traded. 'Permanent entitlements' are those entitlements that grant the owner long-term access to a volume of water, which does not change over time. 'Seasonal allocations', as the name suggests, are a right to a volume of water which varies from season to season, and which is calculated as a share of the volume of water actually held in storage, minus up-front commitments,⁵ and the losses incurred by the storage and delivery of water (for example, seepage and evaporation). For seasonal allocations, the available water resources are assessed before the start of the irrigation season, and an announcement is made of the seasonal allocation available at that time. The available resources are then regularly reassessed during the irrigation season and any changes to the allocation are widely publicized. If rain has significantly increased inflows to the storage, or reduced demand, the seasonal allocation is increased consistent with the above principles.

Designing markets for water is complicated by a number of factors. First, unlike markets for consumer products, water is a basic human need such that governments try to ensure that it is available at reasonable levels to everyone. Second, if there are externalities, or costs imposed on others from using water, and these are not accounted for, then there will be a divergence between the economic and market or financial price of water for its use. Third, water scarcity is not just an issue of water availability or supply, but is closely linked to the nature of its demands. These demands are influenced by the level of treatment (households demand a year-round and safe supply of water that requires expensive treatment, while irrigators demand water only at specific times of the year that requires no treatment), reuse (water in a river can be reused many times depending on its applications) and jointness (water in a dam can jointly supply demand for electricity, recreational demands and also household demands) (Griffin 2006). Finally, the competitive allocation and price of water is constrained by the myriad jurisdictional provisions for water allocation. These rights may include extraction rights or delivery rights, and they may differ across

jurisdictional boundaries yet refer to the same water body. This creates significant regulatory fragmentation across boundaries, which in turn poses difficulties for efficient water pricing and trading. Largely owing to this regulatory fragmentation, water trade in Australia is mainly limited to transactions between irrigators, but of both permanent and seasonal allocations. The most active trading region is in the southern Murray–Darling Basin, but markets have expanded considerably over the past decade and are expected to develop further (NWC 2011).⁶ Surface water trading by irrigators, in seasonal allocations in particular, is widespread in many irrigation districts. Markets for derivative products for water, such as leases and forward contracts, are also emerging, largely in response to irrigators' preferences for more flexible trading arrangements.⁷ Combined with developments in information and communication technologies, the water trading system that has emerged in Australia over the last decade is perhaps the most sophisticated in the world. But does water trading meet its environmental, social and economic efficiency objectives?

In the most recent assessment of the NWI, the National Water Commission found strong evidence that 'NWI-driven reforms to water markets and trading have delivered significant economic benefits to Australia, and to the Murray–Darling Basin in particular' (NWC 2011: 62), which confirmed findings in earlier studies that economic efficiency has indeed been improved by water trading as water has moved from irrigators producing low-value commodities to higher-value commodities (NWC 2010; McKay and Bjornlund 2001; Young et al. 2006). One particularly encouraging case in point was the production of rice in the Murray–Darling Basin. Rice production is highly water-intensive and, in Australia, is very sensitive to the price of water: rice farmers are better off selling their water allocations and not planting when water prices reach a particular point. Rice has a gross margin of approximately \$100–200 M/L, which means that once the price of water exceeds that amount, rice growing can become unprofitable and rice growers may make a higher return from selling water allocations on the water trading market. At the height of the Millennium drought in 2007–2008, the price of allocation water rose to more than \$500 M/L, and stayed high (\$380 M/L) in 2008–2009. Consequently, the level of rice production was very low in that period, and a large volume of water was traded out of the rice-growing region and into regions producing more profitable products (such as horticulture) (NWC 2011: 71).

Water trading also helps irrigators (buyers and sellers) to manage and respond to external drivers, including changes in seasonal water availability, commodity prices, input costs, government water policies and social trends, by giving them more flexibility in their production decisions, which has in turn improved their cash flow, debt management and risk

management (NWC 2010). Water trading has also assisted individual irrigators in making complex, long-term decisions in the context of drought and the possible effects of climate change. A citrus grower in the New South Wales Murrumbidgee region noted:

We grew vegetables till the drought set in and the water market price went up. Out of the four or five years we barely broke even. It was far more profitable for us to trade water out and we actually make a profit for a change. I haven't finished developing my property yet, so I have quite a parcel of water available to trade. When my property's fully developed, I will need all the water I've got. Water trade actually allowed me to stay and continue – otherwise I think I would have been bankrupt. (cited in NWC 2011: 69)

McKay and Bjornlund (2001) also found that water has moved from irrigators with less efficient irrigation technology to those with more efficient technology. More efficient irrigation practices have two positive environmental impacts: first, they reduce the volume of water leaching into the water table; and second, they reduce drainage flow back into the waterways which can affect water quality (McKay and Bjornlund 2001: 143). Thus, reflecting the intended objectives of the NWI, water trading has encouraged better irrigation practices which have in turn increased the volume and thereby the dollar value of output per unit of water input, ultimately either maintaining or sometimes even generating more jobs and income in some rural communities (NWC 2010, 2011). The most remarkable statistic to support this finding is that agricultural productivity only declined 1 per cent during the years of the Millennium drought (1999–2010).

Notwithstanding the benefits of water trading for maintaining the economic viability of rural communities, there are a number of consequences of water trading which pose particular challenges for rural communities. First, water markets have caused a consolidation of irrigated farmland into larger, more profitable operations. Many agricultural research agencies believe that larger farmers are more likely to be able to survive in the present globally competitive environment. However, this process has also seemed to polarize the irrigation communities into two groups: one consisting of large family operations depending on a non-family workforce, and a group of smaller properties depending on off-farm work (McKay and Bjornlund 2001). The consolidation of larger agri-businesses in the water market could affect the efficient operation of the water market, which could in turn distort the price signal and the incentive it provides to water users. For example, if a large purchaser of water has market power in the sense that its actions affect the price paid, then it is possible that sellers of water may receive less for their water than if the market were competitive. This benefits the buyer at the expense of sellers, can reduce the amount of water traded, and may

also distort the price of other goods that use water as a factor of production. This poses a particular problem for small and medium-sized enterprises that are effectively squeezed out of the market by large agri-business. The high volume of trade in seasonal allocations in the southern Murray–Darling Basin suggests this will be less of a concern on the seasonal market, but the lower volume of trade in permanent entitlements could provide an opportunity for this kind of opportunistic behaviour. This ‘squeezing out’ of small and medium-sized enterprises – while clearly respecting the principles of economic efficiency – could well alter the fabric of rural society, and the value of doing so should at the very least be subject to scrutiny and debate (which has hitherto been somewhat muted on this point).

A second consequence observed is that water trading has polarized the irrigation community into two different classes of irrigators: a ‘water-rich’ class, which can continue high production during drought; and a ‘water-poor’ class, which is exposed to reduced production during periods of drought (McKay and Bjornlund 2001). This last development raises important questions about the equity of water trading and its long-term social impacts. If we recall the example of rice production mentioned earlier, certainly the reduction in the production of rice as a consequence of water trading was economically efficient (and intuitively sensible), but it in turn affected production and employment in associated industries, and populations have declined in some rice communities as a consequence. For example, the rice mills in Deniliquin and Coleambally were mothballed in 2007, leading to over 100 job losses (NWC 2011).

A third concern with water trading is the impact it might have on third parties, for example through the so-called ‘stranded asset’ problem. The ‘stranded asset’ problem occurs when less efficient producers are forced out of the market by the price of water, but the remaining, efficient and productive farmers are left with enterprises that may not be viable owing to a lack of critical mass to sustain the farming community. An example to illustrate: a farming community of 50 farms enters the market for water. Of the 50 farms, 20 are less efficient producers and it is economically unviable for them to continue in the industry, and so they are forced to down tools, sell their water rights, and leave the area. The remaining 30 farms are left with a community half the size, without sufficient economic activity to sustain the community’s infrastructure, such as schools and banks, or to maintain the costly irrigation systems on which their industries rely. Now, in this new situation, the efficient farmers are left with assets that cannot be sold (except to large agri-business) owing to the lack of community and social infrastructure: ‘stranded assets’ (Roper et al. 2006). In some jurisdictions, to discourage farmers from leaving the community and therefore to avoid the stranded assets problem, authorities introduced ‘exit fees’ or

caps on the amount of outward-bound trading that could be undertaken. However, such approaches are contrary to the principles of free markets and, ironically, create a perverse outcome for some irrigators (cited in NWC 2011: 35): 'The NSW government embargo on the trading of water, it kicks some people pretty severely because there are a lot of people that were in the process of trading their water not because they wanted to necessarily, but because they had to [to alleviate debt].' In similar terms, an irrigator in the NSW Murray noted: 'now they have embargos put on them so they can't actually sell their water and that is truly devastating'.

With respect to the issue of 'stranded' irrigation assets, and due to concerns about the potential barriers to trading associated with exit fees and trading caps, the state governments and water businesses in the southern Murray–Darling Basin (where the majority of trading takes place) have unbundled or separated water access entitlements from delivery rights. Ongoing cost recovery for the maintenance of irrigation systems is thus then linked to the delivery rights. This means that the sale of water access entitlements does not eliminate an irrigator's obligation to pay for system infrastructure and that liability can only be removed if the irrigator ceases to hold a delivery right, which can incur a termination fee (NWC 2011). Despite the potential for stranded assets to be a significant consequence of water trading, the 2011 biennial assessment of the NWI found that third-party impacts of water trading were either small (particularly compared to the impacts of drought) or were adequately managed by other instruments, such as the unbundling and termination fees described above.

A fourth consequence of water trading relates to the environmental objectives of the NWI. Reflecting growing public concern for the environmental health of Australia's water resources, the NWI requires the complete return of all currently overallocated or overused surface and groundwater systems to environmentally sustainable levels of extraction. Water that has been identified by the states and territories to meet agreed environmental and other public benefit outcomes is to be given statutory recognition and 'at least the same degree of security as water access entitlements for consumptive use' (n. 39 at 35(i)), and only water that is not required to meet environmental outcomes can be made available for trading. In this way, the NWI is a major step forward in Australia's approach to environmental management. However, to achieve 'environmentally sustainable levels of extraction', state and territory governments are required to 'claw back' annual licences from farmers in fully allocated or overallocated systems, for environmental flows. Where and when these allocations are to be 'clawed back' is determined by water planners, and the NWI optimistically states: 'water plans have been transparently developed to determine water allocation for the entitlements; regular reporting of progress with implementing

plans is occurring; and a pathway for dealing with known over allocation and/or overuse has been agreed' (n 39, at 35(i))

In one sense this is true. The *de jure* position of governments was simple: annual licences entailed no permanent property right, so there was no legal requirement to compensate irrigators for water clawed back to provide sustainable environmental flows or for other public purposes. However, the *de facto* position facing the water planners in the regions was that it was considered economically, socially and politically unacceptable to claw back more than a marginal amount of water without some form of adjustment assistance. By and large, the states did not have such programmes in place to deal with the scale of adjustment required in severely overallocated systems, or in areas suffering significant adverse landscape change (for example, salinity or waterlogging). As McKay (2007) put it: Across the country, officials knew never to mention the 'C' word – 'compensation' – and farmers continue to argue their 'right' to compensation. However, in recent years and thanks largely to the devastating Millennium drought and the 2007 Water Act that it brought about, significant financial resources have been transferred to rural communities, with \$3.5 billion allocated to buying water from farmers, and almost \$6 billion allocated to infrastructure upgrades. The economic efficiency of both buy-backs and infrastructure upgrades to the Australian taxpayer is questionable (see Grafton and Hussey 2007; Wittwer and Dixon 2013), though clearly political and social imperatives necessitated such transfers.

Finally, another issue of equity exists around conflicting delivery priorities in the delivery of water that has been 'bought' and 'sold' through water trading; that is, who gets priority in specific channels when and where capacity constraints are binding? This is emerging as a potential problem in relation to water rights that have been purchased for environmental flows and which may in turn be traded on the water market, so-called 'environmental water' which is held by 'environmental water holders'. This 'e-water trade' has so far been limited to a few mega-litres, but the largest environmental water holder is the Commonwealth, which will have >2000 GL in its possession by the end of 2013. The sheer volume of water held by environmental water managers (again, almost entirely by the state and Commonwealth governments) may cause considerable angst to other actors in the market, particularly when water is scarce (see Hussey forthcoming). Such angst might materialize if irrigators or other stakeholders consider the new trade regime to be:

- working against the nascent water market in the Murray–Darling Basin (MDB), for example if environmental water holders are seen to be – or are – exploiting their market power;

- counter-intuitive to the government's earlier claims that environmental water had to be acquired for the long-term sustainability of the MDB (that is, 'If you needed to buy 2000 GL to secure the long-term sustainability of the MDB, why are you now putting some of it back out to market?'); and/or
- a revenue-generating exercise for the Commonwealth and other major environmental water holders in the Basin.

To mitigate these political and, potentially, social risks, governments need to ensure that the introduction of trade in environmental water is seen to be supporting and reinforcing current policy and institutional settings, and to that end they must clearly and consistently identify and communicate the objectives, priorities and 'measures of success' of e-water trade. This is a very new dilemma in the reform landscape and is unfolding at time of writing.

PRICING SIGNALS IN THE URBAN SECTOR

While almost all water utilities in Australia are controlled by state, territory or local governments, the structural, institutional, governance and regulatory arrangements vary significantly between jurisdictions and between metropolitan and regional areas (PC 2011: XVII). The structure of the sector has changed over the past two decades, and has been the subject of interest and reform dating back to the 1980s. However, reforms began in earnest after the 1994 water reform framework was agreed to under the Council of Australian Governments (COAG), and have continued to evolve through the NWI and most recently the 2010 NWI Pricing Principles (NWC 2011: 77). As in the rural sector, the reform agenda in the urban sector is driven by the principles of neoliberal economics, and the primary focus of the reform effort has been on the corporatization of water utilities, and urban water pricing, encompassing:

- Pricing, specifically to achieve 'full cost recovery' pricing and remove all government subsidies to urban water delivery.
- Tariffs, specifically to introduce consumption-based charges to provide a signal to consumers for more efficient water use, and to ensure that fixed charges reflect the fixed costs of service provision.
- Price-setting processes and related institutional arrangements, to move towards independent economic regulation of water prices, with those regulators tasked with ensuring that only 'efficient' costs are recovered through prices, and that those costs are sufficient to

provide the levels of service that customers are willing to pay for and maintain the economic viability of the service provider in the long term (NWC 2011: 77).

On the corporatization of utilities – reflected in the NWI as those entities having a ‘stronger corporate focus’ – the consequence has been confusion around the objectives of those entities, as they juggle to meet often opposing economic, environmental and social imperatives in the supply of water. In a 2011 review of the urban water sector, the Productivity Commission concluded that: ‘Governments are assigning multiple objectives to their agencies, utilities and regulators, with inadequate guidance on how to make tradeoffs among them’ (PC 2011: XIX), and they used the mandate of the Queensland Competition Authority to illustrate the point (see Box 11.1).

Utilities are still grappling with how to reconcile those competing objectives, despite significant progress in all jurisdictions to separate the functions of service delivery, cost recovery, and economic oversight (NWC 2011: 79).

While the corporatization of the sector has taken place slowly but surely over two decades, the severity of the Millennium drought exposed the vulnerability of Australia’s urban centres to water scarcity and precipitated rapid, often ill-considered policies to stave off the worst of it. For example, new sources of supply were commissioned, mostly through very costly desalination plants (Barnett and O’Neill 2010). Managing demand was also a priority, primarily through the imposition of very strict water restrictions and consumption targets, but also through subsidies for conservation measures such as water-efficient appliances and fittings. The severity of the drought certainly necessitated immediate responses, but the efficacy of those responses has been criticized very heavily by scholars and commentators, and most publicly by the Productivity Commission’s (PC) independent review in 2011.

Interestingly, while the PC report reiterated the key principles for urban water reform espoused in the NWI, it went significantly further, advocating complete microeconomic reform of the sector with the centrepiece concerning water pricing. In particular, the PC report recommended the application of flexible (scarcity-based) pricing at the retail level, which sees the price of volumetric water adjust flexibly upwards as the amount of water in storage declines (Grafton and Kompas 2007). In keeping with economic principles, pricing urban water to balance demand with available supply is economically efficient, and also provides the appropriate signals to users as to the value of water they are using (Sibley 2006; Grafton and Ward 2010; PC 2011). Such pricing also promotes

BOX 11.1 THE CORPORATIZATION OF THE URBAN WATER SECTOR: MULTIPLE AND CONFLICTING OBJECTIVES, REPRODUCED FROM PC (2011: XX)

Under its legislation, the Queensland Competition Authority has to have regard to the following matters when making a price determination:

- the need for efficient resource allocation;
- the need to promote competition;
- the protection of consumers from abuses of monopoly power decisions by the ministers and local governments under part 3 about pricing practices of monopoly business activities involving the supply of water;
- the legitimate business interests of the water supplier carrying on the monopoly water supply activity to which the determination relates;
- in relation to the monopoly water supply activity:
 - the cost of providing the activity in an efficient way, having regard to relevant interstate and international benchmarks;
 - the actual cost of providing the activity;
 - the quality of the activities constituting the water supply activity;
 - the quality of the water being supplied;
- the appropriate rate of return on water suppliers' assets;
- the effect of inflation;
- the impact on the environment of prices charged by the water supplier;
- considerations of demand management;
- social welfare and equity considerations, including community service obligations;
- the availability of goods and services to consumers and the social impact of pricing practices;
- the need for pricing practices not to discourage socially desirable investment or innovation by water suppliers;
- legislation and government policies relating to ecologically sustainable development;

- legislation and government policies relating to occupational health and safety and industrial relations;
- economic and regional development issues, including employment and investment growth.

innovation in terms of supply. The key point, proponents argue, is that the price of water must reflect its opportunity cost in use and non-use, balance supply with demand, and provide appropriate signals for conservation and efficiency.

But flexible or scarcity pricing is a distinct shift from the current use of increasing block tariffs (IBTs) consisting of a fixed tariff and a variable tariff based on consumption (and therefore unrelated to supply). It is also a step further than those pricing mechanisms advocated through the NWI. Moreover, the PC report also recommended far more ‘flexibility’ in water pricing, advocating instead that water utilities should provide a range of ‘service tariff offerings to cater for differences in consumer preferences’ (PC 2011: XXXIII). It argues that multiple service offerings would ‘give consumers choice, instead of having an “essential” level of demand prescribed for them’, and ‘provide an opportunity for retailers to more efficiently manage demand as supply changes over time’. Precisely what the water sector would look like if this complete reform package were to be implemented remains to be seen, but it would certainly represent a transformation in the way water is perceived and managed in the urban sector. But what would the impacts of such a transformation be for the most vulnerable in society?

While many are sceptical of the intentions behind and consequences of microeconomic reform, the primary rationale offered for the NWI and, more recently, PC reforms is based on minimizing costs to consumers, particularly those in the lower socio-economic strata. For example, the efficacy of water restrictions as a policy tool has been the subject of much attention, with numerous studies indicating that the net social cost of restrictions can be large, and that ‘the distributional consequences are likely to have been regressive with respect to income’ (PC 2011: XVIII). The ongoing cost to consumers of very expensive and arguably unnecessary supply augmentation was also put forward as justification for significant reform, on the basis that those decisions were essentially political, and thus not based on rigorous and objective cost–benefit analysis which might otherwise have been undertaken had the institutional arrangements demanded it.

There are two ways to achieve social equity and affordability in urban

water pricing. The first is to set a tariff structure such that a certain volume of water consumed by the household is priced at or below cost, to allow for essential needs, with consumption above that level priced to recover full costs (that is, more expensive), which is the increasing block tariff (IBT) model. The second way is to develop an income support policy, to redistribute income through the tax system or social security. At present in Australia, both systems operate, though both have been criticized for not achieving equitable outcomes. Chan (2012) states that 'IBT does not account for household size and therefore punishes low income households with many members or those of low socio-economic status who share accommodation and water meters . . . on the other hand, higher income households with few members benefit from the IBT structure'. To address this deficiency, some countries adjust their IBT structure for household size, but this has involved substantial administrative costs to maintain databases on household sizes and monitor and enforce compliance. Concessions granted to low-income households through the tax or social security system are also criticized, owing to 'complex eligibility criteria' and the administrative difficulties encountered by some families who try to access them (Chan 2012).

For its part, the PC downplayed the significance of water prices in financial hardship, stating that 'the rising levels of financial hardship reported by community organizations are the result of price increases more generally (food, housing, petrol, other utility services) rather than increases in prices in the urban water sector' (PC 2011: XXXIV). Nevertheless, the PC's preferred mechanism for addressing affordability issues are those assistance measures delivered through the social security system, ideally through a rebate (concession) on the fixed service charge.

It is not overstating it to say that the urban water sector in Australia is in a state of flux: significant reform proposals have been tabled, and mostly agreed to, with some success evident in the implementation of new regulatory arrangements, and a clarification of roles and responsibilities between the different actors. However, the sector as a whole is still grappling with the challenges (and, arguably, the value proposition), of the more fundamental pricing reforms advocated by the Productivity Commission, and there is no consistency in approach across the various jurisdictions. It is, therefore, very difficult to assess the impact of these particular market-based reforms, at this time. However, the potential negative impacts to society from the reforms has been flagged, and one of the recommendations of the 2011 PC report was for COAG 'to commission a review of concessions on all utility services across all levels of government' (PC 2011: XXXIV). This remains to be done.

INDIGENOUS RIGHTS IN THE NWI

In addition to the impacts on rural and urban communities, widespread Indigenous disadvantage provides further cause for consideration of the socio-economic impacts of water reform on regional economies, and some important research exists on the topic (Altman 2004, 2005; Jackson and Morrison 2007). The NWI represents a substantial change from previous national water policy in at least one other respect: it explicitly recognizes the special character of Indigenous interests in water. Parties to the NWI have agreed that water access entitlements and planning frameworks should recognize Indigenous needs 'in relation to access and management' (NWI 2004: n. 39, at [25(ix)]). Indigenous access is to be achieved through planning processes that:

- include Indigenous representation in water planning, wherever possible;
- incorporate Indigenous social, spiritual and customary objectives and strategies for achieving these objectives, wherever they can be developed;
- take account of the possible existence of native title rights to water in the catchment or aquifer area;
- potentially allocate water to native title holders; and
- account for any water allocated to native title holders for 'traditional cultural purposes'. (NWI 2004: n 39, at [52]–[54]).

Three other clauses relate specifically to Indigenous interests. Firstly, water plans are to provide a statutory basis for achieving 'environmental and other public benefit outcomes', and these include 'Indigenous and cultural values' (NWI 2004: n 39, at [25], Schedule B(ii)). Secondly, Schedule E to the Agreement provides guidance for the preparation of water plans, including a requirement to consider Indigenous water use. Thirdly, protection of certain Indigenous heritage values is included as a principle to guide the establishment of water trading rules. According to these principles, restrictions on extraction, diversion or use of water resulting from a trade can be made to manage, *inter alia*, 'features of major indigenous, cultural heritage or spiritual significance' (NWI 2004: n 39, at Schedule G, [3(v)]). The above provisions provide a much-needed impetus to addressing Indigenous people's customary requirements for water, as well as enhancing their participation in water management systems (Jackson and Morrison 2007).

Despite the opportunities in the NWI for greater integration of Indigenous interests in contemporary water policy, Jackson and

Morrison (2007) highlight three issues that may affect the degree to which Indigenous people actually benefit from it. Firstly, most of the NWI provisions are expressed in discretionary terms (McFarlane 2004). Although this provides flexibility to suit a wide array of circumstances, impediments and competing priorities may hamper the extent to which Indigenous objectives are addressed. Close monitoring of water management planning processes and the impact of trading systems will be required to determine the extent to which this and other related requirements are satisfied. Secondly, little guidance is provided to water resource managers seeking to address objectives relating to Indigenous access and involvement (see also Connell et al. 2006). Researchers, Indigenous groups and policymakers will need to collaborate to overcome several key challenges that may impede progress; namely, limited knowledge of how to address Indigenous water requirements and the degree of technical difficulty, lack of Indigenous and government agency capacity, as well as the impediments posed by uncertainty, contestation and lags in native title claims processes (e.g., NSW Healthy Rivers Commission 1999).

Thirdly, implementation emphasis is squarely placed on protecting Indigenous customary values (which are construed as non-market values) and meeting legal requirements to protect native title. The NWI actions reflect statutory frameworks for native title and interpretations of Indigenous resource interests that are, by numerous academic accounts, 'insufficiently inclusive in their definition of water property' (Altman 2004). Furthermore, the property rights conferred by the Native Title Act 1993 are only partial, covering customary use rights and the wording in the NWI, where 'water allocated to native holders for traditional cultural purposes is to be accounted for' (NWI 2004: n 39, at [54]), suggests an intention to preclude commercial uses under the definition of native title rights, although the absence of definition leaves some doubt as to what is intended. In light of Australian government commitments to overcome Indigenous disadvantage, it is significant that no explicit obligation is placed on the parties to utilize this market-based policy framework to advance Indigenous people's economic standing.

In the 2011 biennial assessment of the NWI, only minor advancements were observable in relation to Indigenous inclusion in water planning and management, while most jurisdictions have 'generally failed to incorporate effective strategies for achieving Indigenous social, spiritual and customary objectives in water plans, as envisaged under the NWI' (NWC 2011: 46). Clearly, this is a damning finding.

DISCUSSION AND CONCLUSION

The shift to market-based instruments in environmental policy has involved a fundamental change in distributional logic and in the culture of resource use. Contemporary Australian water policy places enormous store on the principles of neoclassical economics, and implicit in this is the assumption that other, subsidiary goals will be 'better able to take care of themselves if we get the economics right' (Connor and Dovers 2004: 120). It is clear from this chapter that while the efficient allocation of water resources through market signals presents obvious benefits to Australia's environment, economy and society, there are a number of issues that have arisen which raise important questions about equity, fairness and justice. Some of these issues have been dealt with over the last few years, some remain to be dealt with and are the subject of the upcoming 2014 biennial assessment of the NWI. On the latter, it is worth noting that the very existence of a comprehensive, objective, well-resourced and publicly available biennial assessment procedure is testament to the desire of those involved in Australia's national water reform agenda to 'get it right'; a fact that receives little credit but which is, arguably, the embodiment of democratic and adaptive policymaking.

I stress this point because there is a tendency amongst scholars and commentators to examine the use of market-based instruments in isolation from the broader regulatory and institutional landscape in which they exist, which in turn skews the outcomes from such examinations. Policy interventions, including market-based instruments, do not arrive in a policy vacuum: they are almost always overlaid on top of an existing, entrenched and often fragmented policy and legal landscape, which already encompasses a raft of rights and obligations. This is certainly the case in the areas of social welfare and environmental protection, with dense bodies of law in both spheres developed over the last century. Understanding how those existing interventions operate independently, how they relate to each other and to new interventions, and through what processes of review and evaluation these judgements will be arrived at, is critically important if we are to understand both the opportunities and limitations of market-based instruments.

Given the misgivings held by some about market-based instruments, the findings presented in this chapter are, perhaps, encouraging. Concerns about the adverse impacts of water trading usually centre on the economic viability of rural and regional communities, and the possible decline of those communities as a result of outgoing interregional trading. However, the impact of changes in irrigated agriculture on the broader regional economy is likely to depend on the relative importance of irrigated

agriculture to the region. Regions that have a broader base of industries will tend to be more resilient to changes attributed to water availability and water trading. Conversely, regions with a high economic and social dependence on irrigated agricultural industries may face considerable adjustment pressures where there is a long-term reduction in the water available for irrigation (through climate change, changes in regional water use due to water trading, or both). Potential changes in those regions may include any combination of reduced population, lower incomes and higher unemployment (NWC 2010: 61). However, the socio-economic trends analysed in the 2011 biennial assessment of the NWC indicate that a range of factors other than water trading (drought, general economic conditions, commodity prices and social factors) are more important in influencing the long-term viability of communities. Indeed, water trading does not seem to play a significant role at the regional level, and the 2011 biennial assessment found that no region was made materially worse off as a result of water trading from 2006–2007 to 2008–2009. However, there is evidence to suggest that water trading may reinforce the effects of some underlying drivers of change, such as drought and commodity prices (NWC 2010: 69). But is that necessarily a bad thing?

The analysis above of the impacts of water markets on rural communities illustrates that the water market is doing precisely what it is designed to do: allocating a scarce resource in the most economically efficient way possible. The benefits of trading to regional economies and communities have been proven and documented; a particularly remarkable outcome given that the period of implementation coincided with the worst drought in Australia's recent history. Nevertheless, there have been some, relatively small, negative impacts for some producers, regions and third parties, which have been addressed in subsequent reforms to trading arrangements. The impact of 'environmental water trading' on the broader trading system remains to be seen, but rules to limit third-party impacts are currently being drafted by the federal and state governments.

All that said, and despite the overwhelmingly positive impacts of water trading on local and regional communities, the outright rejection by some of those communities of the draft Murray–Darling Basin Plan in 2010 was a stark reminder of the power of perception over reality. Without doubt, the rejection illustrated that a distinct miscommunication exists between water management professionals and the communities that they serve. As Syme and Hatfield-Dodds (2007) point out, management agencies and policy advisors tend to emphasize efficiency, control and industry outcomes; while the general community tends to view reform proposals primarily in terms of fairness and distributional impacts, revolving around 'the distribution of benefits and the costs of services, and who pays, and

the distribution of risks . . . who is vulnerable, and to what degree' (Delli Priscoli 1998, cited in Syme and Hatfield-Dodds 2007). These underlying concerns provide fertile ground for disaffected groups and disadvantaged interests seeking to block worthwhile change. In this respect, an incentive exists for policymakers to understand and better communicate the equity and distributional effects of any given environmental policy, in this case the use of a market-based instrument to manage water resources.

In the urban sector, the social impacts of market-based reforms are 'messy' and the narrative harder to discern. Certainly, the NWI and more recently the review undertaken by the Productivity Commission has laid the groundwork for very significant microeconomic reform of the sector, and implementation of some aspects of that reform agenda has been impressive. The corporatization of water utilities has presented challenges for those entities, but also the necessary preconditions for the implementation of the microeconomic reforms espoused by the NWI and PC. However, the sector appears to still be 'in transition', with decisions made during the recent drought weighing heavily on current accounts, and indeed the absence of a drought largely removing the impetus for further reform. Nevertheless, the rationale for microeconomic reform seems grounded in the principles of fairness and equity, and a thorough review of existing redistribution schemes would serve only to increase the integrity of future reforms.

Finally, where the explicit incorporation of Indigenous interests in the NWI was at first applauded, it is clear that after almost a decade since its inception almost all jurisdictions have failed to act on their obligations, and this despite the investment of significant funds by the National Water Commission for projects relating to Indigenous water management, and indeed the tabling of considered and appropriate 'advice' by the First People's Water Engagement Council, and the endorsement of those rights by the National Water Commission. As with all the provisions of the NWI, the vast majority of responsibility lies with state and territory governments, which exhibit a distinct lack of urgency in their management of Indigenous rights.

NOTES

1. See, *Convention on the Elimination of all forms of Discrimination Against Women* 1249 U.N.T.S. 513 (entered into force 3 September 1981), Article 14(2)(h); *Convention on the Rights of the Child* 1577 U.N.T.S. 3 (entered into force 2 September 1990).
2. For a collection of excellent articles on the subject, see the themed special issue of *Land Use Policy*, 'Social dimensions of market-based instruments', 31: 1–660 (March 2013). Guest editor Romy Greiner.

3. Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative* (25 June 2004) [66(v)].
4. *Intergovernmental Agreement on a National Water Initiative*, n. 39, at [4].
5. The up-front commitments include urban water supplies, environmental flows, and carryover when it is permitted.
6. Trade in water entitlements, sometimes called 'permanent trade', involves moving the property right of a water entitlement in perpetuity. Trade in water allocations, sometimes called 'temporary trade', involves moving water allocations on a short-term basis, usually within an irrigation season.
7. Some of these derivatives can also have financial management and taxation benefits, compared with water entitlements.

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PART III

MAKING AND IMPLEMENTING

12. The interaction of EU climate policies: mechanisms and lessons

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INTRODUCTION

A ‘new drive’ took place in European Union (EU) climate policy from 2005 on, resulting in a number of revised or new climate policies, with the 2008 climate and energy package as the ‘jewel in the crown’ (e.g. Jordan et al. 2010; Wurzel and Connelly 2011; Boasson and Wettestad 2013). There are good reasons to assume that policy interaction was a prominent feature of the policy development process. For instance, the European Commission (hereafter: Commission) gave policy integration much attention, calling the climate policy outcomes ‘an integrated package’. But the actual EU climate policy coherence was being questioned when the climate package was adopted in December 2008. The British economist Dieter Helm argued that ‘EU climate policy has multiple instruments, the overlaps between which have not been adequately considered . . . [and] as a result, the package is very unlikely to have the intended effects, and it will be high cost’ (Helm 2009: 8; see also Carbon Trust 2008). Subsequent events have shone further critical light on the actual integration and coherence of EU climate policy. Not least, the growing success of renewables and the adoption of more binding and effective energy efficiency policy threaten to further undermine the sagging demand for allowances within the EU Emissions Trading System (ETS).

Climate policy interaction has gained increased attention from political scientists and economists in recent years (see Helm and Hepburn 2009; Oberthür and Stokke 2011), but important work remains to be done to further clarify the underlying mechanisms that drive climate policy interaction and shape ultimate policy coherence. This chapter discusses how central characteristics of selected, key EU climate policies have been shaped to date and the implications of this for processes ahead. Drawing on established theories of European integration and policymaking we have extracted four specific interaction mechanisms:

1. Functional interaction, which plays out when policymakers give weight to actual or foreseen functional interplay between policies.

2. Bargained interaction, which relates to strategic links that actors initiate and establish in order to steer policy development in desired directions.
3. Institutional interaction, where the character of historically dominant policy areas influences the approach that policymakers take in new issue areas.
4. Persuasion interaction, when actors with a high standing in one policy area introduce this policy's steering method and 'competence distribution' in another policy area.

This chapter discusses the interaction between four central EU climate policies: the Emissions Trading System, renewables, carbon capture and storage (CCS), and energy efficiency in buildings. In addition to forming key parts of EU climate policy, these policies exhibit interesting differences with respect to steering methods and competence distribution. The analysis presented here is based on a more comprehensive book on EU climate policy (Boasson and Wettestad 2013).

The chapter is structured as follows: the following section sums up the main characteristics of the four policies in question; the next section further clarifies the theoretical foundation regarding 'interaction'; the chapter then discusses how interaction shaped the relevant policies; and the concluding section explores the main implications of the findings for both further theory building and policy development.

THE FOUR POLICY OUTCOMES

Climate policy has developed into a distinct and important policy area in the EU, but the character of its various sub-areas varies significantly. EU policy discussions often centre on three dimensions: 'steering method', 'competence distribution' and 'policy strength'.

We begin with the steering method dimension. Most actors involved in climate policy debates agree that low-carbon technologies and industry practices will have to become more profitable, and that new and better technologies and technical practices are needed (Metz et al. 2007). However, they do not agree on how to achieve this, or the steering methods. Some favour market measures that put a price on carbon emissions or that in other ways may indirectly induce technology development, whereas others favour technology development measures focused more directly on ensuring that industry will develop and make use of specific technologies.

Market measures either create new markets or alter existing ones. They may put a price on polluting activities (as with emissions trading),

reduce the price and/or generate an extra income on low-carbon activities (like green certificate markets) or bring new information into the pricing mechanism (like quality labels and certificates). The rationale is that the regulated industries will develop low-carbon practices once this is economically viable (Sims et al. 2007: 306). The prime task of governments and/or the EU is then to design markets that make it economically beneficial to produce and use low-carbon products. Market measures do not favour any specific industries or technologies, but allow market forces to choose winner industries and technologies. The precise economic incentives will not be set by the EU or the governments, but will be shaped by the market.

In contrast, technology development may involve technological standards (such as building codes), technology-specific governmental support (such as feed-in schemes) or governmental investments in certain technologies. It is assumed that low-carbon technologies and practices will diffuse once the technologies are mature and technology competencies have become widely disseminated. The prime task of governments and/or the EU is then to develop technology standards, and to finance research and development (R&D), projects and training activities. Governments are advised to apply a wide range of measures, adjusted to the specific needs of different industries and the various low-carbon products that are under development (Sims et al. 2007: 306).

The second dimension, that of 'competence distribution', goes to the core of European integration theory. A key point here is whether it is the member states or the EU organizations that are given the basic competence to govern the policy issue in question (Olsen 2007: 96). The more power that EU organizations are given to govern 'joint decision-making, implementation and enforcement', the stronger will be the degree of centralization (Moravcsik 1993: 479). This relates in particular to issues of competence – whether the EU or national governments have competence to change basic features of the policy, for instance by developing detailed regulations – of progress monitoring and of policy implementation. EU organizations are stronger if they do this directly than if they rely on information supplied by member states, and possess the competence to ensure enforcement by use of coercive measures, such as fines.

Whatever dimension is used to evaluate a climate policy portfolio, in the end it is the emissions reduction that counts. As a third dimension here we envisage policies with varying strengths: the cap in the emissions trading scheme may be high or low; the renewables quota in a green certificate scheme can be high or low; a carbon dioxide (CO₂) tax can be set high or low; varying amounts of money can be made available in a state aid scheme; technology standards can be strict or slack; and so forth (see Underdal 2002; Wettestad 2002).

Table 12.1 *Scores of the focused policies (policies in italics)*

Steering method→ Competence distribution↓	Technological development	Market
Decentralized: many national fields	(1) Local loading <i>Energy policy for buildings</i>	(2) Piecemeal market <i>Initial Emissions Trading System (ETS 2003)</i>
Centralized: dominated by one Europeanized field	(3) EU engineering <i>Renewable energy policy; Carbon capture and storage (CCS)</i>	(4) Single European market <i>Revised Emissions Trading System (ETS 2008)</i>

Focusing initially on the first two dimensions outlined here, we can place the policy outcomes of our four climate policies in focus as shown in Table 12.1.

We place ‘EU energy policy for buildings’ in cell (1), ‘Local loading’. ‘Local loading’ EU policies can be seen as giving member states the upper hand, and encouraging the use of national technology development instruments, ranging from state aid schemes directed at promoting specific technologies, to emission limits and other governmental regulations. The 2010 Energy Performance of Buildings Directive (EPBD) requires member states to adopt minimum energy requirements in their national building codes, as well as systems for regular inspection of heating and air-conditioning systems and national action plans for near-zero-energy buildings measures – all of which rely on technical requirements determined by national governments. Thus, all these components have a local loading character. The EPBD also includes an energy certification of buildings component, but it is up to the national governments to decide whether this is to be designed as a market instrument, pitched to affect pricing mechanisms of national markets for buildings, or as a regulatory measure that promotes certain technological solutions.

‘Renewable energy policy’ fits into cell (2), ‘EU engineering’. What we call ‘EU engineering’ policies give the EU competence to engage directly in promoting specific technologies, whether through technological requirements or funding of specific technologies. The 2009 EU Renewables Directive sets a Community-wide target of 20 per cent renewable share of gross final consumption of energy by 2020. All member states are allocated binding individual targets for renewable energy, to be achieved by 2020, and they are required to develop national action plans in line with a detailed template. We see that the EU enjoys considerable authority in this

area. The 2009 Directive establishes three flexible mechanisms, allowing member states to collaborate in achieving their goals, but member states are free to decide whether to use these or not. The Directive does not directly require the use of feed-in schemes, but its many technical requirements underscore the importance of developing technologies irrespective of the cost. In this the Directive seems more aligned to feed-in schemes than to market schemes.

Also the EU's CCS policy can be seen as an 'EU engineering' type of policy. As regards the steering method, policymaking here basically adheres to a technology-development approach whereby policymakers finance R&D in order to make technologies more mature and contribute to their dissemination. As a key development, in the EU climate and energy package that was agreed in December 2008, 300 million allowances from the New Entrants Reserve (NER) were set aside to contribute half of the costs of up to 12 CCS demonstration projects and projects demonstrating renewable energy technologies: the NER300 fund (see Directive 2009/29, Art.10a.8). The NER300 is a 'financing instrument managed jointly by the European Commission, European Investment Bank and Member States' (NER300 2012). Even though the level of funding depends on the sale of ETS allowances, how this money is used will be determined primarily by technological criteria, not economic criteria. As to the distribution of competences, the contribution to EU CCS pilot projects from EU infrastructure funds, the NER300 fund, and the involvement of the European Investment Bank all indicate significant central steering here.

The revised EU Emissions Trading System (ETS) adopted in 2008 goes a long way towards establishing a single European market for carbon emissions, so we have placed the ETS in cell (4). 'Single European market' policies give the EU the upper hand in the creation, surveillance and control of EU-wide market measures. This latter outcome is often characterized as 'harmonized EU policy' and has been in focus among scholars of European integration. This revised system, put into operation in 2013, involves a single, EU-wide emissions cap, based on the target of a 21 per cent reduction by 2020 in relation to 2005 levels. National allocations are derived from this common cap. The main principle for allocation of allowances is auctioning. This will be phased in gradually, with initially far more auctioning of allowances for energy producers than for energy-intensive industries. In addition, the process of handing out free allowances is further harmonized, based on common state-of-the-art technology benchmarks. The Commission is given a prominent role as the main overseer and designer of the further development of the system. Overall, the ETS after 2013 is far more market-streamlined than any other of the three other policy areas, and the degree of centralized control is also strong.

Note that we do not have any example of what we refer to as ‘piecemeal market’ in our sample of policies. This is a policy that gives member states prime competence, while encouraging the use of national market instruments. Hence, here we will find market change at the national level, but no European harmonization of markets. The initial ETS (pre-2013) fits this description rather nicely, but we will primarily focus on how interaction influenced the post-2013 ETS design.

Nonetheless, we can conclude that policy outcomes have varied greatly. While all policy areas started out as more or less decentralized, three areas have ended up with fairly centralized competence distribution (the ETS, renewables and CCS), while the energy policy for buildings has remained decentralized. In this context, the key question now becomes: to what extent and how has policy interaction shaped these differences?¹

THEORY ON INTERACTION AND MECHANISMS

The first wave of European integration theory, neofunctionalism, attributed considerable explanatory power to policy interaction, or spillover, which was the term used by Ernst B. Haas (2004 [1958]). Haas was particularly interested in interaction over time, and predicted that issue-areas in which the EU gained considerable competence would affect other policy areas over time. International environmental politics scholars have paid increasing attention to interaction, and conclude that the EU’s various environmental policies have significant impact on each other (Oberthür and Gehring 2006). In contrast, recent studies of EU administration have found fairly little communication across sectors or policy areas (Egeberg 2006; Trondal 2010). Drawing on the European integration literature, the literature on environmental policy integration as well as literatures on policymaking more generally, we have specified four interaction mechanisms (defined earlier): functional, bargained, institutional and persuasion interaction.

The notion of functional interaction resonates well with the many European integration contributions that treat economic structures as the foundation for EU integration. This mechanism captures what Haas (2004 [1958]) called ‘functional-economic spillover’. Niemann and Schmitter (2006: 49) explain the functional-economic spillover of Haas by an empirical example: ‘the viability of integration in the coal and steel sectors would be undermined unless other related sectors such as transport policy followed suit, in order to ensure smooth movement of necessary raw materials’. Young (2002: 23) describes this as ‘functional linkages’; Stokke (2001) uses the term ‘utilitarian interaction’. Young defines a functional

linkage as ‘when the operation of one institution directly influences the effectiveness of another through some substantive connection of activities involved’ (Young 2002: 23). Stokke (2001) describes how a policy outcome may alter the costs and benefits available in another policy area. All these scholars seem interested in the same phenomenon: how the introduction of one policy can create tangible, economic pressure for change in another. More specifically, we define functional interaction as the mechanism that plays out when policymakers give weight to actual or foreseen functional interplay between policies.

Second, governmental officials may initiate policy linkages in bargaining situations so as to enhance their bargaining position in issues and areas of specific national interest: bargained interaction. Moravcsik (1993, 1998) explicitly argues that national officials will try to link issues in order to enhance their impact during the negotiation processes. He stresses how skilled negotiators can use information and negotiation techniques to link issues in ways that enhance their clout. Like other scholars of bargaining theory, Moravcsik views negotiators as rational actors with specific tactical skills (see Moravcsik 1993, 1998; Sebenius 1984, 2009). Negotiators are assumed to have clear preferences as to which issues they will prioritize and which they are willing to sacrifice in order to gain concessions in others. This kind of interaction arguably has an entrepreneurial flair. Whether certain issues are linked depends not just on the economic interests of the various parties, but also on their negotiating skills when it comes to discovering possibilities for policy interaction. Summing up, bargained interaction describes the strategic links that actors initiate and bargain about in order to enhance their influence over policy decisions.

Let us now turn to institutional interaction. New-institutional scholars highlight how later policy decisions will be conditioned by earlier ones (Pierson 2004; Streeck and Thelen 2005). Hence, attention is drawn towards how ‘old’ EU climate policies may affect the competence distribution and steering method of ‘new’ policies. In particular, it is expected that former EU policy decisions will shape actors’ interests and perceptions regarding new issues (see Pierson 1996; Fligstein 2008). In contrast to the above two approaches, this perspective highlights unintended interaction effects (Simon 1997 [1947]; Fligstein and Stone Sweet 2002: 1209). This particular aspect is also highlighted by Haas (1970), arguing that EU decisions are often made with highly imperfect knowledge of the consequences, and frequently under the pressure of deadlines. This makes it likely that issues will affect each other in incremental or even accidental ways. Historical institutionalism goes further, arguing that unintentional consequences can be found also when actors have complete information, act transparently, and do not face major time constraints (Fioretos 2011: 380).

Haas (2004 [1958]) showed how a policy introduced in one sector could create processes that spill into other sectors, changing how actors perceive their interests. Haas called this 'learning'. We prefer the more neutral term 'institutionalization', to avoid possible normative judgements of the effects of such interaction. According to neofunctionalists, the European Commission may have an important role in this kind of interaction. Lindberg, for instance, argued that the Commission's cultivation of contracts with national civil servants and national interest groups would gradually lead to its 'informal co-option' of the national elites of member states, to help realize its European objectives (Lindberg 1963: 71; Niemann 2006: 19).

International environmental policy scholars like Oberthür and Gehring (2006: 22) and Stokke (2001: 10) discuss how knowledge, ideas or norms produced within one international regime may affect another regime. For instance, one international agreement may serve as a model case for another, or norms and institutional logics may diffuse from one policy area to another. In essence, then, this approach focuses on how the policy recipe, norms, practices or worldviews that underpin one policy may contribute to the shaping of other policies. We see the institutional interaction mechanism as processes where the character of historically dominant policy areas influences the way policymakers approach new issues and areas.

Finally, a range of policy scientists have highlighted persuasion as central to policymaking. Indeed, according to Robert Goodin et al., 'policy making is mostly a matter of persuasion' (Goodin et al. 2006: 5, see also Finnemore and Sikkink 1998). Moreover, actors may use developments in one policy area to frame the policy development of another (Goffmann 1974; Snow and Benford 1988). According to Fligstein and McAdam (2012: 50–51), the basic challenge for entrepreneurs 'is to frame "stories" that help induce cooperation from people by appealing to their identity, belief, and interests, while at the same time using those same stories to frame action against various opponents'. In particular, actors will point to a specific policy outcome in order to present another policy outcome as good, desirable, legitimate or appropriate.

Sociologists Bernard Leca et al. (2006: 23; see also Battilana et al. 2009: 68) focus on this kind of entrepreneurship when they highlight how this technique can be used in order to achieve a break with the traditions within a certain area. The meaning of any particular policy proposal and its link to other policies will often not be obvious, but must be actively constructed by its proponents (Finnemore and Sikkink 1998: 908). Policy ideas will seldom emerge *de novo*: instead, they tend to be inspired by other policy areas, although these may be edited creatively (see Czarniawska and Sevón 1996). We may conclude that persuasion interaction can be understood as

Table 12.2 Four EU climate policy interaction mechanisms

Power source→	Structural	Institutional
Mechanism type↓		
Social	(1) Functional interaction	(2) Institutional interaction
Entrepreneurship	(3) Bargained interaction	(4) Persuasive interaction

when actors satisfied with the steering method and competence distribution in one policy area seeks to transfer that approach to another policy area.

Table 12.2 shows how the four interaction mechanisms can be categorized in relation to two underlying dichotomies: mechanism type and power source. Functional interaction is a social interaction, in the sense that it is a result of how a certain policy is implemented and functions, and not how it has been interpreted or used strategically by any specific entrepreneur. However, it is structural because it works through changes in the distribution of authority, information and finances (see Boasson 2011 for a more thorough discussion on the basis of structural power). Institutional interaction is also social, but it pertains to how certain policies can create shifts in the norms and mindsets that dominate in other areas. Bargained interaction refers to interaction initiated by entrepreneurs who seek to increase their structural power basis in one policy area by linking it to another. Persuasive interaction is initiated by skilled actors who use persuasive tools in order to change the norms and mindsets that dominate a policy development process.

UNDERSTANDING THE DIFFERING CHARACTER OF POLICIES

In the following, we assess how and to what extent the character of climate policy outcomes have been shaped by the four interaction mechanisms: functional, bargained, institutional and persuasion interaction. Table 12.3 summarizes and compares the importance of the mechanisms for the character of the four focused policies.

Starting with the ETS: was this affected by functional interaction? The decentralized ETS established in 2003 was still more centralized than the other climate policy outcomes at the time, and was the only area characterized by market thinking. The EU started to develop energy efficiency and renewable energy policies in the 1970s, long before the ETS was born. However, for several decades these policies primarily had

Table 12.3 *How interaction shaped policy outcomes – rough scores*

Issue-area→	ETS	Renewables	CCS	Buildings	Overall importance of mechanism
Interaction mechanism↓					
Functional	Little	Little	Little/Some	Some	Little
Bargained	Some	Little	Significant	Little	Some
Institutional	Little	Little	Little	Little	Little
Persuasion	Little	Some	Little	Little	Little

symbolic importance and few actual ramifications for the industry actors that became included in the ETS. In 2003, the EU had recently adopted renewables and energy-efficiency policies with more substantial importance, but these had not been in operation long enough to bring about functional consequences that could feed into the ETS policy process. The Commission explored how future EU renewable energy policies could influence the ETS and concluded that there was ‘a clear interdependency’ between the policies (Commission 2008: 35). Yet, we have not been able to trace any specific effects of this on the character of the ETS. Hence, the other climate policy areas had little functional influence on ETS.

However, taking energy market liberalization into account, it is certainly possible that the mergers, acquisitions and emergence of bigger utilities helped to change the preferences of the electricity industry’s attitudes to market instruments: as the dominant utilities became privatized they became more accustomed to the financial economy logic that underpins emissions trading. This probably facilitated the process of developing a far more centralized ETS. But here it should also be noted that energy-market liberalization was only partly driven by EU policy: it was also subject to national initiatives. All in all, the ETS policy outcome was not influenced by functional interaction very much.

The initiation and revision of the ETS were considerably influenced by entrepreneurship, particularly by the Commission (Wettestad 2005; Skjærseth and Wettestad 2008; Boasson and Wettestad 2013). Commission entrepreneurship was primarily related to ETS-specific features and we have not detected much bargained interaction. There were however some relevant bargaining trade-offs in the final climate package negotiations, where countries managed to water down the revised ETS by agreeing to stricter policies in other areas. Notably, Germany got its way in the form of more free allowances for energy-intensive industries than proposed by the Commission (and hence watered down the turn towards more auctioning and market streamlining) in exchange for accepting more stringent

rules on car emissions than the country originally preferred (Skjærseth and Wettestad 2010). This helps to explain why certain exemptions to the European Single Market were introduced, but it cannot shed light on the 'revolutionary' character of the ETS revision as such. It also seems as if Germany was able to gain concessions because of its contribution to an important compromise decision on renewables. Hence, bargained interaction played a certain role for the 2008 ETS outcome.

Turning to institutional interaction, the ETS was diffusely inspired by the single European market thinking which was central to the EU as a social project. The ETS was launched not long after the internal market was introduced, and when market thinking reached a peak in Brussels. It is however very difficult to specify the causal link between the two policy areas. On the other hand, and maybe more striking, the ETS differs from the older EU climate policies: renewables and energy efficiency. We have not found evidence that institutional thinking from other policy areas provided a direct influence on the ETS policy process. On the whole, we would say that institutional interaction was of little importance. Neither have we detected persuasion interaction: it does not seem that actors with a strong interest in other parts of EU climate policy tried to transfer the character of those policies into the ETS. Against this backdrop, our main conclusions are that the emergence of the ETS was barely affected by interaction and that such mechanisms affected the character of the policy outcome in 2008 only very moderately.

Moving to renewables, we would expect these to have been functionally influenced by the EU's energy efficiency policy since the two were conceived in the 1980s, and existed side by side for the following decades. However, policies in both areas were initially mainly symbolic, thereby producing few tangible consequences – including for each other. One might also expect that once the ETS had created a carbon price, there would be less need for a strong EU policy on renewable energy. However, since the ETS did not in fact lead to a stable and high carbon price, no functional interaction took place in renewables development. The Commission did expect a more binding EU renewable energy policy to lower the carbon price, but did not radically interfere with the price-setting mechanism (see Commission 2008: 35). The Commission envisaged a more market-based and harmonized European renewables policy when they made this assessment. Importantly, it does not seem as if such expectations influenced actual decision-making. To some extent the ETS and the EU's policy on renewable energy targeted the same main industrial actors, the electricity utilities in particular. But whereas this group achieved a prominent position in the ETS context, it had less success in relation to renewables. The reason for this was that it was the renewables energy industry, not the

electricity industry, that gained the upper hand in influencing the renewables policy.

Do we find any instances of bargained interaction? The development of the Renewable Electricity Directive in the early 2000s was not linked to any other policy process. Hence, there was not much room for bargained interaction. We do not see any actors actively linking EU energy efficiency policy to the development of a policy on renewable energy during the first decades of policy development. Even though it was part of the climate policy package in 2008, work on the renewables directive does not appear to have been involved in much horse-trading with other issues. It is however possible that the Polish support to the compromise introducing flexible mechanisms and doing away with pure market elements was partly related to ETS exemptions profitable for Polish industry.

Finally, we might expect to find institutional interaction related to energy policies for buildings, given their emphasis on technology development. However, this similarity is better explained by similarities in the mindset of Commission officials from the Directorate-General for Energy (DG Energy) who initiated both policy areas. Nor do we see any institutional spillover between the ETS and renewable energy policy, even though the ETS produced more tangible consequences from around 2005 than did the policy on renewable energy. Instead, the renewable energy policy outcome in 2009 had less of a market character than the 2001 outcome. For instance the new directive no longer promoted development of a voluntary scheme with trading of guarantees of origin.

The renewables case contains a very interesting example of persuasion interaction. In the first as well in the second round of renewable energy directive discussions, Commission officials from DG Environment (encouraged by the success of having convinced the EU to establish an ETS) and electricity industry representatives portrayed the ETS design as a guide for the development of EU policy on renewable energy, trying to persuade EU member states to opt for a single European market approach. These market entrepreneurs were persistent in their persuasion efforts, producing increasingly elaborate proposals for a pan-European green certificates scheme. Despite devoting considerable energy to this, they did not succeed. Furthermore, they were opposed by renewables actors, and the ETS was not successful enough to function as a good model for EU climate policy development.

Yet, persuasion entrepreneurship did yield some effects, and hence persuasion entrepreneurship did play a certain role: they succeeded in creating a key for national target distribution and flexible mechanisms that was based on gross domestic product (GDP), rather than the technical potential for national renewable energy production. It is hard to envisage

that the member states would have agreed on national targets if they were calculated differently. Hence, persuasion made a significant contribution to greater centralization.

Turning to CCS policy we find a radically different picture. Here the policy emerged primarily as part of the broader EU climate policy drive from 2005 on (see also Boasson and Wettestad forthcoming). Applying a functional interaction analysis, one could argue that the volatile and generally rather low initial carbon price created the 'need' for an additional funding mechanism. It was not obvious that the need should be met. But the prospects of increased ETS auctioning revenues further down the line, and the very set-up of the climate package with different climate measures negotiated at the same time, formed a crucial and handy basis for the interaction that played out in the course of 2008. Yet, these favourable background conditions would probably not have affected the policy outcome if the CCS entrepreneurs had failed to seize the opportunity and had not initiated bargained interaction.

So bargained interaction proved essential in this case. The idea of linking ETS and CCS policy came from civil society actors, supported by environmental consultancies and certain industry representatives. The link was facilitated and developed by the two Parliamentary Rapporteurs for CCS and the ETS respectively, that is, Chris Davies and Avril Doyle. As to its essential form, the link developed more through collaboration and dialogue during 2008, than through frantic horse-trading between the relevant issues at the very final stage. It is also interesting that Members of the European Parliament (MEPs) were the most important promoters of bargained interaction, while member states played only a marginal role, although the final outcome of the process (as to the exact number of ETS allowances to be set aside for CCS) also hinged on Council bargains. This bargained interaction is particularly crucial when it comes to explaining the competence distribution here. Because the ETS was developing a high degree of centralization, this occurred in relation to CCS as well; much of the CCS funding was supposed to come from the sale of allowances to be redistributed by the EU, not member states.

Turning to institutional interaction, we do not see any instances of this. Despite the link to the ETS, the CCS outcome was influenced by another institutional logic: the ETS is a market instrument, while the CCS policy is a technology development instrument. There is nothing to indicate that the technology development aspect of CCS came about due to influence from other EU policy areas. Neither do we see evidence of persuasion interaction: the New Entrants' Reserve, NER300 fund for CCS is remarkable because it is very much a new policy invention, not really modelled on other EU policies (see Boasson and Wettestad forthcoming). The main

conclusion is still that important elements of the EU CCS policy emerged as a consequence of interaction. The strong centralization of the CCS policy outcome was to a significant degree shaped by bargained interaction, and to a certain extent underpinned by functional interaction. We find no significant institutional influence from other policy areas. The driving forces for the actual steering method must be located internally.

Finally we turn to the EU energy policy for buildings. As noted in connection with the case of renewable energy, functional interaction did not shape this field much in the 1980s and 1990s. After the turn of the century, one might expect that the 2001 renewable electricity target – which depends partly upon energy efficiency, as the share of renewable energy increases if the energy efficiency improves – contributed to the slight increase in support for an EU energy policy for buildings. Since the member states continued to reject strong centralization in this area, this increase was not of any great importance. Moreover, the first directive on renewable energy served to strengthen the renewable energy industry, making it more able to influence the EU energy policy for buildings. This probably helped to strengthen the renewable energy content of the buildings policy, for instance the increased focus on on-site renewable energy production, but without affecting the steering method or competence distribution to any extent.

With respect to bargained interaction, the renewable energy industry managed to create a link between the renewable energy directive decisions in 2009 and the EPBD decision in 2010: the new renewables directive included formulations on the use of renewable energy in buildings. Even though this served to strengthen the renewable energy focus of the EPBD somewhat, it did not change the competence distribution or the steering method. Finally, we do not see much institutional interaction in this process. Renewable energy and the energy policy for buildings both had a technology development steering method, but this did not stem from interaction. As mentioned before, it seems rather to reflect the traditions of DG Energy and leading member states in these areas. We have not detected any attempts at persuasion interaction either. Hence, we conclude that this policy area was barely shaped by interaction, apart from some slight functional interaction. The policy outcome developed first and foremost according to its own internal logic.

CONCLUDING DISCUSSION

EU climate policy development is surely a complex undertaking: several policies are needed to ensure the low-carbon transformation of the

European energy and industrial systems. Ideally, the various policy components should be designed in a way that ensures that they work well in conjunction. In the following we will present and discuss four main conclusions about interaction and policy coherence that follow from our analysis.

First, most of the climate policy areas developed in line with issue-specific dynamics. While the making of 'policy packages' certainly helped create a new policy drive after 2005, it brought fewer interaction effects than the 'integrated climate package' rhetoric would lead us to believe. The ETS stands out as the main policy, mostly because it was involved in bargaining deals and not because other policies were adjusted to fit with this 'cornerstone' policy. It was intended to serve as the flagship of EU climate policy, so other climate policies that affect the same sectors (such as renewables and CCS) can easily be seen as interfering with the carbon pricing mechanism. The fact that these other policies have been strengthened may indicate that the market thinking of the ETS has not really been institutionalized. Not even the efforts at persuasion interaction conducted in the renewable energy case succeeded in diffusing market thinking to other policy areas. Initially, we expected EU policies on CCS and on buildings to be fairly heavily influenced by interaction, and that we would see less interaction in the two other cases. This proved correct with respect to CCS, but the energy policy for buildings turned out to be less influenced by interaction than we had expected. Renewable energy was slightly influenced by interaction.

Through bargained interaction with the ETS, the CCS entrepreneurs were able to ensure that the CCS outcome became far more centrally governed than would otherwise have been the case. This is the most important interaction in our case sample. Brussels-based lobbyists and MEPs, not member states, were the prime initiators of bargained interaction. We suggest that functional interaction has had limited importance so far simply because considerable time has been needed for EU climate policies to move beyond mere symbolism. Obviously, policies without much substance cannot produce consequences of functional interaction. With the strengthening that took place in 2008 and subsequent developments, more functional interaction can be expected in the future. Institutional interaction proved to be of low importance in our cases. This may mean that because the different policies are embedded in different organizational fields, we will not find much cross-fertilization in the norms and institutional logics that underpin the policies. However, in the future the EU may well develop stronger coordination between issue-specific climate policy processes, which could serve to undermine the mechanisms specific to the organizational field.

Second, entrepreneurial interaction (bargained and persuasion) cannot

be expected to create good coherence. The bargained interactions we have analysed were not spurred by a wish to achieve cost-effective and coherent climate transformation: rather, the entrepreneurs seem to have used these efforts as a means to increase their influence, without paying much attention to how this would influence the totality of EU climate policy. In fact, the case studies indicate that bargained interaction will often impede rational and well-planned coordination between policies. When it comes to persuasion interaction, in the renewable energy case this contributed to binding renewable targets without any harmonized European market measures. It is hard to argue that this represents a good match with the ETS outcome.

However, it is of course very hard to predict in detail how and to what extent policies will influence each other. Hence, functional interaction actually requires a foresight ability which the political system in the EU does not seem to possess. The bargained interaction effects were not aimed at increasing the coherence of climate policies. In certain instances, interaction entrepreneurs were actors without responsibility for the coherence of EU climate policy, such as Brussels lobbyists and MEPs. For instance, the bargained interaction in the CCS case occurred because it was convenient for the entrepreneurs, not as a means to increase the coherence of EU climate policy.

Member state representatives were not important initiators of interactions. In the ETS case we find some instances of nationally initiated policy linkages, but this is the exception to the dominance of Brussels-situated actors, and runs counter to a 'Liberal intergovernmentalist' view that national governments will be the most important initiators of interaction (Moravcsik 1993, 1998). Our findings are hence more in line with the thinking of 'multilevel governance' scholars (Hooghe 2001; Hooghe and Marks 2001; Bache and Flinders 2004), although they pay little attention to interaction as such.

Third, actual spillover effects will not automatically feed back into the policy process and create policy coherence: policymakers may very well continue to treat all policy areas as separate islands, even when it is obvious that they are more like streams that merge into each other. After all, most often they cater to specific policy and/or industrial communities and are (re)lected on the basis of results in their specific issue areas, rather than on their contributions to creating coherence and nicely integrated packages. When EU climate policies were developed, it was obvious that they would influence each other as they were implemented. But it was far harder to understand how this would happen, although valuable analysis was carried out and knowledge developed in the impact assessments when decisions were made and compromises struck.

We would hence warn against underestimating the cognitive and collaborative challenges involved in creating a coherent EU climate policy. Oberthür and Gehring (2011: 48) argue that in order for more deliberate policy interaction to play out, the policymakers must ‘take into account the broader policy implications’ of the particular governance project. This is no easy task where EU climate policy is concerned. Indeed, it is not even clear what a coherent or integrated EU climate policy should or could look like. For example, as noted, Helm (2009) maintains that the seminal 20–20–20 targets lack internal coordination, and that various EU climate policies are partly in conflict with each other. A key unresolved issue is the specific role of the ETS: should the cornerstone position of the ETS mean that other EU climate policies are gradually phased out and abolished – or is this scenario totally unrealistic and, instead, must these other policies be further developed and even new policies adopted? The increasing crisis in the ETS in 2012 and 2013 seems to give proponents of the latter position additional weight.

Our case studies show that the Commission aimed for greater harmonization in the sense that climate policies were to have more of a market character. But similarity in steering method is no guarantee of actual harmonization. Had the Commission succeeded in creating a single European market both for renewables certificates and for carbon allowances, two different markets would have emerged. The pricing mechanisms of the two markets would probably have affected each other, but it is very hard to visualize how and to what degree this would have happened; not to mention how to regulate them in order to ensure a coherent and harmonized climate effect.

In addition to the intellectual challenges involved, no single actor is sufficiently dominant to control the totality of EU climate policy development. A central finding in our work is that most issues develop in line with issue-specific dynamics. An important implication of this is that a prerequisite for improving climate policy coherence is to get a better understanding of the specific histories, cultures and institutional logics which have shaped and now dominate the dynamics of the different policies. The overall limited interaction can also be seen partly as a result of organizational barriers between the various Commission DGs and between different policy areas, as indicated by public administration studies of the EU executive (Egeberg 2006; Trondal 2010). True, a separate Climate DG has been created within the Commission and this might make it easier for the Commission to initiate linkages between policy areas. However, this DG has limited power: important EU climate policies, such as renewables and energy efficiency, are still managed by DG Energy.

Fourth, policy interaction seems more inclined to affect the centralization

of control than the steering method. The two instances of interaction with effects on outcomes – bargained interaction in the CCS case and persuasion interaction in the renewables case – have both led to increased centralization of EU climate policy. Both instances have been of the entrepreneurial type. Hence, we can conclude that policy interaction has so far contributed slightly to an increase in the centralization of control in EU climate policy. This finding can be seen as being in line with new-functionalist arguments, but since only one of our cases has been affected to any significant degree, the overall effect is far weaker than predicted by this school (see Haas 2004 [1958]; Niemann 2006). We have not detected any systematic relationship between policy interaction and steering method. However, we have noted several factors indicating that social policy interaction mechanisms may become more important in the future, perhaps also affecting the steering method of climate policies. This is not to say that we believe that EU climate policy will necessarily become more coherent in the future. This will partly depend on the ability to learn from past successes and failures.

NOTE

1. For a more complete discussion of explanations and mechanisms, see Boasson and Wettestad (2013).

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13. Sustainable development by the multi-stakeholder model?

Magnus Boström

The sustainability debate tells we cannot solve the key environmental problems if global, social equity issues are neglected. Environmental and social issues go together, and must be handled as such. Environmental issues are best tackled with the participation of all concerned citizens. The present generation has a legitimate right to real participation in planning and decision-making in all issues that concern our living conditions. In practice, a great deal of this work is to be done through so called multi-stakeholder partnerships, which have been designated as the ‘collaboration paradigm of the 21st century’ (Austin, quoted in Pinkse and Kolk 2012: 178).

Environmental justice scholars, for instance, emphasize the link between (non-)participation of affected groups and environmental (in)justice related to pollution and other risks as well as access to natural resources (Agyeman and Evans 2004). Without a participatory democratic process, policy and planning are unlikely to achieve ‘just sustainability’. Scholars maintain that the very framing of what sustainability is has to be part of the broader political and participatory process of working towards sustainability (e.g. Davidson 2009; Casula Vifell and Soneryd 2012).

In this chapter I use the term ‘stakeholder’, which since the work of Freeman (1984) has become common usage in a variety of literatures. Its origins stem from an observation that a lot more actors than ‘shareholders’ have a potential, legitimate and actual impact on business activities (see Mitchell et al. 1997 for a thorough review and a useful theoretical framework). A common mistake is to equate the population of stakeholders as those actors that actually take part in a participatory process. A relevant definition must include not only actors that can affect a particular activity, but also any actor that is affected by it. There may be stakeholders unable to make any impact or lacking awareness of themselves being ill-treated by a particular activity. A thorough analysis of a participatory process should pay attention to: (1) those who participate and have considerable opportunities and power resources to make an impact; (2) those who participate but whose opportunities are delimited in various ways, either by the institutional arrangement or by their capabilities; (3) those who want

to participate but are not invited or allowed to or able to; and (4) those who are affected but lack awareness of the problematic situation or for other reasons lack motivation (for example, feelings of powerlessness). From an environmental justice perspective, all four aspects would be essential to consider.

There are several examples of recent attempts to create forums for stakeholder participation in policymaking and regulation. Some initiatives are taken by international governmental organizations. NGOs are getting more space within various United Nations (UN)-related units (Willett 2011). Other initiatives are taken by an assembly of actors outside the state. There are quite a number of 'sustainability projects' in multi-stakeholder organizational arrangements; that is, arrangements in which several types of actors are included: non-governmental organizations (NGOs), companies, state actors, business associations, various experts, for instance. It is crucial to study such multi-stakeholder arrangements because they are important links in the process of defining sustainability and integrating the sustainability dimensions (social, cultural, environmental, economic). These multi-stakeholder organizations express ambitions to carry out participatory governance and could potentially be productive for achieving integrative ambitions. We can find several interesting examples in the field of transnational third-party certification and labeling, including organic agriculture, fair trade, forest and marine stewardship, social accountability, and roundtables for sustainable production.

This chapter focuses on such latter initiatives, and particular attention is paid to participatory challenges. Given the very optimistic rhetoric around multi-stakeholder work and participation in the sustainability discourse, I find it important to address such challenges and learn about potential pitfalls. A core argument in the chapter is that any multi-stakeholder process that does little more than just opening up for broader involvement is likely only to reproduce an unwanted dualism between 'the social' and 'the environment', as well as to preserve existing power asymmetries. Such multi-stakeholder processes will be unable to alter social inequities and environmental injustice. I have conducted research on some of these initiatives,¹ and I will discuss some findings from this research together with a review of the existing literature on similar examples and topics.

In the next section I discuss the expectations, as expressed in various literatures, that are associated with the multi-stakeholder form. Then follows, in three sections, a theoretically guided analysis of empirically observed challenges within concrete multi-stakeholder work. First, the problem with a cognitive separation between the social and the environment is discussed. Second, I focus on pre-existing power asymmetries among participating stakeholders. Third, I discuss participatory challenges when taking

into account a global and temporal dimension. In the final section of the chapter I discuss the crucial role of capacity building and empowerment within and surrounding 'sustainable' multi-stakeholder work.

THE MULTI-STAKEHOLDER FORM AND ITS PROMISES

Multi-stakeholder arrangements have been described as organizations, partnerships (Pinkse and Kolk 2012), processes (Hemmati et al. 2002), approaches (Balzarova and Castka 2012), initiatives (e.g. Cheyins 2011), platforms (e.g. Faysse 2006), standards (Fransen and Kolk 2007), governance (Fransen 2012), regulation (Utting 2012) or non-state authorities (Tamm Hallström and Boström 2010). What is common in these understandings is that they refer to arrangements in which several types of actors (NGOs, companies, state actors, business associations, various experts, and so on) are included as members or active participants in deliberations and decision-making. The arrangements involve non-hierarchical processes, meaning that participation is based on the idea of shared responsibility (Pinkse and Kolk 2012). Such organizations may cut across sectors such as the ISO 26000 work (guidance standards for social responsibility aimed for all kinds of organizations in any sector) or they may focus on a particular sector such as the Marine Stewardship Council (for sustainable fishery).

The multi-stakeholder form seems to have gained relevance in a transnational context with the relative scarcity of democratic politics and decision-making. The rise of multi-stakeholder policy and regulation 'reflects changes in the relative power and influence of states, trade unions, NGOs, social movements, global corporations and other business enterprises' (Utting 2012: 3). Such changes include the rolling back of certain state capacities and authorities as well as an increased deficit of legitimacy when it comes to business self-regulation. Notions of representative, deliberative and participatory democracy are echoed in the multi-stakeholder model; which also connects with such ideals as openness, transparency and public accountability. The arrangements base their legitimacy on their ambitions to achieve broad and balanced representation of stakeholders, which are given opportunities to openly deliberate and negotiate about principles and processes (Tamm Hallström and Boström 2010; Fransen 2012).

Broadly speaking, the benefits could be seen as normative/democratic (broad involvement is 'the right thing to do') or substantive/instrumental (participation facilitates general problem-solving or a particular favored decision) (Stirling 2008, 2009). As regards the latter, there is a strong belief that the multi-stakeholder form can solve or handle various problems.

Pinkse and Kolk (2012) summarize such promises in terms of four gaps that multi-stakeholder partnerships are expected to close. First, they may close regulatory gaps, and as such be able to address different forms of governance failures when, for instance, governments or markets have been unable to achieve desired public objectives. Second, they may fill a participation gap, by giving all parties relevant to a specific issue an opportunity to have a say in matters. Third, they may overcome a resource gap, by mobilizing and combining various resources among different types of actors. Some actors may have money, others expertise and yet others high legitimacy and a strong social network. And finally, they can overcome a learning gap; by facilitating social interaction, actors from different sectors and societal spheres can create new practices, rules, technologies or ideas.

Through coordinated efforts the problem-solving capacity to deal with concrete sustainability issues towards progressive incremental change could, accordingly, be enhanced. Newig and Fritsch (2009) conducted a meta-analysis of 47 case studies of participatory environmental governance processes from North America and Western Europe, from the 1970s to the early 2000s. They found evidence that highly polycentric governance systems, which comprise many agencies and levels of governance, lead to higher environmental outputs than monocentric governance systems. They argue that the interaction between local, regional and supranational actors may contribute to a shared understanding of the problems at hand and of a coherent set of measures, as well as being helpful to provide the necessary resources to secure policy implementation. Also, other scholars argue that participatory activities and multi-stakeholder regulation help to raise general awareness of social and environmental issues (Faysse 2006; Utting 2012), and that mutual respect, understandings, learning and trust among participants and stakeholders may arise (Kapoor 2001; Boström 2006). The role of knowledge and learning is also emphasized in the adaptive co-management literature. Scholars in this literature strongly argue in favor of incorporating community-based local knowledge about natural resources (e.g. Olsson et al. 2004; Hahn et al. 2006). Such local knowledge is often gained from daily interaction with natural resources and is stored in the 'social memories' of communities. Cooperation as such may lead to the empowerment of participants as well as a sense of 'broad ownership' of a process (Kapoor 2001; Faysse 2006), and such empowerment and ownership may, in turn, facilitate implementation of sustainability rules and policies.

In addition to positive outcomes on the collective level, there could be benefits for the specific participants. Participants may partake for a number of reasons: to increase their own expertise and learn about the particular topics, to enhance their own social network, to check the positions

and arguments of other stakeholders, to protect their own concerns and interests, or to just be visible and increase their own status as a stakeholder (Tamm Hallström and Boström 2010).

One example of a multi-stakeholder organization that is commonly discussed in the literature is the Forest Stewardship Council (FSC). The FSC is often portrayed as paradigmatic when it comes to multi-stakeholder deliberations on the transnational scene. Arguably the FSC is a novel example in two ways: first, it is a rather unique ambition to achieve a broad and integrative sustainability vision, integrating environmental and social sustainability; and second, it is quite pioneering as a balanced and broadly participatory multi-stakeholder arrangement. Due to these features, the emergence and dynamics of the FSC has been well covered in the literature.² In Box 13.1, some of the achievement related to participatory goals and social sustainability are highlighted.

The FSC case clearly shows that an ambitious and systematic focus on integrating social and environmental sustainability, including an ambitious and systematic focus on facilitating broad participation, do matter (Boström 2012b). Still, the challenges are considerable, and some of these will be described in this chapter. Indeed, the very fact that even such an example experiences serious challenges makes it valid to learn from this case. The rest of this chapter will focus on challenges related to the participatory ideal in multi-stakeholder work in relation to similar sustainability projects. It is important to address such challenges because of a very strong disposition among all kinds of policymakers and business actors to endorse the multi-stakeholder form. Indeed, Bendell et al. (2010: 353) argue that the practice of multi-stakeholder or interorganizational partnership is moving from a method to an ideology, that is, towards ‘partnerism’: ‘We define partnerism as an orthodox view, that if managed well, partnerships always result in net positives for participants, communities and wider society. This view sees that drawbacks to collaboration are operational challenges, rather than unavoidable, and that they are outweighed by the merits of collaboration.’

Moreover, due to the very strong multi-stakeholder and partnership rhetoric in the sustainability discourse, the terms are increasingly used in various business initiatives with a rather thin or non-existent approach to equal, balanced or empowered participation. According to Fransen (2012), there are many legitimacy-seeking initiatives with a strategic pick-and-choose approach to participation. They establish forms in which societal stakeholders can at best partake in advisory boards, rather than as full and equal members or participants. NGOs, for instance, face a serious risk by being co-opted by profit- and legitimacy-seeking businesses. Multi-stakeholder arrangements vary extensively regarding how narrowly or

BOX 13.1 THE FOREST STEWARDSHIP COUNCIL

The Forest Stewardship Council (FSC) was initiated with a broad sustainability vision. It was established in 1993, close in time to the famous Rio Summit. Its organizational form and principles clearly resembled the sustainability discourse with its ambition to integrate social, environmental and economic objectives. Due to previous global controversies in forest issues in the 1980s, including tropical timber boycotting campaigns, a core group of initiative-takers argued that a system of global certification and labeling would only receive strong legitimacy if developed through broadly open and transparent processes in which stakeholders from both developed and developing countries could take part on equal terms. This group of initiative-takers included social and environmental NGOs from North and South, and a few proactive business actors. After several years planning and discussions, the FSC was established as an international non-governmental association of individuals and organizations with the aim of promoting environmentally appropriate, socially beneficial and economically viable management of the world's forests.

A primary aim of the FSC's organizational design was to ensure that no group could dominate policymaking, or that the North could not dominate at the expense of the South. The FSC therefore developed a membership-based model that included a strict division of formal power. Members could be either individuals or organizations. The General Assembly, which meets every third year, was set up as the highest decision-making organ, with its members divided into three chambers: the environmental, the economic and the social. Each chamber has one-third of the voting power, and the voting power is divided equally between developed (Northern) and developing (Southern) country members in each of the three chambers. Furthermore, organizations were allotted 90 percent of the voting power and individuals 10 percent in each chamber. This multi-stakeholder structure is mirrored at the national or regional level, where locally adjusted certification standards are developed. In general, the FSC is remarkably transparent (for example: the informative website), hosts numbers of stakeholders meetings (the General Assembly, public consultations, and so on) and disseminates information in both Spanish and English.

Many efforts are made during the meetings of the General Assembly to make the deliberations accessible to all (Boström 2010).

The FSC standard includes ten principles and 56 criteria. In addition to economic and environmental criteria, the FSC has relatively ambitious social sustainability targets. The framework covers a broad array of aspects, including community and workers' rights, and the legal and customary rights of indigenous peoples to own, use and manage their lands, territories and resources. The social costs and benefits of forest operations should be assessed in certification, including empowerment issues and the role of a diversified local economy. Organizing rights should be respected among workers and local civil societies, and broad stakeholder input that involves local communities, indigenous groups and workers is required at every step of the planning process before certification. In a study based on document analysis and qualitative interviews with stakeholders from all three chambers, I reported how the FSC accomplished its social sustainability goals (Boström 2010, 2012b). Both difficulties and achievements were reported. Among the social benefits were:

- improved working and living conditions among forest workers (for example, formal contracts, health and safety measures);
- improved local communication about forest management plans among a broad group of stakeholders (forest companies, workers, local communities, indigenous people);
- improved recognition and awareness of various rules, rights and management plans among local stakeholders (land rights, International Labour Organization norms, national legislation, and so on);
- access to education and training activities for workers and other local stakeholders;
- new rights for and experiences with civil society organization and collective action.

broadly they define and organize the inclusion of stakeholders (Fransen and Kolk 2007).

In what follows, I will concentrate on examples where ambitions to include the views of many actors are, indeed, serious – such as in the FSC. By this, I mean there is a serious ambition to let participants play

a constructive and influential role. Such cases can be seen as crucial: the difficulties and challenges they experience (despite serious and enduring efforts to achieve integration and counteract power asymmetries) help to shed light on challenges and experiences that are likely to emerge in other cases of integrative and transnational sustainability projects. The section that follows is structured along three general topics with related questions. In my research I have found these topics essential in the development of an integrative, participatory, and transnational sustainability project. To be sure, only partial and tentative answers can be given to the questions formulated but we can at least clarify some issues:

1. The problem with a cognitive separation between the social and the environment. How can the sustainability discourse through the multi-stakeholder organization achieve an integration of social and environmental aspects? What problems emerge? Do the discourse and the multi-stakeholder organizations just cement an historical dualism between the social and the environment or could we see any potential for bridging the two?
2. Pre-existing power asymmetries among potential and actual stakeholders. To what extent is the multi-stakeholder organization just a reflection of pre-existing power asymmetries? What are the risks for overrepresentation and underrepresentation of particular stakeholders? What balancing or counteracting measures to such asymmetries should or could be achieved?
3. Participatory challenges related to the global and temporal dimension of multi-stakeholder work. What particular challenges are related to the transboundary character of the multi-stakeholder project, both in relation to spatial dimensions (many sustainability projects have multi-level features) and temporal dimensions (sustainability projects have varying time-frames)?

A CULTURAL AND COGNITIVE SEPARATION BETWEEN THE SOCIAL AND THE ENVIRONMENT

An often-stated advantage with the concept of sustainable development is that it enables dialog among actors speaking different 'languages' (Hajer 1995). The concept provides an opening and gives a common cognitive platform from which to discuss. Yet, the 'social', 'environmental' and 'economic' languages may also be hard to reconcile. Any multi-stakeholder initiative needs to cope with a historical dualism between 'the environment'

and 'the social' or between 'nature' and 'culture', a dualism institutionalized in administration and management (Boström 2012a). The environment and the social are firmly sectorized, with the environmental sector including such activities as nature protection and pollution control, whereas the 'social sector' encompasses welfare politics, social insurance systems, employment issues and so forth. These two sectors have distinct and separate traditions, and are only beginning to relate to one another (Fitzpatrick 2011). Is the sustainability discourse helpful for overcoming this dualism or should it be blamed for preserving it?

Challenges Due to the Environmental Roots of Sustainability Framing

A common observation is that the environmental roots of the sustainability discourse create a basic asymmetry between the environment and the social (e.g. Agyeman and Evans 2004). As the sustainability concept derives from an environmental thematization, it carries a particular 'ontological and epistemological baggage' (Davidson 2009; Kapoor 2001), and this heritage negatively affects how we think about the social. Notions around equilibrium, balance and stability implicate a conservative bias, which do not fit easily with a progressive political potential (Davidson 2009). While conservation of an existing nature or environment is usually assumed to be desirable, it is usually less so as regards the conservation of certain social sustainability aspects. 'No one who is interested in justice wants to sustain things as they are now' (Marcuse 1998:105). In fact, far-reaching social change may well be required to achieve a more effective conservation of environments.

Several scholars argue that the meaning of social sustainability remains vague and unclear (Lehtonen 2004; Littig and Grießler 2005; Davidson 2009; Dillard et al. 2009; Dempsey et al. 2010). Environmental sustainability is claimed to have concrete objectives, measurable indicators and universal application; which feeds a technocratic, top-down expert culture in environmental management (Kapoor 2001). At the same time, there is no equivalent scientific basis for measuring social sustainability to be found. Social sustainability is often portrayed as more subjective, soft, less scientific, more ideological, particular, short-term and local; which are types of framings that tend to subordinate social sustainability relative to the economic and environmental dimensions (Boström 2012a; Kapoor 2001). It is important to be clear here: it is not the vagueness (of social sustainability) itself that is problematic, but the different – and differently valued – epistemological understandings underlying the social and environmental framings.

In eco-tourism, for instance (see Klintman 2012), a key challenge is that

the process occurs in a transnational context, distanced and disembedded from the local, whereas the goals of sustainability tourism schemes are oriented towards benefiting the local community. Klintman shows how the dichotomy between local and global is often simplistically framed as a duality of social versus environmental concerns. This places small local actors in a disadvantaged position relative to large international corporations and the 'global' (Northern) NGOs representing environmental sustainability.

A related problem is that notions of social sustainability often refer to a multitude of aspects. Whereas economic sustainability is simple and straightforward (for example, economic viability, sustained business) social sustainability may refer to social welfare, quality of life, social justice, social cohesion, cultural diversity, democratic rights, gender issues, workers' rights, broad participation, development of social capital and individual capabilities, and so on (Boström 2012a). Accordingly, it appears difficult to delimit and define what social sustainability is. Furthermore, the more one includes under the heading of 'social sustainability', the more difficult it becomes to understand what it is, much less to achieve it. Yet, this very plurality is also a potential strength of the concept.

The implication of this is that problems may emerge when social sustainability has to be fused with and deliberated next to the other sustainability dimensions in multi-stakeholder discussions and negotiations. This type of challenge was seen in the case of the FSC, for instance. There was broad consensus among the interviewees from all three chambers (environment, economic, social) around the view that environmental aspects generally take precedence over social aspects, in both standard-setting work and certification processes (Boström 2012b). Although the FSC always gave considerable space to social sustainability concerns, it was not until the new Millennium that the focus on social sustainability intensified as a response to escalating criticism among members. Several interviewees maintained that neither environmental NGOs nor the commercial sector were particularly interested in concrete social issues. And several interviewees from all chambers argued that social values in the forest are usually seen as 'fuzzier' than environmental issues, which are seen as 'more scientific' and therefore less subjective and more legitimate to consider.

Shrinking the Social Through the Consensus Trap

Partly due to such difficulties, a depoliticized notion of the social might take hold as agents strive towards consensus and common ground (Jacobsson and Garsten 2012). In her study of two multi-stakeholder initiatives, the Roundtable on Sustainable Palm Oil (RSPO) and the Roundtable for

Responsible Soy (RTRS), Cheyns (2011) disclosed how concerns from small farmers in developing countries were effectively excluded and marginalized through a more global, eco-industrialist framing of the topic. Two quotes from her study are very telling (p. 223). First, one ‘industrialist’ from the Netherlands:

They should try to express themselves more constructively. When we hear them speak, we don’t have any desire to help them . . . They talked about land rights every time, it was very repetitive and it was not the topic of the discussion . . . They create more negative energy rather than positive.

Then a quote from an Indonesian family farmer (which perhaps was one of ‘them’ in the previous quote):

In the side events . . . where we negotiate with a company, it is as if we have to whisper. We want to talk in public in the plenary sessions and other scenes. The most interesting thing for us is to talk about justice, freedom. They should allocate more time [in plenary sessions] to talking about how farmers live and give firms less opportunity to make presentations.

A real discussion around justice was, Cheyns notes, perceived outside of the frame and threatening to the consensus of the discussions. In effect, this consensus was based on an industrial rationality. Boström and Klintman (2008) have called examples of this an ‘eco-pragmatic meta-framing’ which effectively excludes radical views on both the socio-ecological side and the market-liberal side, driven by a need to reach agreements around eco-labeling principles and criteria.

Social Aspects Excluded from the Frame

Some ‘multi-stakeholder’ bodies tend to neglect social aspects altogether, as seen in some examples of policy planning for organic agriculture (Casula Vifell and Soneryd 2012), or in the case of the Marine Stewardship Council. In the Marine Stewardship Council ‘social stakeholders’ were in effect excluded, due to a dominantly environmental framing of the issue. They were seen as irrelevant from the very start of the sustainability planning process; or rather, not seen at all (Tamm Hallström and Boström 2010). Total neglect may lead to criticism, however. Over the years the MSC faced criticism for not including various stakeholders such as organizations of fishing workers, and for the absence of social criteria in the MSC standards framework as well as for its failure to reach out to the developing world (ibid.; Ponte and Riisgaard 2011; Auld 2012). It is also noticeable that the organic movement increasingly tends to approach and look for collaboration with the fair trade movement (see Boström

and Klintman 2013). In the flower industry, a first wave of environmental standards emerged during the 1990s. The focus on social concerns was low initially. But since 1998, two multi-stakeholder organizations, the International Code of Conduct for the Production of Cut Flowers and the Ethical Trading Initiative (ETI), has pressured for social standards. They have managed to improve the social content of existing standards in the industry as well as fostering procedural improvement related to participation and transparency (Ponte and Riisgaard 2011). It is accordingly interesting to see how social sustainability becomes gradually more important in various multi-stakeholder organizations, due to external pressures.

In sum, combining social and environmental sustainability in a way that can genuinely guide standards and practices seems to be easier said than done (there are also a number of social standards, such as Fair Trade, ETI and Social Accountability 8000, which still have little to say about environmental sustainability). A sustainability framing that fails to address underlying ontological and epistemological differences is likely to restrict participatory opportunities because numerous potential stakeholders might not be invited (the organizers do not see their relevance due to the narrow framing) or because they are not able to address what concerns them most (for example the Cheyns study referred to above) or because they are not motivated to participate (as the particular framing does not connect with life experiences).

On the other hand, the very development of sustainability indicators and criteria within multi-stakeholder work, such as in the FSC, could be an activity with, at least, a potential to bridge the gap between previously separated activities and to bring attention to how environmental and social issues might hang together. The efforts of some organizations to respond to criticism are signs of an increasing willingness to focus on social sustainability. While reaffirming the historical dualism between nature and culture, some frame-bridging efforts are simultaneously done. Such frame-bridging might lead to mutual learning experiences between key actors. If so, such framing may also facilitate a different notion of politics and the political (Davidson 2009).

ASYMMETRIES OF POWER AMONG POTENTIAL AND ACTUAL STAKEHOLDERS

If the multi-stakeholder organization is to be able to realize several of the potential benefits that stem from its form, such as closing the resource gap, learning gap or regulatory gap discussed earlier, it is essential to invite stakeholders that actually can contribute something. The multi-stakeholder

organization's ability to establish authority and problem-solving capacity relies on its ability to gather and combine the 'power resources' among its members and participants (Boström 2006; Tamm Hallström and Boström 2010). This need introduces a particular tension in that each individual stakeholder may use its own power resources to argue and push for its specific agenda. And if strong stakeholders merely use their power resources to advance their positions and defeat weaker stakeholders, the long-term stability, viability and legitimacy of the standard-setting organization would be damaged. This tension is discussed from different angles in this section.

Imbalances Due to High-Profile Actors

First, imbalances in the multi-stakeholder arrangement may accentuate as a consequence of the need to mobilize 'high-profile actors' (Tamm Hallström and Boström 2010). It may be especially important to mobilize certain stakeholders because they are seen as powerful and highly legitimate in the political and regulatory space (Mitchell et al. 1997).³ So much so that the multi-stakeholder organization may be inclined to develop special arrangements in order to secure their participation (such as the International Labour Organization in the ISO 26000 process; see Tamm Hallström and Boström 2010). At the same time, such strong dependence on a few particular actors reveals the vulnerability of the multi-stakeholder organization (ibid.; Boström and Tamm Hallström 2013). In the case of the MSC, key business actors such as Unilever, Sainsbury and Wal-Mart have in various ways played crucial roles for its establishment and growth. At the same time, the strong reliance on these actors has not been unchallenged by other stakeholders such as Greenpeace, because their inclusion, combined with a 'fast-growth' approach, might lead to temptations to weaken key standards (Tamm Hallström and Boström 2010: 158–9).

Imbalances Due to Different Capabilities

The other side of the coin concerns the many actors that are hard to mobilize because of their restricted ability to take part. The FSC case is illustrative of challenges to mobilize 'weak' stakeholders, and thus to achieve balanced participation. The FSC has struggled to cope with unbalanced representation in terms of fewer members in the social chamber (which can be developmental NGOs, labor unions, groups representing indigenous peoples, representatives of local communities). In 2011, FSC had 804 members, with 48 percent from the economic chamber, 34 percent from the environmental chamber and only 18 percent from the social chamber;

including a 21 percent decrease of members from the environmental chamber since 2009 (see Boström and Tamm Hallström 2013). While the social chamber in the FSC has one-third of the formal decision-making power, fewer social members implies fewer informal mechanisms, such as ability to persuade or to network (Boström and Tamm Hallström 2010).

The fact that the economic and industrial stakeholder, often including retailers in the middle of the product chain, is the most active type of participant is also documented in many other studies on multi-stakeholder work, such as in the fishery and cut flower industries (Ponte and Riisgaard 2011), the multi-product retail industry (Fransen 2012), the ISO 26000 process on social responsibility (Tamm Hallström and Boström 2010; Balzarova and Castka 2012), roundtables for responsible palm-oil (Cheyns 2011), standardization of eco-tourism (Klintman 2012) and fair trade labeling (Reed 2012), to give just a few examples. Such actors have both the capacity and the motivation to take part (Fransen 2012).

Even if an affected group (for example, a local population that is negatively affected by industrial activity) is able to come and take part as a 'stakeholder', it is still not sufficient to just 'be there'. There are different types of capabilities that stakeholders need to possess in order to carefully prepare arguments and to make an impact: financial, cognitive, symbolic, and social and organizational (Boström and Tamm Hallström 2010; Faysse 2006). 'To communicate', notes Cheyns (2011: 214) in her participatory observation within RSPO and RTRS, 'it is particularly important "not to be shy", to know the others' plans, "to understand the stakes", "to be proactive", to stick up for oneself (contrary to the "victim" figure who is disqualified), "to lobby", "to intervene", or "to make the first move"'.

Such micro-power abilities (Kapoor 2001) differ considerably among the participating stakeholders. Likewise, the motivations and skills to negotiate and make compromises in favour of pragmatic problem-solving are not distributed equally. One particular capability relates to social capital on the transnational and/or the local level. This concerns access to networks and the ability among actors to link to, or to establish, formal or informal cooperation or alliances. In a multi-stakeholder arrangement it is essential to find collaborating partners both within and across stakeholder categories (Boström and Tamm Hallström 2010). Such capabilities derive from networking skills, frame-bridging skills (such as ability to link the 'social' and the 'environmental'), leadership experience, and resources to arrange meetings, seminars and workshops. Participation as such may lead to new contacts, which in turn expand one's social capital and so increase capacity to develop fruitful collaboration and alliances. Some environmental NGOs are particularly well trained and organizationally structured to establish links, networks or alliances among groups on a global scale (Keck and

Sikkink 1998; Smith 2005), whereas a lot of smaller social and environmental NGOs lack such abilities.

Certainly, ‘asymmetric patterns’ reflect the fact that ‘civil society is strongly organized in industrialized countries in the North but weakly organized in all but a few countries in the South’ (Dingwerth 2008: 63–4). Indeed, a core assumption to be found in both scholarly literature and in the practice of multi-stakeholder collaboration is the existence of three sectors: business, government and civil society. However, such a tripartite description of society is more or less adequate in various countries (Bendell et al. 2010).

With reference to one case on water user associations in South Africa and another on a negotiation platform set up to resolve conflicts over a water and sanitation project in Bolivia, Faysse (2006) has studied and discussed how ‘multi-stakeholder platforms’ (MSPs) may or may not strengthen capacity building in countries with ‘unfavourable circumstances’, that is, social inequities, illiteracy, disorganized stakeholders, lack of technical and financial capacity, and so on. Faysse argues that pre-existing power relationships, the composition of the MSP, the capacity to participate, and decision-making powers and mechanisms in the MSP are among key factors to take into account if such MSPs are to play a meaningful role for weaker actors. Otherwise, the risk is that weaker groups in highly heterogeneous MSPs get forced to accept agreements contrary to their interests and indirectly legitimize the process in the name of inclusiveness and sustainability, that is, they get co-opted.

South versus North and Small versus Large

Studies of transnational multi-stakeholder regulation have frequently documented asymmetries of power among participants along a South–North axis (Fransen and Kolk 2007; Cheyns 2011; Reed et al. 2012). What are the figures in the FSC case? Although the social members are fewer, the FSC appears, on the surface, to have done a relatively good job in recruiting participants from developing countries. Forty-eight percent of the members come from ‘Southern’⁴ countries (Boström and Tamm Hallström 2013). However, the numbers declined after 2009 (a 16 percent decrease), and what is particularly striking is that the North has many more organizations as members, whereas the South has many more individuals as members. Being a member as an unaffiliated individual, compared to being a representative of an organization, means you have less formal power (10 percent compared with 90 percent of the voting power for organizations). In addition, interviewees in this study maintained that those without affiliation to an organization tended to be weaker (see Boström 2010; see also

Cheyns 2011). Unless you are well known, an individual who wants to have a strong position in a sustainability project such as FSC needs to be backed by a larger network or an organization with access to its collective resources. This is even truer at the transnational level. It is easier to claim that you speak on behalf of a broader (transnational) group of interests if you participate as a member or representative of a (transnational) organization or network.

Utting (2012) identifies limited progress in achieving the empowerment of workers and small-scale producers in developing countries in several cases of multi-stakeholder regulation, including ISO 14000, Social Accountability 8000, the Global Reporting Initiative, the Ethical Trading Initiative, Fairtrade International, the International Federation of Agricultural Movements, and Global Partnerships for Good Agricultural Partnerships. They are designed in the North, and struggle to become equally applicable in the developing South. Klintman (2012) finds similar patterns in the case of eco-tourism and Cheyns (2011) discloses a variety of mechanisms through which smallholders, local communities and family-based farmers in developing countries were marginalized or excluded as stakeholders. Their representation was partly substituted by other more resourceful stakeholders, including industrial firms and large environmental NGOs, talking about 'the case of smallholders'.

Even in fair trade, where the initial ambitions have been to empower small producers and their communities in developing countries, similar power asymmetries are to be found (Reed 2012). In Fairtrade International there have been intensive tensions between on the one hand so-called 'labeling initiatives' from the North, which were founded primarily by Northern developmental NGOs and in which also corporate actors gradually play a more prominent role, and on the other smaller producer organizations from the South. The former group gained from the very start a stronger role in the governance structure, although recent reform of the governance arrangement has taken place as a response to rising criticism (Reed 2012). One of the central debates has been the allowance of two types of standards: one for small producers, marked by a 'social economy' value chain; and another for larger agricultural estates, which is closer to a 'liberal corporate' accountability approach. The latter type has expanded greatly and there is a fear among smaller producers that it will crowd out small-scale operations as well as watering down the fair trade standards. They fear that the existence of two regulatory models within the fair trade system results in unfair competition. Estate production has meant that small producers increasingly must compete with corporations and private owners of large estates, which have significant cost advantages due to economies of scale, and which do not invest in the development of the broader local economy

(Reed 2012). In effect, empowerment issues are limited in this large-scale approach, according to Reed (2012: 310):

any intention of facilitating the empowerment of workers and small producers is greatly constrained, with social protection being a more realistic goal. In the case of agricultural workers, empowerment is largely limited to exercising rights to collective bargaining and deciding on the distribution of the social premium. For small producers, support for capacity building is limited to activities and knowledge that improve product quality and control costs.

Structural Issues and Issues of Power

All the multi-stakeholder examples mentioned above are examples of sustainability initiatives that rely on a capitalist logic. Trade-offs between social, environmental and economic goals are unavoidable. In his investigation and comparison of Fair Trade and the Forest Stewardship Council, Taylor argued that:

One of the most serious challenges of certification and labeling initiatives today is actually to be 'in the market but not of it', that is, to be able to pursue alternative values and objectives such as social justice and environmental sustainability without being captured by the market's conventional logic, practices and dominant actors. (Taylor 2004: 130)

It is practically impossible for these kinds of market-based sustainability projects to work for the whole host of structural social issues in poor contexts: poverty reduction, illiteracy improvement, unbalanced wealth distribution, lack of economic and social capital, poor local infrastructure, poor education, and weak local civil societies and workers' unions (Klooster 2010; Boström 2012a, 2012b). The irony is that it may be exactly the strengthening of such social conditions that are needed in order to be able to work towards improved sustainability in the broad and integrative sense. The referred transnational sustainability projects are to a great extent dependent on the (state) provision of good infrastructures and institutions locally and transnationally (Reed et al. 2012).

Given such unfavorable conditions, issues of justice might be considered unrealistic. In the case of RSPO and RTRS, structural issues (such as the issue of land rights and customary rights, as well as issues of justice) became impossible to bring to the table despite the fact that these were considered the crucial issues among some of the stakeholders: 'The problem is not only soy, it is more complex. The entire agricultural model must be discussed. We must talk about the agricultural model of maximum profitability which pushes small-scale farmers to sell their land and farmers to migrate!' (RTRS participant, quoted in Cheyns 2011: 219).

In sum, as material, symbolic, cognitive and social capabilities are unequally distributed among actual and potential stakeholders, a participatory process that does nothing more than invite stakeholders without any assistance for weaker stakeholders (traveling grants, education programs, social networking activities such as side-events during meetings, language assistance, and so on) is likely to achieve only the preservation or accentuation of existing power asymmetries in the specific sustainability project (Boström 2006; Faysse 2006; Cheyens 2011) and in the organizational landscape more generally (Bäckstrand 2006). Reed and Mukherjee-Reed (2012) similarly argue, by commenting on the ongoing divide between North and South in multi-stakeholder regulation, that a truly democratic structure in such initiatives requires efforts that neutralize power differentials between actors. As sustainability surely concerns justice (Agyeman and Evans 2004), such empowerment issues appear necessary for any sustainability projects with broad and integrative ambitions. I return to such capacity-building and empowerment issues in the concluding discussion.

CHALLENGES RELATED TO THE GLOBAL SCALE AND DURABILITY

The Spatial Dimension

If we take into account a spatial dimension, asymmetries become even more critical. Some actors are entangled in a local context, whereas other actors move more freely on different levels – from the local to the global – and can mobilize and combine various resources from their global networks. Although it requires considerable resources for any stakeholder to participate in global or transnational multi-stakeholder work, the difficulties for the weakest ones are multiplied.

To be sure, local views, knowledge and experiences can be addressed, represented, and aggregated within systems such as the FSC, fair trade and organic agriculture (the International Foundation for Organic Agriculture, IFOAM). There are sophisticated organizational structures and communication channels that enable this, and there are stakeholders with abilities to globalize local concerns and to monitor what is going on in certified practices worldwide. Regional offices have been established as a way to better take into account local and regional priorities; as seen in, for example, the FSC (Boström 2012b) and Fairtrade International (Reed 2012). In the latter case, producers in Latin America and the Caribbean have done so and been able to limit the use of estate agriculture production within the fair trade system in four major products: coffee, cocoa, cotton and honey.

Yet, for participants, abilities differ enormously. Not everyone can send delegates to those places where multi-stakeholder deliberations are occurring. This problem can only partially be rectified by using electronic communication, because emailing cannot compensate for personal contacts and face-to-face interaction (Smith 2005). In terms of working capacity, it is also important to have resources for making sufficient preparations before participating in deliberations and decision-making. Some stakeholders have international offices, many others only have local branches with volunteers. In the FSC case, global environmental NGOs such as the World Wide Fund for Nature (WWF), Greenpeace and Friends of the Earth appear considerably stronger than many stakeholders representing the social chamber (Boström 2010).

Not only do stakeholders have to cope with costs and language barriers; there are also such organizational and cognitive aspects as the difficulties of perceiving, framing and representing a 'global view' or a universal interest (Boström and Tamm Hallström 2010, 2013). An important cognitive power strategy involves claims of universality. For some environmental NGOs, thinking in terms of global interconnectedness and the linking of local problems to global matters appears very natural, whereas many social NGOs tend to stick with the local perspective. Moreover, local perspectives from hugely different countries may be difficult to reconcile. Those participants that are able to provide a global view are extremely helpful for transnational multi-stakeholder organizations that seek to develop a globally applicable standard. Cheyns (2011: 226–7) shows that local actors – in the cases of RSPO and RTRS – faced difficulties in that their claims were considered 'too local'. Practical knowledge was subordinated by more theoretical knowledge, which was abstracted and detached from the local context. Cheyns discussed this in terms of a 'capacity for detachment'. Ulrich Beck (2005) relates power 'in the global age' with capacity to move from a national outlook towards a global ('cosmopolitan') view. This cosmopolitan outlook includes understanding of global interdependencies and how national and global risks and crises interact. However, affected groups whose living conditions are fundamentally at stake might understandably prioritize 'their own case' first and foremost. A couple of observations from the study of Cheyns are illustrative:

The difference between them and me is that they are here as part of their job whereas I am here to defend our very lives, and we aren't paid for that. (Indonesian family farmer quoted in Cheyns 2011: 229)

Most international participants have only very limited knowledge of the living conditions of 'local minorities', often in remote and very inaccessible locations; they are more accustomed to major hotel chains and conferences in cities throughout the world. The Roundtables primarily emphasize the capacity to be

mobile and not remain rooted in a particular territory, living in a 'connectionist' world (Cheyns 2011: 229)

The Temporal Dimension

Permanence creates another participatory dilemma. Multi-stakeholder work is a long-term process. Stakeholders with few resources might get specific funding for traveling to single big events. (For example, I got a specific grant to send a research assistant to one of the FSC's General Assemblies.) However, multi-stakeholder organizations are set up with members that are supposed to sustain their membership and partake actively over a long time.

On the one hand, long-term multi-stakeholder platforms means better opportunities for capacity building (Faysse 2006). Many multi-stakeholder sustainability projects have a limited time-frame; they use a 'project mindset' (Casula Vifell and Soneryd 2012: 26): 'In the project form of organization, pressures for efficiency and a short timeframe will most likely lead to an unhealthy limitation of participants, knowledge and scope'; which in turn means that the integration of social and environmental aspects becomes harder. Such integration necessitates a learning period characterized by lots of communication; and this takes time. Furthermore, sustained participation gives a stakeholder leverage to remind other stakeholders about earlier commitments. Monitoring power (Boström and Tamm Hallström 2010) is the ability to assess performance against promises and to expose the distance between rhetoric and practice (see also Keck and Sikkink 1998; Smith 2008). By participating in a multi-stakeholder initiative, a particular stakeholder gains insight, experience and knowledge about standards, policies, viewpoints and strategies; insights that they can use later both for evaluating progress in the multi-stakeholder work and for external monitoring and campaigning activities.

The importance of acknowledging a temporal dimension is highlighted in a study of participatory environmental monitoring of a Brazilian mining company (Devlin and Tubino 2012). They demonstrate how rising public mobilization and participation, in connection with certain enabling conditions, could bring about positive change in the company's environmental plan. Yet, the initial victory turned after a few years to failure, as public mobilization is episodic. Their case revealed that the company in question could later introduce new programs to deflect attention from past agreements. In light of these findings they argue that participatory supervision needs to be institutionalized so that public participation not only occurs during a planning process but also is part of subsequent implementation and management.

On the other hand, long-term participation may fit some – organized – stakeholders better than others. This relates to both material aspects (the actual capacity to take part over time) and ideological ones. Some actors, including many NGOs, place their symbolic power, credibility and critical distance at risk when participating, because their political power may require an independent position. Long-term commitment may also conflict with core activities, ideologies, ‘movement-identity’ or campaigning orientation of particular value-driven stakeholders (Boström and Tamm Hallström 2010).

Another dilemma is that power relationships may become embedded or locked into organizational or institutional arrangements over time (McAdam and Scott 2005), and the arrangements may make it easier for some stakeholders to consolidate their power (Boström and Tamm Hallström 2013). Furthermore, the institutionalization of the arrangement may give rise to various kinds of inertia. Arrangements, such as the chamber structure within the FSC, become difficult to change. Incremental reform can also make the administration more complex and bureaucratic, as Tamm Hallström and I noted in an investigation of the way the FSC, MSC and ISO developed and institutionalized over time (Tamm Hallström and Boström 2010; see Casula Vifell and Thedvall 2012 for similar tendencies within Fairtrade International). For instance, in the cases of the MSC and FSC, Tamm Hallström and I observed a rapid growth of additional standards, policies, guidelines, documents and methodologies, some of which are written merely to clarify or help interpret others. Increasing complexity may create such unintended consequences as increasing difficulties for participants to participate effectively. This problem was emphasized, for example, by interviewees from such a relatively strong NGO as Greenpeace. If such a strong stakeholder faces difficulties in digesting complex procedures, and feels frustrated about the time-consuming efforts that need to be made in order to gain an overview and make an impact in the standard-setting work, it is not hard to imagine the difficulties experienced for much less resourceful stakeholders to know where to focus attention, resources and strategies. By contrast, there is one very particular stakeholder that may receive an advantageous position due to the bureaucratic tendencies: the international secretariats (Barnett and Finnemore 2004). It is among the staff working on day-to-day issues at the secretariats of the multi-stakeholder organizations where one can find those gaining the overview and organizational expertise of various standard-setting matters and procedures. They see the need for further refinements and may feed a ‘treadmill’ of expansion. If the bureaucracy becomes more and more powerful, the very multi-stakeholder feature of the multi-stakeholder organization could

eventually be undermined because it is no longer the members who form and decide on agendas.

CONCLUSION: THE SUSTAINABILITY OF THE MULTI-STAKEHOLDER MODEL?

The key argument developed throughout this chapter is that any multi-stakeholder process that does little more than opening up for broader involvement is likely only to preserve existing power asymmetries and to reproduce the split between 'the social' and 'the environment'. Such examples will be unable to counteract environmental injustice. First, there will be ontological and epistemological barriers, which the sustainability discourse is unable to bridge. Debates from a social frame will be hard to align with an environmental frame. Second, the perceived need to invite actors with strong power resources will make it difficult to maintain a power balance. Those without will likely not come, and if they did come they would face various hurdles to make themselves seen and listened to. The most important structural issues (for example, poverty reduction, illiteracy, land rights, unbalanced wealth distribution, lack of economic and social capital, and so on) are unlikely to be brought to the table. Third, cognitive and organizational challenges to the achievement of broad and balanced participation become accentuated due to the global and enduring scale of the multi-stakeholder operations.

The very sustainability of the multi-stakeholder model thus seems to require thorough and incessant work in counteracting such tendencies by achieving frame-bridging between the social and the environment, and facilitating balanced and effective participation. Otherwise, a very narrow approach to multi-stakeholder work will follow (Fransen and Kolk 2007), or external and internal destabilizing forces may undermine the legitimacy and, hence, the long-term vitality of the arrangement (Tamm Hallström and Boström 2010; Boström and Tamm Hallström 2013).

Therefore, how can capacity building and empowerment be encouraged as a way of bolstering the multi-stakeholder model? First of all, the very fulfillment of certain social sustainability standards may lead to such empowerment as a new awareness of rights and organizational skills. The fact, for instance, that FSC certification requires a system in place for local communication among various stakeholders directly facilitates civil society capacity building. Interviewees in this case (see Boström 2010, 2012b) described how workers and local communities had essentially no experience with organization and collective action prior to becoming involved in the FSC certification process, as well as how they have gained

awareness of, for example, a variety of rights, ILO standards, and management plans.

However, organizations such as the FSC have had to face facts and recognize failures to achieve a number of social goals. There is an acknowledgement that serious efforts need to be made on a continuing basis for facilitating the inclusion of social stakeholders in various stages, including standard and policy development as well as certification and implementation processes on the ground. A fundamental problem for facilitating such empowerment is that multi-stakeholder organizations generally face scarcity of resources. They largely rely on other 'strong' stakeholders in any effort to strengthen weaker ones. Many challenges are far deeper than what the FSC and its network could cope with on their own, as these challenges relate to poverty, illiteracy, corruption, lack of democracy, lack of a civil society, unclear democratic and land rights in different local settings – the list of such structural issues goes on. It should be emphasized that such structural change and capacity building cannot be done without external support, which in turn needs to involve the international community of state actors and intergovernmental organizations, with the UN at the core. Civil society and businesses cannot achieve this alone (Reed et al. 2012).

Nevertheless, in addition to structural capacity building by external actors, there are various things the FSC itself or its 'strong' members or allies can do (in the case of the FSC, various global or Northern-based NGOs such as WWF or governmental development organizations for capacity-building service have been mentioned as important, see Boström 2010). They may contribute to the empowerment in different ways: financially (covering traveling expenses to global meetings), cognitively (providing relevant education, information, assisting with translation), fostering social capital (facilitating networking through side-events during general assemblies and various interactive methods) and symbolically (visualizing and recognizing the name and activities of particular stakeholders that have difficulties in presenting themselves to global audiences; recognizing the social rights of local organizations, for example the right of workers to organize).

The empowerment of 'weak' actors, however, raises additional questions. One interviewee from the FSC secretariat stated (Boström 2010: 57): 'What we wouldn't want to [*sic*] is to create elites, I don't think FSC would like to be associated with creating elites within the, let's say indigenous peoples, people who can get funding to attend big international meetings but lose their representativity, so I think that's a real problem.'

Moreover, isn't there a problem when Northern-based environmental NGOs such as WWF tend to speak on behalf of Southern-based social constituencies? How can the former (claim to) know what the latter need

and want? Is there a risk that the former focuses (too) much on environmental sustainability and misses important aspects of social sustainability?

If done reflexively, however, the bridging of social and environmental sustainability is likely to do more good than harm. Social sustainability seems to win terrain within the general sustainability discourse. For the last decade this frame has assisted in focusing attention on many new issues among academics, policymakers and practitioners (Boström 2012a). It has triggered several new debates about connections, synergies and trade-offs between social and environmental aspects. Issues surrounding justice and participation appear harder to ignore, as seen in some of the examples mentioned in this chapter. If there is a risk, due to its environmental roots, that the sustainability discourse tends to depoliticize matters, an increasing and systematic emphasis on social sustainability can be an important counterbalance (Davidson 2009). It highlights and problematizes justice and participation, and could make various audiences sensitive to previously unseen power relations within the sector. Multi-stakeholder initiatives accordingly provide organizational and discursive platforms that potentially enable actors to demonstrate alternatives, to politicize matters and to bring issues of environmental injustice to the table.

NOTES

1. In Tamm Hallström and Boström (2010), the authors analyze and compare the examples of the Forest Stewardship Council (FSC), the Marine Stewardship Council (MSC) and the work of the International Organization for Standardization on Social Responsibility (the so called ISO 26000 standard). Boström was also project manager of the research project 'The Missing Pillar: Incorporating the Social Dimension in Transnational Sustainability Projects' which, for example, produced a couple of general articles (Boström 2012a; Boström et al. forthcoming) and two publications focusing on the FSC and the social dimension (Boström 2010, 2012b). Findings from these studies will also be reported here.
2. Several scholars have written informative texts on the establishment of the FSC. See, for instance, Pattberg (2007), Tamm Hallström and Boström (2010) and Gulbrandsen (2010).
3. Mitchell et al. (1997) identified three attributes that affect managers' prioritizing among stakeholders' various demands: the stakeholder's power, its legitimacy and the urgency of its claim.
4. The FSC uses UN categories to distinguish between South and North, which have nothing to do with geography, but are based on economic wealth.

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14. Education for sustainable development and welfare reform: a very British case study?

Carolyn Snell and Sarah Brooks-Wilson

INTRODUCTION

This chapter introduces the relationship between education and sustainable development, both in terms of the teaching of sustainable development related concepts within educational systems, and in terms of the sustainable practices of educational establishments. Firstly it introduces some of the philosophical debates around the education–sustainable development relationship, and the underlying features of sustainable development within an educational context. Secondly, it considers international policy ambitions, with particular focus on the United Nations Educational, Scientific and Cultural Organization’s (UNESCO) Decade for Education for Sustainable Development. Thirdly, it presents empirical evidence from the UK, considering how sustainable development has been integrated within existing policy frameworks and requirements, and the challenges of implementing international policy goals in a context of austerity, a focus on the private sector and emphasis on devolved responsibility. Fourthly, the chapter reflects on the evidence from the UK-based case study, considering lessons learnt, and implications for future strategies.

SUSTAINABLE DEVELOPMENT

Government-initiated pro-environmental strategies can be seen as far back as the industrial revolution when policies were developed to address poor health outcomes arising from pollution and overcrowding (Cahill 2002). Single-issue environmental policies such as deforestation and climate change became popular internationally during the 1970s (Carbon Trust 2005) and domestic policies became increasingly internationally driven, as the transboundary nature of environmental problems increased the need for global solutions (Giddens 1998). In 1972 the first UN conference on Human Environment took place (Berkhout et al. 2003), followed in 1983 by the creation of the World Commission on Environment and

Development (WCED). The now famous WCED publication of 1987, *Our Common Future*, often referred to as the Brundtland Report (Brundtland 1987), introduced the term 'sustainable development' for the first time.

Sustainable development has become an intrinsic part of policies on a regional, national and global level. Unlike previous fragmented policies concerned with the environment, sustainable development is typified by an integrated approach, fusing economic, social and environmental considerations together, with inter- and intragenerational social justice concerns adding further breadth. Although some variations exist, the Brundtland definition is commonly accepted and widely used, describing sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland 1987: 24). Whilst the Brundtland definition of sustainable development is the most typically cited, there remain a range of approaches to sustainable development that differ in terms of their understanding of environmental problems, the human impacts of these, and the most appropriate policy responses. For example, Sharp (1999) suggests that definitions and approaches range from the 'techno-centric', where the impact of environmental problems on human well-being are of greatest concern, and technical solutions (such as greener production methods) are regarded as the most appropriate responses. On the other hand, at the other end of the spectrum, 'eco-centric' perspectives place a much greater responsibility on humans, and propose radical changes to address these, for example, changes in institutions or social norms (see Sharp 1999 or Carter 2007 for a further discussion of this). Given the obvious ambiguity of the term, some argue that whilst it is broad enough to appeal to a wide range of actors (for example, policymakers, politicians, the public), equally it may result in very weak positive environmental outcomes, supporting the status quo rather than promoting change (Lele 1991). One response that has developed to deal with the challenges of implementing sustainable development is ecological modernization (Langhelle 2000; Carter 2007). Ecological modernization does not require significant change in existing societal norms and structures, but instead attempts to integrate environmental concerns into existing institutions, markets and organizations, reforming them where necessary (Carter 2007). Essentially, ecological modernization aims to link developed-market economies with environmentally friendly development through innovation in environmental technologies (Janicke 2008: 557). However, as Langhelle argues, 'At best, ecological modernisation is a "weak" expression of sustainable development' (2000: 318).

At the public policy level, one key idea that has emerged from debates concerning the implementation of sustainable development is that of environmental policy integration (EPI) (Jordan and Lenschow 2010). Lafferty

and Hovden (2003: 2) suggest that EPI became an essential part of the European push towards sustainable development in the 1990s, where environmental considerations began to be asked of government departments not traditionally associated with environmental policies, and governments began to concern themselves with the challenge of implementing sustainable development ideas more generally. Lafferty and Hovden identify vertical and horizontal forms of EPI, where 'the vertical dimension concerns the extent to which a particular governmental sector has taken on board and implemented environmental objectives' and horizontal dimensions consider 'the extent to which a central authority has developed a comprehensive cross sectoral strategy for integration' (2003: 20). They identify horizontal dimensions as most challenging as they require interdepartmental cooperation, and high-level political and policy support. One further issue associated with sustainable development as a policy concern is that of measurement. Where targets for and indicators of sustainable development are developed by policymakers, these can be controversial and problematic (Pearce 1993). Perhaps it is unsurprising, given the challenges of horizontal EPI, that it is more common to see individual indicators that relate to particular issues (such as water quality) at the national level, rather than measuring sustainable development as a whole (Moffat 2008), as this fits more naturally into the departmentalized nature of government. Uncertainty about the exact nature of environmental problems and their impacts also makes targets and measurement more complex (although one of the underlying premises of sustainable development is that uncertainty should not be used as a reason not to act). How sustainable development is understood will also affect how targets and measures are constructed, as stronger versions of sustainable development are likely to lead to more stringent targets (see Moffat 2008 or Parris and Kates 2003 for a full discussion of this).

Typically, work reflecting on the implementation of sustainable development suggests that very weak versions are adopted, with ambitions that do not challenge current institutions or values (Lele 1991). As Lukes (2005) argues, the balance of social, environmental and economic needs suggested by sustainable development is yet to be achieved, with economic development still taking priority.

EDUCATION FOR SUSTAINABLE DEVELOPMENT

As described above, international concern about the relationship between human activities and environmental problems gathered momentum in the 1970s and 1980s, culminating in a number of international conferences

and agreements. The role of education in addressing, improving and maintaining environmental quality intensified during this period. In the 1970s the apolitical concept of environmental education emerged, focusing on environmental science and nature (Tilbury 1995). Whilst forms of environmental education existed before the 1970s, these tended to be taught in a discrete manner in a small number of disciplines. Given the rapid changes at the international level in the late 1980s and early 1990s, and the increasing emphasis on environmental development, the themes of sustainable development began to influence environmental education. New approaches emerged, including education for sustainability (EfS), environmental education for sustainability (EEFS), and education for sustainable development (ESD¹) (Tilbury 1995). The key difference between environmental education and these new sustainable development-focused approaches was that the former focused on providing education about the environment, whereas the latter were far more ambitious, promoting both short-term and long-term environmental improvement, with education as a means of achieving this.

At the international policy level, Agenda 21, the most significant output of the Rio Earth Summit in 1992 and widely regarded as an implementation plan for sustainable development, gave considerable attention to the role of education. Chapters 35 and 36 of Agenda 21 promoted awareness, training and education, and UNESCO was given responsibility for the implementation of these chapters. Whilst Chapter 35 focused on the importance of science for sustainable development (and highlighted the importance of strengthening science infrastructure in schools), Chapter 36 was explicitly focused on education, stating:

Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues . . . Both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development. (UN 2012)

As international recognition of the importance of ESD grew, 2005–2014 was declared the UN Decade for ESD (DESD). UNESCO, leading the DESD, highlighted its overall goal as: 'to integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all' (UNESCO 2005).

Whilst there is no single definition of ESD, and even as demonstrated above, terminology is not consistent, its critical approach and holistic nature is summed up well by Huckle:

Education for sustainability . . . helps people and communities to examine critically the technologies, systems of economic production, cultural systems of reproduction, laws and politics, and ideas and ideologies they currently employ for living with the rest of nature. It also helps them to reflect and act on viable alternatives. (Huckle 1996: 4)

In practice, ESD is commonly defined in two components, where ESD1 is defined as learning for sustainable development, where it facilitates a: '[c]hange in our ability to deal with the problems of the present, and how we live now, by promoting behaviour change, a shift in habit, or a switch in how things are thought about, where the need for this has been clearly identified and socially agreed' (Scott 2009: 36). Whereas ESD2, or learning as sustainable development, is described as facilitating a: '[c]hange in our ability to deal with an uncertain and unknown future by building students' capacity to think critically about [and beyond] what is known now and what experts say, and to test out sustainable development ideas' (Scott 2009: 36).

IMPLEMENTING EDUCATION FOR SUSTAINABLE DEVELOPMENT

Given UNESCO's role in driving forward ESD at the global level, it has developed guidance and supported both global and regional networking, leading to increased international policy recognition (Pigozzi 2010). UNESCO developed an International Implementation Scheme which identified a number of strategies to assist countries in moving forward and creating their own national or regional implementation plans. These included: consultation, partnership and networks, capacity building and training, and research and innovation (UNESCO 2005: 17). However, critics of the DESD (see e.g. Jickling 2006; Mulà and Tilbury 2009; Schlottmann 2008) have suggested that its aims are too broad and complex to be implemented with any significant meaning at the national and local policy levels (Eilam and Trop 2011). Indeed, within developing countries critics have identified numerous existing strategies (such as Education for All, the Millennium Development Goals, and the UN Literacy Decade) that may overlap with the aims of the DESD, and make it a crowded policy area (see Gadotti 2010; Pigozzi 2010; Swee-Hin and Cawagas 2010). Equally, it is argued that ESD in developing countries, or for example those undergoing post-war reconstruction, must include a broad range of policy issues in order to be relevant and successful, such as HIV/AIDs or peace education. Pigozzi (2010) suggests that at the individual country level there are still significant limitations to the successful implementation of ESD.

She finds that there is little funding for ESD at the national level, and where it does exist, this is typically within developed countries in Europe or North America. She also argues that even where national governments have supported ESD there are a number of barriers to action, including complexity of the educational policy landscape, problems of measuring ESD (similar to those discussed above in relation to the measurement of sustainable development), problems of capacity (for example, given that some would argue that ESD represents a particular world-view, its success may depend partly on whether those involved in its implementation share this view and are knowledgeable about it), and finally, problems in balancing the three dimensions of sustainable development (environment, society and economy), with, as described above, an emphasis typically being placed on economic concerns.

The complexity of the education landscape is a highly important issue and merits further discussion. Similar to the issues raised above regarding the 'busy' international landscape, national educational policy is typically complex, divided across numerous governmental departments and policy levels, with significant involvement with many stakeholders. For example, in the UK, the Department for Education has overall responsibility for education, local authorities also have some involvement, schools have a degree of autonomy (depending on their status), and there will also be input from other departments and organizations such as the social services, transport planners, waste management departments and a wide range of private and third-sector contractors. This complex landscape leads to numerous (sometimes competing) pressures being placed on schools. In the UK, Huckle (2009) argues that school managers are 'driven by targets, budgets, competition, and (narrowly defined) effectiveness', and must juggle numerous government-led initiatives, such as (at the time of his article) Healthy Schools, National Framework for Sustainable Schools, Growing Schools, Extended Schools, Federated Schools, and Every Child Matters (Huckle 2009: 19). Huckle (2009) identifies a mismatch between policy ambition and implementation as a result of the artificial division of school disciplines, mirroring the issues associated with the reception, integration and measurement of sustainable development at the national level described above.

EDUCATION FOR SUSTAINABLE DEVELOPMENT IN ENGLAND AND WALES

ESD became part of the national curriculum in England and Wales, and was formalized in 2006 as part of the Labour government's National

Framework for Sustainable Schools (NFSS) with the aim that all schools would be 'sustainable' by 2020. Not only were schools asked to integrate the teaching of sustainable development-related concepts into the curriculum (for example, climate change), but they were also asked to involve children and the wider community in sustainability-related decision-making and activities (for example, physical changes to the school grounds that were being carried out under the Building Schools for the Future, BSF, buildings improvement programme). Schools were encouraged to work with a range of stakeholders to deliver sustainability objectives across eight doorways of action (food and drink, energy and water, travel and traffic, purchasing and waste, buildings and grounds, inclusion and participation, local well-being, and the global dimension). ESD policy developed rapidly and was largely focused on the school curriculum and higher education (Selby 2006; Winter 2007). This can be seen in the *National Curriculum Handbook* for England (DfEE and QCA 1999), Ofsted reports (e.g. Ofsted 2003, 2008, 2009), the DfES *Sustainable Development Action Plan for Education and Skills* (DfES 2003), and the launching of the NFSS. In 2004 then Prime Minister Tony Blair spoke of his vision for schools, in which 'students won't just be told about sustainable development, they will see and work within it: a living learning place in which to explore what a sustainable lifestyle means' (Brown 2004: 9, cited in Selby 2006: 353).

In 2010 there was a change of government from Labour to the Conservative-led coalition. Whilst New Labour was considered to have continued the neoliberal trajectory begun by Thatcher (see Prasad 2006 for a discussion of Thatcher's politics, and Gray 2004 for a commentary on New Labour) social policy academics identify significant changes in terms of ideology and policy post-2010. Grimshaw and Rubery (2012: 1) compare the two approaches as 'the liberal collectivist approach of New Labour with the reinforced neo liberalism of the coalition government'. They argue that the ideology and policy impact of the coalition 'emphasises the liberal element and seeks to withdraw state funding and indeed responsibility from many areas, old and new, of state interventions . . . "big society" can be empowered to provide services instead of the state' (2012: 122). Equally, as Taylor-Gooby and Stoker argue whether the Coalition's approach is ideological or 'politics as normal', 'It involves a restructuring of welfare benefits and public services that takes the country in a new direction, rolling back the state to a level of intervention below that in the United States – something which is unprecedented' (Taylor-Gooby and Stoker 2011: 14). Whilst this chapter does not have the space to reflect on the nuances associated with defining Coalition policy, it is important to note that ESD policy post-2010 mirrors many of the changes highlighted above, with a withdrawal of state support, emphasis on local networks and

action, and focus on self-determination. Indeed, following the change in government, ESD-related policy changed almost immediately. The BSF programme of infrastructure improvements was frozen, and ultimately the majority of projects were cancelled. In November 2012 a new 'Priority School Building' programme was announced with an expected spend of £2.6 billion between 2012 and 2014 (DfE 2012a) compared to the £55 billion BSF programme (*Guardian* 2012). This programme focused solely on schools with the poorest physical conditions, and funding was allocated to 261 schools (DfE 2012a). Furthermore, in October 2010 the Secretary of State for Education Michael Gove informed local authorities that active governmental promotion support for the NFSS was to be terminated. After the axing of the NFSS the following statement was released:

The Government is fully committed to sustainable development and the importance of preparing young people for the future. Our approach to reform is based on the belief that schools perform better when they take responsibility for their own improvement. We want schools to make their own judgements on how sustainable development should be reflected in their ethos, day-to-day operations and through education for sustainable development. Those judgements should be based on sound knowledge and local needs. (Department for Education 2011)

Following the decision not to actively promote the NFSS, the Coalition government did restate their commitment to ESD and updated NFSS guidance material (DfE 2012b). However, as indicated by the quotation above, the responsibility for ESD shifted to rest on schools' own decision-making processes (DfE 2012c), and the Department for Education's role was significantly altered, effectively reduced to observer status. This policy shift has attracted criticism from numerous stakeholders at the national, regional, local and school level, for example, the Friends of the Earth Youth and Education Network made the following statement to the Environmental Audit Committee: 'This implies that schools will not be encouraged or helped to become sustainable schools. This is, in effect, abandoning schools who are trying to do the right thing and degrading the importance of sustainability with children, parents, teachers and the wider community' (Environmental Audit Committee 2010). Responding to criticisms regarding this decision, the Department of Education stated in a letter to the charity SEEd that: 'We believe that schools understand their responsibilities when it comes to sustainability and for example, will act to ensure that their buildings are as energy efficient as possible' (SEEd 2010).

We now turn to a case study of the implementation of the NFSS (and underlying ESD principles) in one metropolitan district council (MDC) in Northern England. The case study has a number of aims: firstly, to demonstrate how ESD may translate into action at the educational

institution level; secondly, to consider the barriers, drivers and difficulties of the implementation of ESD; and thirdly, to reflect on the specific policy direction currently being taken by the UK government, and whether educational institutions, society and the environment will benefit from the flexibility, innovation, partnerships and entrepreneurship suggested by this approach.

CASE STUDY: THE IMPLEMENTATION OF THE NFSS IN AN ENGLISH CITY

Methodology

This research was commissioned by an English local authority to investigate the barriers and drivers to the successful local implementation of the NFSS within schools (catering for children and young people aged from four to 18). The main fieldwork was conducted between July 2009 and 2010 in three phases. Firstly, semi-structured interviews were conducted with six local authority departments that played a key role in the local delivery of the NFSS. The intention of this first phase was to gain an understanding of the work conducted at the local authority level, areas of good practice and barriers to successful implementation. The second phase was a postal survey sent to all local schools. The survey was administered by post and follow-up telephone calls were made; in total 97 schools responded. The aim of the survey was to establish how the NFSS worked at the school level, and to understand schools' priorities, drivers and barriers to further action. The third phase used a qualitative approach within schools. Focus groups with children and young people were conducted in order to understand their views about sustainable development, and understanding of the NFSS, and with teachers in order to further understand some of the issues raised in the survey. All research was undertaken in line with the British Sociological Association (BSA) code of ethics, and appropriate police and security checks were in place.

It was indicated in the interviews with local authority staff that some schools were not engaging with the NFSS, and it is very likely that these schools did not respond to the survey phase of the research (and as such would not have been selected for further qualitative work). As a result the research findings tend to indicate some level of action taken to fulfil the NFSS – even if this is relatively small in terms of environmental impact, or is fulfilling a mandatory role – rather than none at all. Equally, as a case study, the results here are limited to one geographical area and there may be local features or circumstances that are not fully generalizable to other

areas (see Yin 2003). On the other hand, a broad range of schools participated in this research, and reflected the diversity of the area, representing: a range of rural and urban educational settings, schools with high levels of ethnic diversity, different educational settings (mainstream, special schools, primary, secondary, hospital schools, pupil referral units, academies), and a mix of genders and ages. It is important to stress that it is not our intention to generalize the research findings to all schools covered by the NFSS, but instead to highlight some of the key findings and themes present in the research, and to reflect on the implications for global and national policy ambitions.

The Translation of ESD into Action at the Educational Establishment Level

The research found evidence of innovative, progressive and imaginative projects within schools that furthered the aims of the NFSS, ESD and sustainable development more generally. Numerous activities and projects were identified throughout the course of the research project. Some required significant investment in terms of time and money (the two factors identified throughout this project as being key barriers to further sustainable activities), others were relatively cheap in terms of cost, but required a degree of leadership and time, whereas others were both cheap and simple to implement. Some schools appeared particularly adept at successfully applying for funding and implementing larger projects, and managing the high time commitment that this demanded of their staff. Equally, schools demonstrated the ability to take action with little or no funding. Numerous activities, often innovative and low cost were reported throughout the research project. Some of the activities identified by primary school children in the area are demonstrated in Box 14.1.

One school within the local authority was viewed as a flagship school in terms of the NFSS, and an overview of activities (constructed through local authority and staff interviews and the school's survey response) is presented in Box 14.2. In the case of this school, it had benefited from a refurbishment prior to the axing of the BSF refurbishment programme, had staff, pupil and parental buy-in, high levels of awareness, and strong policy and community networks and linkages.

Barriers, Drivers, and Difficulties of the Implementation of ESD

It became clear from both the interviews with local authority staff, and the survey responses from teaching staff, that schools focused on mandatory requirements. Given the discussion at the beginning of this chapter about

BOX 14.1 ACTIVITIES IDENTIFIED BY PRIMARY SCHOOL CHILDREN

'We are taking part in Film It, Grow It, Cook It and Eat It so we raised money for flower beds and equipment for every year group. We take it in turns planting seeds, growing produce and eating it – making lessons fun!'

'We have set up an eco-team with our community – parents, pupils, staff and governors. This has been led by pupils who have made an action plan addressing all areas.'

'A play about saving energy.'

'An energy walkabout to see which class was best.'

'Last year we had a "green day" where everyone came in green to celebrate getting our "eco-schools" green flag.'

'Leftover school meals going in our compost bin to use in our veg patch.'

'Each class has a growing bed in which we plant vegetables and plants throughout the year. Recently we have harvested onions and used them on pizza we made. We made jam from blackberries which grow in our wildlife area.'

'We have "power rangers" who go around at lunch time and turn off lights at dinner and at break.'

'Green team! It is where there's one boy and one girl from each class to try to make our school greener.'

'We have two rabbits in school who eat our vegetable peels.'

Note: Ten schools are represented here.

the range of initiatives that schools are required to implement (see Huckle 2009; or Gruenewald and Manteaw 2007) this is not surprising. Indeed, in the responses to the survey when schools were asked to rank each of the 'NFSS doorways' by importance, three clear clusters emerged (see Figure 14.1). The first cluster containing 'inclusion and participation' and 'food and drink' contains the highest-scoring doorways, and there is a noticeable difference between these scores and those of the second cluster containing the 'energy and water', 'buildings and grounds', 'purchasing and waste' and 'local well-being' scores. The third cluster contained 'travel and traffic' and the 'global dimension', both with noticeably lower scores than the other doorways. The 'inclusion and participation' and 'food and drink' doorways relate closely to national priorities, requirements and funding

BOX 14.2 FLAGSHIP SCHOOL ACTIVITIES

The school has won an array of awards, including two Healthy Schools Awards, Kitchen of the Year Award, Food Presentation Award, Local Education Authority (LEA) Five Star Environmental Health Award, Neighbourhood Management Special Achievement Award and two Green Flags under the Eco-schools programme managed by Keep Britain Tidy. Funding was obtained from a range of organizations, including: Informal Learning UK Ltd, towards breakfast and fitness clubs; Ethnic Minority Achievement Grant (EMAG), Cohesion Project funding; Environmental Crime Project funding; and Department for Education and Skills (DFES) funding for a new school building as a Zero Carbon Exemplar Project.

The school reported in the survey that they involve the community, as well as pupils and staff, in activities relating to many of the doorways of NFSS. At a curriculum level, the school held Healthy Living days and workshops for both pupils and parents, Five a Day workshops for pupils and the community, and Wasteworks recycling workshops for students. The school has clubs for a variety of activities including gardening and cooking, a breakfast club, and holds assemblies. Pedestrian and cycling proficiency training occurs regularly, and pupils have visited local allotments and recycling facilities. Pupils have studied water, travel and energy in Pakistan and Africa as part of geography lessons. The school has also implemented a Cohesions Project (developing cultural awareness), an Innovations Project, and an environmental Crime Project with their students. Significant development has occurred on campus with regards to NFSS and in the survey the school reported that it 'almost' or 'often' incorporates sustainability into the decision-making process relating to the NFSS doorways.

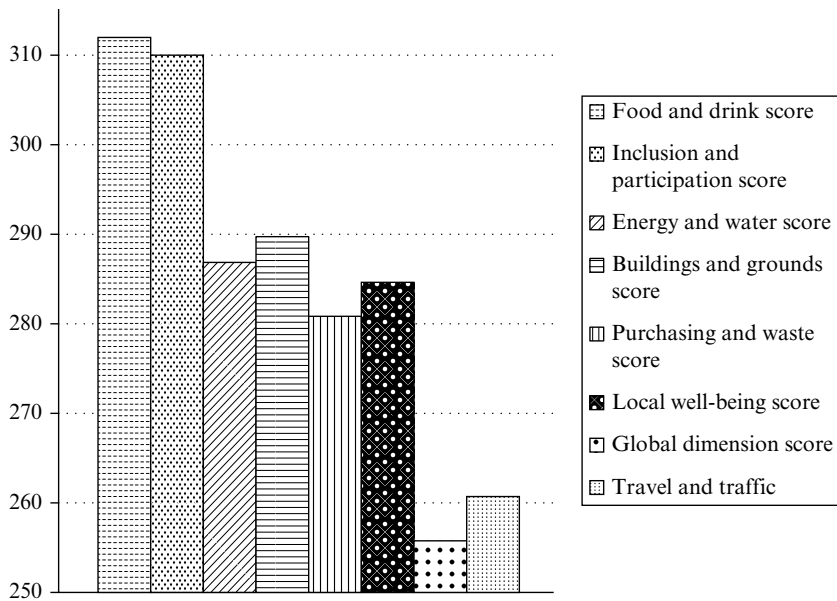
The school monitors its energy use and has reduced the use of fluorescent lights, repaired external doors, fitted draught excluders, fitted tap timers, developed the quad area for gardening activities, installed a water butt and two composters. In addition to recycling paper, cardboard, plastic, and glass, the school has participated in several schemes including Collect4School (printer and toner cartridge recycling) and Bags2School (textile recycling), and also recycles mobile phones, uniforms and books. Milk is delivered to the school in plastic bottles rather than tetrapaks and students use reusable containers in their lunchboxes.

The school has implemented a healthy lunch policy, all plumbing repairs are responded to immediately, and environmental games and activities have been purchased for pupils. Pupils and staff have been heavily involved in designing the new zero carbon school building. Suggested initiatives include installing ground source heat pumps, thermal mass construction, photovoltaic panels, passive ventilation, harvesting rainwater, using locally sourced and sustainable construction materials or recycling materials from the old school into the new, erecting bike and scooter sheds and reducing space for car parking. In terms of transport, the school has developed a travel plan and set up a walking bus.

Eco Council pupils monitor parking outside the school gates along with the local police. Considerable engagement has taken place at a community level. The school has distributed low-energy light bulbs to parents and pupils and has requested that parents walk rather than drive. The school runs fitness clubs for pupils and their parents and has linked with the local community centre, where the walking bus meets every day. School Eco Council members designed and distributed a leaflet to residents informing them how to recycle unwanted items and wrote to companies discussing how they could reduce the packaging of their products. Recycling workshops for parents run by Environmental Services have been held and Key Stage 1 pupils performed a musical concert on waste. The school works closely with the police and has held drug awareness workshops, neighbourhood meetings, and weekly drop-in sessions for ex-pupils. At a global level, the school has conducted fundraising activities for Haiti, following the magnitude 7 earthquake in January 2010, and Pakistan, to help rebuild homes and schools following flooding.

provided through the Every Child Matters and Healthy Schools agendas in place at the time of this research. Interviews conducted with local authority staff and teachers support the view that mandatory requirements and well-funded projects receive more attention; for example one primary school teacher commented that:

with healthy schools [a policy that ran parallel to the NFSS and focused on healthy eating] the authority was really pushing it. They've got a team there who are funded by the government I think and that team were able to come into schools and give the information and give support with completing, you know, everything that needed to be done in order to have success with the award.



Note: N = 66 schools. Survey respondents were asked to indicate levels of importance associated with the each doorway. These were coded into SPSS as a number between 1 and 5 where 5 represented 'very important' and 1 represented 'not important'. To compare the different doorway results, scores were added up for each doorway.

Figure 14.1 Ranking exercise of the eight doorways

Conversely, it is possible that the 'global dimension' and 'travel and traffic' received the lowest scores due to the limited linkages with specific mandatory targets or policies, and the limited control that schools have over these matters. When asked about barriers hindering progress in relation to the 'global dimension' (other than time) the inability of staff and students to 'see a wider picture' was described as limiting progress, alongside the limited experiences of children, and 'insular' attitude of students and parents. For example, one primary school teacher commented that, 'Some of our children haven't been outside of [case study area], so if you're talking globally, it's an abstract concept for them'.

Equally, in terms of 'travel and traffic', poor cooperation of parents was most commonly described as a barrier, particularly in relation to an unwillingness or inability to walk instead of drive, and an unwillingness to volunteer for walking bus schemes. In the follow-up interviews, one primary teacher commented that whilst the school was required to develop a travel plan, implementing this was a different matter:

So what do we do next? You know, we teach the children but it's about teaching the parents and if they are not interested, if they don't care if they're blocking driveways, because it's easier for them to come in the car, even if they only live a couple of streets away, or over the main road, it's not a long distance to travel, they'll still do it. So we're really stuck on things like that.

Interviewees were asked about barriers to progressing the aims of the NFSS, and one common theme was its lack of mandatory status. As argued by a secondary school teacher:

Make it accountable. Give it points. Get the kids to do exams in sustainability or whatever. That way, suddenly, if they've got to do it – that's what they did with citizenship. They said it's got to be in every scheme of work . . . Suddenly, citizenship then became the buzz word. And you'll see it now in all our schemes of work and it's taught as a discrete subject and we now do short course citizenship at GCSE. That's the way that you're really going to make a difference is make it accountable.

Equally, throughout the survey, schools reported frustration with the abundance of national initiatives. Indeed, interviews conducted with local authority staff also reinforced the finding that schools focused on mandatory requirements, where good local authority–school relationships tended to be found in areas where schools were compelled to take action. For example engagement with the Council's School Improvement Team around implementing Every Child Matters, and in areas where engagement has clear benefits, for example engagement with the Council's Climate Change Team around measures to reduce emissions and resource usage in ways that will also reduce bills. The proliferation of mandatory agendas and initiatives that schools were required to implement were highlighted throughout in terms of their knock-on effect on non-mandatory activities, especially where schools were unable to see a clear benefit to pupils, losing out to those where schools can see clear benefits to their engagement.

As suggested above, funding was described repeatedly as a barrier to action, particularly in relation to equipment (such as improvements to old and inefficient heating systems). The structure of funding was described as a barrier, through payment into the Local Authority Premises Scheme resulting in a reliance on the local authority to fund a new boiler, and being 'tied in' to the local authority utilities provision to buy in bulk. Equally, structural barriers were described in a number of cases, including the age of the school sites as well as the use of temporary classroom buildings which could not be heated efficiently. One school described how energy bills were at an industrial rate due to a cable installation issue when the school was built. Similarly, council policy and national indicators relating to waste were raised as a barrier, since council targets for recycling were based on

domestic waste, and schools were classed as business waste. This had the consequence that low-cost or free recycling projects were rarely available to schools, despite the impression some interviewees had that recycling was a popular issue that pupils and schools wanted to engage with.

Closely related was the issue of evidence; whilst schools could potentially invest in equipment that would eventually reduce costs, perceptions amongst interviewees were that many of the green technologies were unproven, and that schools were faced with a broad range of choices when it came to purchasing decisions, many claiming environmental benefits, but without the time to follow these claims up to test their validity. All of these factors – the cost, unproven technologies and fear of spurious claims about the environmental benefits of products – were seen as hindering schools in investing in sustainable technologies. Whilst projects could be pursued with limited financial cost, these may be relatively small in terms of environmental gains. Despite the financial pressures against investment in sustainable technologies detailed above, one interviewee commented that the smaller budgets possessed by primary schools meant that they were keener to opt into measures that would reduce fuel and water usage because of the cost-saving potential of these.

ESD and Self-Determination

It is unsurprising that schools place a greater emphasis on policies that have mandatory requirements or provide financial assistance. Evidence from this project suggests that the reduction of national and local programmes put in place to support schools will significantly limit their scope for action. Whilst some sources of funding do exist, schools are far less likely to pursue significant environmental improvements without financial support (for example support relating to procurement, grants or loans). Indeed, one of the underlying drivers of the BSF programme was to renovate or replace old and inefficient school buildings. As one secondary school teacher commented:

Part of our school is very old and we've got those horrendous old-fashioned radiators . . . there's no thermostats on them . . . at the moment, in winter we're having to open windows because the rooms are so hot . . . we are spending £400 a day on electricity . . . And if you look at the size of the school, to actually do the whole heating system would just cost a fortune. We would never have that amount of money spare in any annual budget to do that . . . It would have to come from either central government or a local authority initiative.

Indeed, numerous survey respondents and interviewees argued that the axing of the BSF programme limited the types of improvements that schools could make. The interviews with council departments also

indicated that financial barriers existed, in terms of both insufficient total finances, within the council and within schools, and the financial arrangements of annual budgets and split allocation for capital and revenue costs. This is particularly an issue with larger pieces of equipment, such as alternative energy systems, since schools may have the potential to make savings using these, but not have enough capital budget to cover the start-up costs. The use of life-cycle costings, whilst seen as beneficial theoretically, was also an issue since a budget is necessary up-front to meet these costs and schools rarely have the capacity for this.

Closely related to the points made regarding mandatory projects, schools reported lacking the time, knowledge and funding to pursue non-mandatory projects. Evidence from both sets of interviews and the survey indicated that where schools have a teacher, senior management team (SMT), governor or parental interest in sustainable development, action is more likely. Primary schools were seen as more open to input compared to secondary schools, with sustainability measures having the potential to succeed whether introduced by the head teacher or by a member of support staff. However, in secondary schools it was seen as vital to get engagement at SMT level for projects to gain any momentum. Arguably, whilst the existence of motivated individuals within schools has a positive impact on the schools, further governmental withdrawal of support and guidance at both the local and national levels is likely to have a negative impact on schools that do not have such dedicated individuals or groups of individuals. Closely related, the process of procurement, networking and creating projects requires knowledge, time and motivation. Without a strong steer by national or local government, schools (such as the one highlighted in Box 14.2) with existing links, knowledge and interest will continue with relevant projects, but those with more challenging educational environments, or with limited knowledge or drive, are unlikely to progress the aims of sustainable development. For example, one head teacher commented that: 'I did a staff meeting about the eight [NFSS] doorways and I asked staff what did they know about sustainability and they knew nothing. I was horrified. I couldn't believe they knew absolutely nothing . . . so it's educating the adults'.

Equally, local authority interviews indicated that unnecessary replication of work relating to the NFSS had occurred. The survey indicated that over 50 external organizations were involved with different schools in the case study area. Whilst these links and networks were viewed positively by individual schools, at the local authority level it was considered that lack of effective communication and shared information was seen as leading to inefficient knowledge-sharing, that would be overcome through greater coordination of action across schools.

Arguably, schools such as the one highlighted in Box 14.2 are aware of sustainable development, and can move forward in a sustainable manner (as per the post-2010 approach). However, as will be discussed below, the majority of schools face significant barriers to taking action, and the withdrawal of existing support combined with limited future governmental support at the local and national level is likely to hinder further progress.

CONCLUDING DISCUSSION: THE END OF THE DESD?

As this chapter is published, the DESD is in its final months (2005–14). The key question is, have ESD-related agendas achieved what they set out to? At the start of this chapter we considered the overall goal of the DESD: ‘to integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all’ (UNESCO 2005).

From the case study presented above there is clearly evidence of sustainable development-related projects being undertaken, ranging from care of the local environment and composting, through to learning about and practising energy efficiency and in some cases engagement with infrastructure improvements. However, whether sustainable development has been present in all aspects of learning is questionable. From the outset this chapter identified the difficulties of integrating a broad, holistic and at times poorly defined concept, with the disciplinary nature and narrow academic subjects often found within educational establishments (Pigozzi 2010; Huckle 2009; Eilam and Trop 2011), and indeed, that these difficulties mirror experiences of implementing sustainable development more generally (Lafferty and Hovden 2003; Lele 1991; Lukes 2005; Moffat 2008). The findings from this research indicate innovative and interesting ESD projects, but ones that are often piecemeal, and limited to specific activities or lessons. Indeed, when perceived as being in competition with other, mandatory agendas, and without strong motivation to drive it forward (within this case study, motivated teachers, governors, parents and staff), ESD seems to be deprioritized. On the other hand, from the evidence presented above, perhaps it could be argued that the mandatory agendas also have the potential to support sustainable development, for example the Healthy Schools agenda placed an emphasis on growing vegetables, composting and sourcing locally grown produce. A similar argument can be made when considering whether the NFSS encouraged a more ‘just society for all’. Mandatory strategies such as Every Child Matters (ECM) attempt to protect children and young people, and are more likely to deliver some

form of formal support than the non-mandatory NFSS, evident in the survey where 'inclusion and participation' was ranked so highly by so many schools. Perhaps this suggests that the 'vertical' policy integration of environmental concerns into existing, core organizational and institutional values such as ECM or Healthy Schools might be more effective (and acceptable) than promoting these concerns separately through ESD. On the other hand, this argument immediately brings us back to the 'weak' versions of sustainable development, which some would argue are limited in terms of their environmental effects (e.g. Sharp 1999).

When considering lessons for other countries adopting an approach to ESD similar to that of the UK, the literature is rather pessimistic. Some suggest that neoliberalism has thwarted global intentions to fuse 'economic growth with environmental protection and social justice' (Huckle 2010: 137), with economic incentives and market-based solutions failing to support the implementation of sustainable development. Equally, others comment that the relationship between ESD and neoliberalism is problematic given the differences in underlying values. For example, Jucker (2011) suggests an inherent conflict in the underlying ideologies of ESD and neoliberalism, highlighting how successful implementation of ESD into educational institutions and wider society is reliant on facilitating agents of change through 'necessary learning opportunities, knowledge, skills, values and action competencies' contrasting with the 'neoliberal notion of freedom as the license to do whatever one wants to do' (Jucker 2011: 42).

Indeed, the findings presented in this chapter raised a number of questions about the directionality of the UK's post-2010 approach to ESD, where it is considered that schools perform better when they make their own judgements regarding sustainable development. At the school level, the evidence presented above does indicate a sense of frustration with the number of initiatives, and perceptions of 'lock-in' by local government. In addition to this, there is evidence to suggest that some schools have been highly innovative when it comes to sustainable development-related projects. However, the evidence also suggests that some potential forms of action are both technical and expensive, and without technical support or financial steer it is unlikely that action will be taken. Equally, given the focus on mandatory requirements, initiatives that are viewed as voluntary are likely to be pursued only by schools with a strong motivation to do so. As such we argue that under this approach schools such as the one in Box 14.2 will continue to seek out excellence in terms of sustainable development, whereas in the future, schools that have taken limited action to date are likely to encounter more significant barriers to action (including less guidance, funding, and local or national pressure). As seen previously with Local Agenda 21, the implementation of strategies can be impeded

through the absence of a statutory status (see Snell 2004). Without a steer by national government (which could be characterized as horizontal EPI), responsibilities around sustainable development are likely to be sidelined in favour of mandatory activities, especially within educational establishments without clear leadership in this area.

Revisiting the concept of sustainable development, some argue that the broad, flexible and somewhat intangible notions of sustainable development do not sit well alongside market economics, where ideological underpinnings relate to the 'technical and the tangible rather than the axiological and intangible' (Selby and Kagawa 2010: 37). Gadotti (2010) goes further, suggesting that the underlying ideology of the education system is itself in conflict with ESD. The procurement of food within educational establishments is a good example of this; as Clugston and Calder (2007) suggest, sustainable development often encourages 'locally-based, organic, humane and fairly-traded' (Clugston and Calder 2007: 210) processes, an approach which is in conflict with food provision that prioritizes the cheapest supplier, rather than one that embodies the ideals of sustainable development. Equally, Mantaew (2008) highlights the rise in business involvement in schools through corporate social responsibility (CSR), suggesting that market economics can result in somewhat tokenistic activities, embodying very weak, narrow forms of sustainable development, and sometimes replacing more 'balanced' lessons or activities. Whilst the evidence presented in the case study suggested that there were benefits to working in a multi-stakeholder setting (as implicitly advocated by the 'Big Society' and localism agendas of the Coalition government), with the networks and links used by schools providing an abundance of technical knowledge and skills, these were found to be ad hoc in nature without coordination by local or national government. Networks and links take time to develop, and without some financial support, motivation or facilitation, schools that have taken little action to date may not have the capacity to build such networks.

FINAL WORDS

This chapter has discussed sustainable development, ESD, and has presented a case study based on the ESD in the UK. Given the change in government and policy in 2010, the case study evidence has largely been used to consider whether existing practice and policy outcomes support the neoliberal trajectory embodied by the UK's approach to ESD. The evidence suggests that it is likely that this style of policy will lead to highly varied, unequal responses, with schools that lack the ability or capacity falling behind in terms of ESD and sustainable development more

generally. The complexities of the educational policy landscape (Pigozzi 2010), broad range of existing policies (Huckle 2009), cost, time, and the problematic, misunderstood and flexible nature of sustainable development (Sharp 1999) are all likely to impede progress where educational establishments are not provided with incentives to act.

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NOTE

1. It should be noted at this point that the term 'ESD' is used during the remainder of this chapter. EfS, EEFS and ESD are often used interchangeably; however, as international frameworks have adopted the term ESD, and this chapter reflects on UNESCO's Decade for ESD, it is a logical choice to adopt the same terminology (this will be discussed further below).

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PART IV

ALTERNATIVE VISIONS

15. Social rights and natural resources

Hartley Dean

INTRODUCTION: GENESIS VERSUS GAIA

This chapter considers the competing ways in which human beings socially construct their claims upon natural resources. The axis around which conventional thinking tends to revolve is a distinction between anthropocentrism on the one hand and eco-centrism on the other. The former entails a set of assumptions about the primacy of humanity over Nature; assumptions that are challenged by the latter. The foundations of anthropocentrism run deep. The Biblical account of the Earth's creation conceptualizes the Earth as an environment created for humanity: a world created for a free-willed species supposedly made in the creator's image. The Genesis narrative has not only informed the major religions of the world, but its allegorical potential has resonated with Western Enlightenment thinking, insinuating itself into the conceptual ethos and cultural norms of believers and non-believers alike. The challenge to this orthodoxy has equally ancient roots in Greek mythology, which on the one hand warns humanity against the hubris of Prometheus, who stole fire from the Gods to give to mere mortals, while on the other celebrating Gaia, the primordial Earth Mother, whose name has been appropriated by a contemporary hypothesis that the Earth as a self-sustaining organism will defend itself against the reckless encroachments of mortal humanity.

The Genesis narrative gives humanity licence to take from Nature. The Gaia hypothesis commands that humanity must live in harmony with Nature – or not at all. This is, if not a false dichotomy (Cockburn 2010), a tired and oversimplified characterization of a complex morass of ideas that this chapter will try in part to unravel. It will begin by recounting an earlier discussion concerning competing ecological discourses, before turning to a related discussion of competing approaches to human needs and social rights. It will attempt a synthesis between these two discussions and suggest the basis upon which social rights claims in relation to natural resources might in future be negotiated. It will conclude by re-examining the relevance to that negotiation of Marx's concept of *Stoffveschel*, suggesting that it offers the possibility of a decisive break from the Genesis versus Gaia dichotomy and an alternative understanding of social rights and natural resources.

ECOLOGICAL DISCOURSES

In a previous article I attempted to model the different ways in which ‘green citizenship’ might be conceptualized (Dean 2001) and suggested that prevailing discourse draws upon analytically distinctive ecological moral repertoires that may be defined not so much in relation to the Genesis versus Gaia dichotomy, but as a twofold distinction reflecting two intersecting dimensions along which Nature and humanity may be conceptualized. The first, inspired in part by Habermas’s classification of social movements (Habermas 1987), distinguishes between emancipatory and defensive approaches; between, on the one hand, concerns for the freedom of the individual or for collective self-determination; and on the other, concerns for the preservation of the natural or the customary order. The second is a distinction (clumsily termed) between ‘anti-social-humanistic’ and ‘pro-social-humanistic’ approaches; between, on the one hand, a vision of the individual as an autonomous subject in a personal struggle for survival; and on the other, a vision of humanity as a social species engaged in a shared struggle for survival.

The model or taxonomy that this analysis produced is illustrated in Figure 15.1. It defines four ecological moral discourses, each of which characterizes a strand of thinking within the broad church (or ‘green tent’) that is or has been the environmentalist or ecological movement, albeit that different individuals or groups within the tent may in practice draw on a combination of these discursive repertoires:

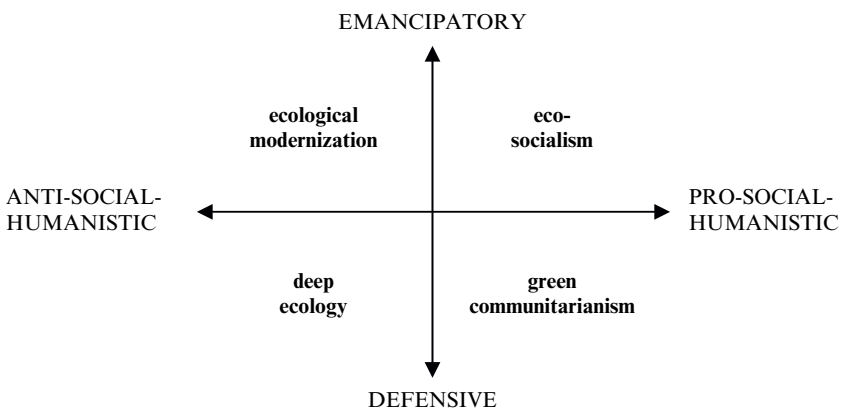


Figure 15.1 Taxonomy of ecological moral discourses

1. Eco-modernization is arguably the dominant discourse of the current era, reflecting an orthodoxy that emerged following the Brundtland Report (Brundtland 1987), but which finds variously inflected forms of expression in the writing of prominent academics (Dryzek 1997), activists (Porritt 1984) and, occasionally, policymakers. Though often espoused by social democrats, it is essentially liberal-individualistic. It seeks to emancipate the individual subject by freeing capitalism from the constraints of Nature. Its aim is to ameliorate the ecological consequences of industrial capitalism and apply technological fixes for the environmental obstacles to continued economic growth. Ecological sustainability is a means to an end.
2. Deep greenism is the most radically eco-centric discourse and is reflected in both abstract idealism (Fox 1984) and direct action. It is essentially misanthropic, since it subordinates the interests of the human species to the interests of other species and the interests of the Earth itself. It seeks to defend the planet from incursions by humanity. Its aim is to constrain economic production and human population growth. Ecological sustainability is an end in itself.
3. Eco-communitarianism represents an older tradition that espouses humanity's oneness with Nature and the idea of the Earth citizen (Van Steenberg 1994); a tradition with both spiritual and republican dimensions. It is essentially conservative, inasmuch as it defends an ideal of natural harmony. It seeks to maintain or restore a social order in which human beings peacefully co-exist with the natural world. Ecological sustainability is a moral good.
4. Eco-socialism is by and large a discourse of the intellectual Left. Its roots are deep (Bukharin 1925) and its contemporary relevance to social policy has been recognized (Bookchin 1991), but its practical purchase has been limited. Its premise is that human exploitation of the Earth stemmed from humans' exploitation of other humans and that human emancipation from capitalist exploitation is a necessary condition for the survival of the Earth. Ecological sustainability is an ethical necessity.

This brief recapitulation already incorporates some additional reflections and a realization that this taxonomy does not necessarily tell us much about how social rights to natural resources may be constructed.

REFLECTIONS ON RIGHTS AND NEEDS

Social rights, following Marshall (1950 [1992]), are widely construed as rights enjoyed by citizens of the modern welfare state; as rights to

individual livelihood, public services and social protection. It is assumed that as rights of citizenship social rights became possible only after a framework of civil and political rights had been established. Even when recognized as a component of our human rights under the United Nations Universal Declaration of Rights, social rights have been referred to as 'second-generation' rights (Eide 2001); rights that could only be contemplated when 'first-generation' civil and political freedoms had been won. It has lately been argued that social rights should be thought of as having preceded civil and political rights (Isin et al. 2008); that it is as social beings that we recognize the claims that others make upon us and that we might make upon them (Dean 2013). The claims that human beings make upon the Earth's resources were initially framed as customary rights; rights founded on social negotiation and mutual respect in order that human beings might survive. Such rights were and are axiomatically social. Surely, concepts of citizenship – including social citizenship – came along only after humans had begun to satisfy their needs as interdependent beings by framing their claims on natural resources as social rights.

And here one might pause to reflect on human need and that which humanity requires from Nature. I referred above to the intersecting dimensions along which humanity and Nature may be conceptualized. Those dimensions, I suggest, articulate two kinds of distinction that may be drawn when seeking to understand human need (Dean 2010).

The first is a distinction between inherent and interpreted need. To understand need as something that is inherent to the human individual requires a theory of personhood. Need stems from a person's objective interests or their personal preferences (Thomson 1987); their inner drives (Maslow 1943) or the very nature of their species-being (Marx 1844 [1975]). Any theory of personhood is premised upon a doctrinal or ethical assumption about what it means to be human and therefore implies some notion of emancipation; some idea that to be a person requires a measure of relative autonomy or freedom. Alternatively, 'interpreted' need entails an understanding of need that is pragmatic. Needs may be shaped by the norms and expectations of society (Baudrillard 1970 [1998]; Smith 1776 [1900]), or they may be inferred or deduced from expert opinion, through the demands that people make or by means of comparative study (Bradshaw 1972). This pragmatic understanding is concerned with the moral grounds on which needs claims may be advanced and the practical basis on which they may be defended. Very clearly, inherent and interpreted understandings of need are mutually constitutive; they each inform the other. But the distinction is important to our understanding of how needs are constituted and how claims upon resources are legitimated.

The second distinction relating to the understanding of human need

may be expressed as a distinction between thin needs and thick needs. This is a shorthand allusion to Aristotle’s (c. 350 BC [1982]) distinction between ‘hedonic’ and ‘eudaimonic’ well-being. ‘Thin’ need refers to the things required in order for a person to obtain pleasure and avoid pain. It is premised on a utilitarian calculus of individual satisfaction. ‘Thick’ need refers to the things required in order for a person to flourish and to achieve a good life. It is premised on a commitment to human fulfilment and social engagement. Clearly, thin needs and thick needs are both important to human well-being. But different understandings of need may entail different emphases.

The taxonomy that may be constructed using these two dimensions is illustrated in Figure 15.2. It defines four needs-based approaches, each of which characterizes a different foundation for social rights claims as socially mediated claims upon natural resources:

1. The particular needs approach is essentially economic and commensurate with free market liberalism. Human needs are particular in the sense that they reflect a call for autonomous participation in a perfectly competitive, yet harmoniously functioning, market economy. Our claims on Nature are mediated by the market. The right to have

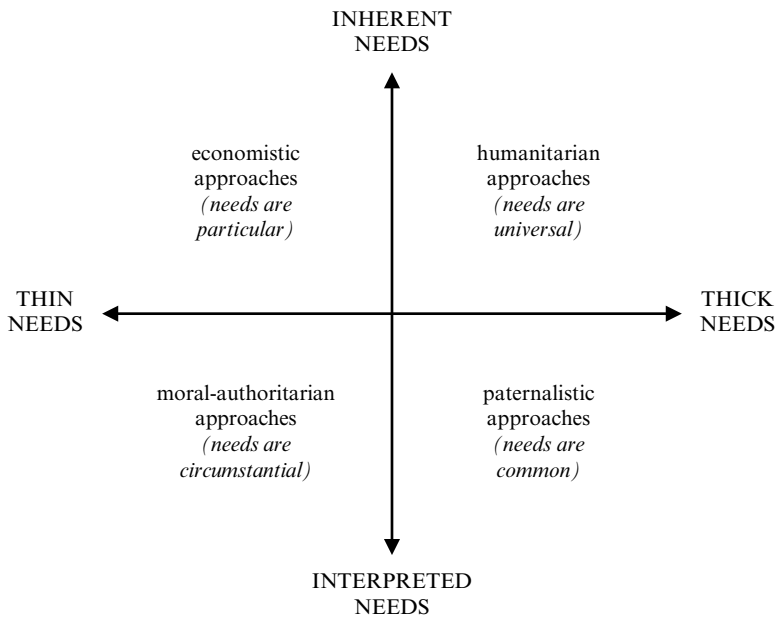


Figure 15.2 A taxonomy of needs-based approaches

material needs met is doctrinally conceived in that the efficacy of markets as a mechanism through which to exploit natural resources is believed to depend upon the application of principles of formal equality of opportunity. In practice, therefore, substantive social rights are selective. They arise where a person – by reason of age, impairment or misfortune – lacks the means or the opportunity to participate in the process by which markets supposedly ‘produce’ material resources from Nature; they must have such education or training, healthcare or temporary financial assistance as will enable them to join or rejoin the productive process. Rights are premised on the principle that the social subject should be specifically enabled to have an ostensibly self-sufficient (but in fact market-dependent) relationship with Nature.

2. The circumstantial needs approach is essentially moral authoritarian and commensurate with the Hobbesian–Benthamite approach that once informed social provision under the Poor Laws (yet remains in evidence today). Human needs are circumstantial in the sense that they reflect the imperative of survival in a hazardous natural environment. Our claims on Nature are not socially mediated; they stem from brute contingencies of individual existence within a competitive and unforgiving social environment. Insofar as one can claim against another a right to have one’s ‘natural’ needs met, that right is necessarily conditional. People may bargain honourably with one another for the means of access to natural resources and this may give rise to everyday claims or expectations to which the term ‘rights’ may attach. However, if a person is unable to satisfy their needs by such means, they may seek social assistance only on condition that they are morally deserving. Rights are conditional on obedience to the moral authority of those who govern access to natural resources.
3. The common needs approach is essentially paternalistic and commensurate with social conservatism. Human needs are needs held in common, reflecting an imperative of conformity and stability in a protective, but hierarchically ordered society. Our claims on Nature are mediated by the social order. The right to have material needs met is claimed on the basis that one belongs to and accepts one’s place within a settled society. Such rights arise because the common denominator shared by all members of society is a degree of present or potential vulnerability within the natural world. Social rights are a matter of mutual moral obligation and the sharing of natural resources.
4. The universal needs approach is essentially humanitarian and commensurate with social democracy or democratic socialism. Human needs are universal in the sense that they reflect a call for human fulfilment and the realization of social humanity. Our claims on Nature

are socially mediated by reason of our species-being. The right to have human needs met is an ethical imperative. Social rights are axiomatically inclusive, comprehensive in nature and unconditional. Such rights are premised on an ideal of collective responsibility for the optimal use of natural resources.

This model defines competing approaches to human need and social rights that are seldom if ever espoused or implemented in ideal form, yet it characterizes the range of approaches upon which social policymakers may draw in complex and often unreflexive and contradictory ways. The approaches co-exist with and feed off each other. They are dialectically implicated in the policymaking process. To a certain extent these needs-based approaches loosely map onto the ecological discourses outlined above and each might attempt to accommodate its anthropocentric tendencies with its eco-centric propensities. Each might acknowledge the cause of ecological sustainability in a different way.

SOCIAL-ECOLOGICAL PRAXIS

Discussions of environmental rights (Boyle 2007; Friends of the Earth International 2003; Gearty 2010) allude to issues of human access – individual and/or collective – to land, shelter, food, water and air as factors necessary for human security, livelihoods and health. By and large environmental rights are regarded as a broad category of human rights, rhetorically defined or defined with reference to existing strands or ‘generations’ of rights within the international human rights framework. But this chapter is concerned with the environmental rights as social rights; rights grounded in sociality and which are subject to specific and ongoing processes of negotiation; rights grounded in a post-Marshallian conception of social citizenship as a quotidian human practice or process (Dean 2013). To that end, we may take the two taxonomies outlined above and consider how differing constructions of human need engage with or inform a variety of ecological discourses.

This enables us theoretically to identify competing social–ecological praxes: different ways in which conceptual or ideological assumptions are, or could be, translated into practice with different implications for the future of social policy. The dimensions around which our two preceding taxonomies were constructed may be synthesized into two further distinctions. The first distinction is concerned with the different ways in which policy issues may be framed: a distinction that maps onto that between emancipatory and defensive ecological approaches illustrated

in Figure 15.1, and that between inherent and interpreted approaches to human need illustrated in Figure 15.2. It is a distinction between the systemic and the pragmatic framing of policy issues: between, on the one hand, a strongly theoretically informed praxis, predicated on systemically conceived ideas of progress and personhood; and on the other, a more reactive form of praxis, predicated on experiences of, and pragmatic responses to, everyday challenges. The systemic–pragmatic continuum captures the degree to which claims on natural resources are reflexively defined. The second distinction is concerned with the different ways in which praxis may be oriented: a distinction that maps on to that between pro- and anti-humanistic ecological approaches illustrated in Figure 15.1, and that between thick and thin approaches to human need illustrated in Figure 15.2. It is a distinction between solidaristic and individualistic oriented forms of praxis: between, on the one hand, a strongly collectivist or co-operative social group orientation; and on the other, a more autonomous or competitive individualistic focus. The solidaristic–individualistic continuum captures the degree to which claims on natural resources are seen as shared claims. The resulting taxonomy is illustrated in Figure 15.3.

Managing the Planet: The Particular Needs Approach and the Eco-Modernization Agenda

Insofar as there is an emerging, albeit partial, global consensus it is underpinned by an economic or essentially neoliberal systemic framing. It

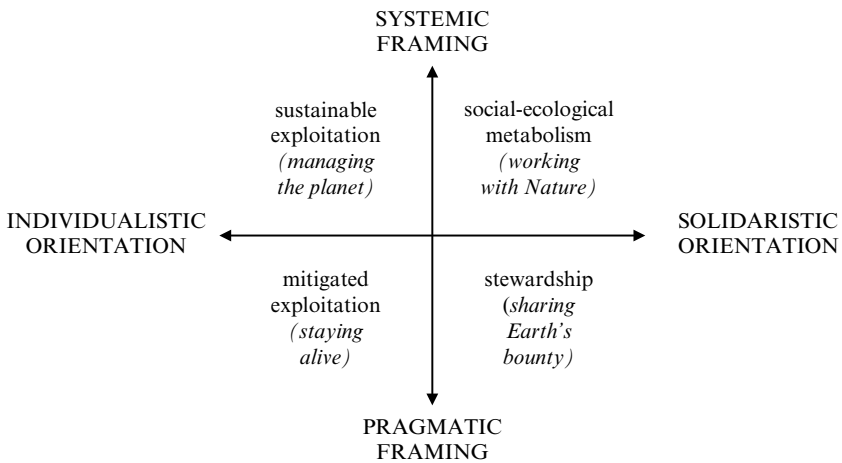


Figure 15.3 Competing social-environmental praxes

is assumed that it is through the management of economic globalization that we may achieve the sustainable exploitation of natural resources. The emphasis is on low-carbon production techniques, renewable energy sources, waste recycling, carbon trading schemes and tax incentives aimed at changing both corporate behaviour and individual life styles. Social rights can over the longer term be developed or maintained through the avoidance of scarcity; they are adjuncts of economic competitiveness and continued economic growth.

Staying Alive: The Circumstantial Needs Approach and the Deep Ecology Agenda

The 'deep' green movement – or, at least, its most misanthropic and authoritarian elements – appears to have been less in evidence of late. There is perhaps a paradox to be addressed. What is characterized above as the circumstantial needs approach (which is at best sceptical towards ideas of 'rights' but is accepting of authority) can have populist right-wing appeal. However, the deep green agenda demands a degree of selflessness and human sacrifice that is inimical to populist individualism. The messages of even light green or moderate advocates of 'degrowth' (e.g. Jackson 2009) attract neither popular nor political support. Nevertheless, it might be foreseen that at the point where the effects of climate change self-evidently threaten life and limb, we may anticipate popular moral panic, including urgent and wholly selfish support for measures to mitigate the exploitation of natural resources and, in order to survive, a willingness belatedly to submit to the dictates of Nature: out of necessity, not principle.

Sharing Earth's Bounty: The Common Needs Approach and the Green Communitarian Agenda

Light green communitarianism and, for example, the Christian Democratic tradition, emphasize the essentially conservative notion of 'stewardship'. Social rights are about the pragmatic preservation and sharing of available resources, albeit that the social order, like Nature itself, is not necessarily just or even-handed, especially when there is not enough to go round. The existing order should where necessary be defended against the 'manufactured risks' (Beck 1992) associated with technological innovation. The environment should be conserved for the benefit of future generations. Social rights may be sustained, even during an era of austerity, by sensible collaboration between social partners. Or else social rights may be restored by going back to Nature and finding alternative ways of harnessing social resources.

Working with Nature: The Humanitarian Approach and the Eco-Socialist Agenda

I shall return in a moment to Marx's concept of 'social-ecological metabolism' (*Stoffwechsel* – translated in some texts as the 'exchange of matter between Man and Nature'). The idea that human need is to be systemically framed with reference to the definitive characteristics of the human species is captured by Marx's metaphorical allusion to humanity's distinctive metabolism with Nature and his notion of the 'metabolic rift' occasioned by capitalism (Foster 1999). It is an idea that has not explicitly informed left-wing thinking about the environment. Moderate eco-socialists do not necessarily demand that capitalism should be completely rolled back in order to restore the equilibrium between humanity and Nature. Nevertheless, they contend that ecological sustainability requires that social policy and planning should take precedence over economic policy and planning: economic production should be constrained so as to produce no more than is required to meet humanity's needs, while resources should be redistributed so as to ensure that everybody's social rights are adequately and meaningfully fulfilled.

Like our preceding taxonomies, this model is a heuristic device. It does not precisely describe any of the factions or camps actually to be found within the 'green tent'. Nor does it purport to predict future scenarios. It is an attempt critically to reflect upon the competing logics that are immanent within and expressed through hybrid forms of social-ecological praxis. It is a way of thinking about the multitude of fragmented and often suboptimal processes and practices through which social policy at every level may engage with the cause of ecological sustainability: whether at an everyday community level, at the nation state level, or at the level of supranational or global policy frameworks.

Central to this multilayered and multidimensional approach has been the concept of social-ecological praxis and it is to this that the final section of this chapter will turn.

Stoffwechsel

Mention has already been made of Marx's application of the concept of *Stoffwechsel*. The contemporary translation of the word – 'social-ecological metabolism' – is apt, but it is worth recalling the 1887 English translation of a key passage from *Capital*:

The labour process . . . is human action with a view to the production of use-values, appropriation of natural substances to human requirements; it is the necessary condition for effecting exchange of matter between Man and Nature

[*Stoffwechsel*]; it is the everlasting Nature-imposed condition of human existence, and therefore is independent of every social phase of that existence, or rather, is common to every such phase. (Marx 1887 [1970]: 183–4) (see also Colletti 1975: 28 regarding translation)

This is the historical materialist alternative to both the Genesis narrative and the Gaia hypothesis. It may be argued that historical materialism offers a theoretical basis for understanding the equilibrium between society and Nature (Bukharin 1925: Ch. V) and the regulation of that relationship ‘from the side of Nature by natural laws governing the physical processes involved, and from the side of society by institutionalized norms governing the division of labour and distribution of wealth’ (Hayward 1994: 116). Benton (1988) would suggest that, taken as a whole, Marx’s writings present two interdependent accounts: one concerning the need to ‘humanize Nature’ (to shape or civilize the natural world in the interests of humanity); the other concerning the need to ‘naturalize humanity’ (to restore human beings’ unity with Nature). *Stoffwechsel* – the process of social–ecological metabolism – defines the relationship between humanity and Nature as neither dominant nor parasitic, but symbiotic. Humanity is a product of Nature, yet interacts with it. Human society reflects the human essence of Nature and the natural essence of humanity, albeit under industrial capitalism in an ‘alienated form’ (Marx 1844 [1975]: 355). The human species as a product of Nature is defined through work (that is, the labour process as a distinctive form of metabolism with Nature); through its capacity for progressive historical development; through the unique form and level of cognition or consciousness that makes both purposeful work and historical development possible; and, fundamentally, by its sociality, its constitutive mutual interdependency (Markus 1978). Through the wage relation, capitalism estranges human beings from their metabolism with Nature and through the commodity form, it reduces their species-being to an ‘alien essence’ (Chitty 2009). Capital, as the manifestation of abstract value, obscures the meaning of humanity’s substantive needs and the symbiotic claims on natural resources that stem from such needs. It is within this constrained context that the existing Marshallian concept of social rights has been forged, a concept that reduces social rights to claims mediated by capital and by the capitalist welfare state.

This account of humanity’s essence and the subversion of its relationship to Nature is at one and the same time both normative and theoretical. It can be situated within the taxonomy presented in Figure 15.3, but it also provides an analytical critique through which to consider all forms of social–ecological praxis. Long before the birth of the environmental movement and contemporary concerns with environmental pollution, ecological degradation, resource depletion and climate change, Marx accused

capitalism and specifically capitalist forms of industry of undermining the equilibrium between humanity and Nature. For example, in the often neglected third volume of *Capital*, he pays particular attention to problems back in the mid-nineteenth century of soil degradation and environmental damage associated with the emergence of the fertilizer industry and the failure to recycle urban organic waste (Marx 1894 [1959]). But more generally throughout his work, he sought to emphasize that capitalist production simultaneously undermined ‘the original sources of all wealth – the soil and the worker’ (Marx 1887 [1970]: 505). Foster would contend that this amounts to a ‘larger conceptual framework, emphasising the metabolic rift between human production and its natural conditions’ (Foster 1999: 320).

While insisting on the primacy of the material means of production in the shaping of human societies, Marx (1887 [1970]: 43) nonetheless endorsed the classical economist, William Petty’s, aphorism that though labour is the ‘father’ of material wealth, the Earth is its ‘mother’. Indeed it is the fetishized character of the wage relation and the commodity form that conceals the origins and significance of the material wealth that is generated through the metabolism between social humanity and Nature. The metabolic rift can be repaired. But this would ultimately require a revolution wherein the pursuit of ‘radical needs’ (the realization of human potential) would replace market value as the measure of human achievement (see Heller 1974). It would entail a freedom that, according to Marx (1894 [1959]: 820), can only consist in socialized humanity, as ‘associated producers, rationally regulating their interchange with Nature, bringing it under their common control’. In practice, some contend, ‘capitalism will be humans’ final mode of production on earth’ (Harriss-White 2012: 109) and that, for example, mitigating the effects of man-made climate change is now impossible within the prevailing framework of finance-driven capitalism (Koch 2012). And yet there is now no effective or immediate call to revolution against capitalism. Making the case for ecological socialism, O’Connor complains that conventional socialist resistance has in practice ‘consisted of struggles for higher wages, shorter hours of work, full employment, rent control, subsidies to small farmers, and so on, or what can be called “distributive justice”. Socialists have had a qualitative theoretical critique of capitalism and too often a quantitative political practice’ (O’Connor 1998: 324).

O’Connor calls – additionally or instead – for struggles over the qualitative conditions of production. He argues that elements of eco-socialism have been immanent within a variety of new social movements and this we can, of course, see in the call by feminists and others for recognition as well as redistribution (e.g. Fraser 1997) and in the scepticism of post-development theorists towards narrowly framed ‘politics of demand’

(e.g. Escobar 1995). The distinction between quantitative and qualitative dimensions, however, can also be seen in the context of the distinction made above between thin needs and thick needs. The Marxist theory of need is quintessentially qualitative and ‘thick’: by defining human need in relation to the constitutive characteristics of our very species-being it allows for the framing of social rights claims and an understanding of social policy that is fundamentally qualitative. Social policy can challenge the conditions of production for example through the partial decommodification of labour (e.g. Standing 2009) and the promotion of public services having social rather than market value (e.g. Jordan 2008) in facilitating ecological sustainability.

The contention of this chapter is that social rights to natural resources could be sustainably mediated through social policies premised on a radical theory of need; by the realization of our human species-being in terms not of abstracted value, but of substantive fulfilment. Key to achieving this, perhaps, would be an anti-capitalist struggle that is not merely immanent within, but explicitly shared between, a variety of social movements (cf. Callinicos 2003). The seeds of such activity might, for example, be seen in the World Social Forum and the Occupy and Los Indignados movements, though the sustainability of such movements, paradoxically, is probably as fragile as any ecosystem. Nevertheless, one may speculate as to the likely components of a radical decommodification social policy strategy.

Decommodification of labour

One of the defining features of capitalist welfare states is the degree to which they allow for the partial decommodification of labour (Esping-Andersen 1990). But the terms and conditions on which workers may be supported outside the labour market play a key part in the maintenance of labour discipline (Dean 1991). Pushed far enough, quantitative claims for reduced working hours, higher wages, longer holidays, better pensions and greater job security can begin to impact qualitatively on the nature of wage labour. But global demands for ‘decent work’ (ILO 1999) are nonetheless calibrated in quantitative not qualitative terms. And yet all work, according to Hegel (1805–1806), must have qualitative ‘moral value’ – something that need not apply when the worker is a disposable commodity (Sennett 1998). A radical decommodification strategy would seek to break the link between work and subsistence: human beings need both, but one should not be conditional on the other. A case that can be made for the proliferation of basic income schemes – depending on the context and their adequacy – is that by breaking the link between work and subsistence, they could rein back destructive forms of economic production and promote socially useful activity (e.g. Torry 2013).

Decommodification of land

Another distinctive feature of established welfare states has been the development of various forms of housing policy, including housing costs support, regulation of rents and housing conditions, and the subsidizing and/or provision of social housing (e.g. Lund 2011). But the provision of shelter for human habitation is wholly dependent on the ownership and control of land, and housing policy is not the same as land policy (Davy 2012), which has global implications not just for human shelter but also for access to natural resources. Quantitative concerns with rents and housing costs do not address the fundamental qualitative issues that stem from the status of land as alienable property; as a commodity, rather than as space where people might lead their lives. But even the social provision of housing entails by and large only a partial decommodification. A radical decommodification strategy would seek to extend common ownership or control of land, raising critical (though hardly new) questions as to just how collaborative use of common pool resources can be negotiated and managed (Ostrom 1990).

The decommodification of human services

Capitalist welfare states also make provision for human services which may to varying degrees be decommodified, and globally there is concern to promote human service development. Foremost among these is educational provision. The United Nations Millennium Development Goals include a global commitment to universal primary education (United Nations Development Programme 2003), though secondary and tertiary education throughout much of the world is by and large only partially decommodified. Neo-Marxist and some non-Marxist critics (e.g. Freire 1972) complain that state-capitalist education systems directly serve capitalist interests through their reproduction of, and hegemonic influence upon, labour. A radical decommodification strategy might seek to break the link between capitalist interests and educational practices by emphasizing the role of education in developing the human personality (rather than developing human capital) or through what Freire called a conscientizing 'pedagogy of the oppressed'. Healthcare is a more widely commodified human service, though in most countries the state is involved in regulating, funding and delivering health provision. Once again, critics of socialized medicine under capitalism have long complained, on the one hand, that it serves capitalist interests (Doyal 1979); and on the other, that its commodified form and the vested interests of medical professionals can have iatrogenic effects (that is, medical interventions can cause not cure disease) (Illich 1977). A radical decommodification strategy might seek to foster public health and healthcare delivery models and technologies that do not

objectify people as patients or consumers but allow them to optimize their lives in harmony with the environment.

A reconceptualization of social rights could play a key part in healing the metabolic rift and restoring social–ecological metabolism.

CONCLUSION

The focus of this chapter has been on the various ways in which the claims that humanity may make on Nature can be framed as social rights. It has shown how the relationship between social rights and natural resources is subject to a variety of competing discourses, moral traditions and political approaches. It has argued for a post-Marshallian understanding of social rights and social citizenship, contending that as a social species, humanity's negotiation of individual and collective claims upon natural resources – whether locally or globally – has always proceeded and will continue to proceed in a multiplicity of ways. The implication is that social policy will respond to environmental issues – whether reactively or proactively – in a variety of ways, at different sites and in different contexts around the world. The taxonomy of socio-ecological praxes that has been presented offers a heuristic framework for the analysis of those multiple responses. The attempt to present a post-Marxist conception of social–ecological metabolism provides a particular means to critique such responses and a window through which to address key issues around ecological sustainability.

If, as surely we must, it is accepted that humanity faces a self-inflicted and imminent threat from environmental degradation, resource depletion and climate change, it will fall to social policy to address the consequences in terms of resource distribution, the maintenance of livelihoods and social sustainability. A praxis aimed at 'managing the planet' will tend to subordinate social rights claims to the perceived constraints of market forces as these adapt reactively to ecological crisis: social policy will be on the back foot. This appears to be the dominant praxis, as expressed through an emerging consensus in favour of 'green growth' (OECD 2011; United Nations Environment Programme 2011; World Bank 2010). A praxis focused on 'staying alive' would not emerge until the ecological crisis is far advanced and social rights are self-evidently in jeopardy: social policy will be left waiting in the wings. Though it is a latent praxis, the possibility of harnessing an insurgent resistance against capitalism's self-destructive power must be borne in mind. A praxis aimed at 'sharing Earth's bounty' will be forced to accommodate social rights claims to the ecological crisis, but the process will be brokered within existing and increasingly strained social relations of power: social policy will be subject to compromise. As

a praxis, this embodies socially minded responses within the parameters of existing relations of power and is expressed, for example, in a demand made in a United Nations Research Institute for Social Development (UNRISD) report that a green growth economic strategy might incorporate social goals (Cook et al. 2012) or, just possibly, by certain nascent elements within the corporate social responsibility agenda (Vogel 2006). A praxis focused on ‘working with Nature’ would make social rights claims central to restoring equilibrium between humanity and nature: social policy would take centre stage. But it must be accepted that such a praxis might have to work with or within the context of other competing or suboptimal praxes.

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16. The nature of nature: Aristotle versus Epicurus

Tony Fitzpatrick

INTRODUCTION

Aristotelianism has revived in popularity and influence since the 1950s (see Cassirer 1944: 18–21, 70–71) and there can be few philosophers who do not welcome these recent contributions. Within philosophy, there is an important stand-off between teleological and non-teleological approaches which has unfortunately not been prominent in those debates. For centuries, people understood the division in classical Greek thought between teleologists and non-teleologists, with Aristotelianism often representing the former and Epicureanism the latter. Yet because the revival of interest in Aristotelianism has not accompanied a corresponding revival of interest in Epicureanism, we are in danger of losing a solid appreciation of those earlier disputes.

This would be unfortunate if, as some believe, Aristotelianism should wield more influence within social policy (Spicker 2011; Fitzpatrick 2011) and environmentalism (MacIntyre 1999). Looming above debates about social policy and environmental policy are some very large ethical questions that pertain to teleology.¹ If we claim that social reforms should recognize the extent to which humans are woven into and interdependent with the rest of nature then we should presumably try to understand what we mean by nature. If our aim should be to enable people to live good lives in a good society, then we should presumably try to understand what we mean by the good. And if goodness implies being well with and for the natural world, then what is the essence of the thing we ought to be well with and for? These issues can take us in many directions but we ought to be aware that a teleological approach is likely to deal with them in ways different to a non-teleological one. For instance, disagreement over teleology parallels – without being identical to – that between those seeking an approach which is largely religious and spiritual and those who prefer scientific and materialist understandings of the universe, of our place within it and thus of questions about how we should live and conduct ourselves.

This chapter therefore highlights what is at stake between Aristotelianism and Epicureanism. It begins by highlighting the impact the former has had

on the capabilities approach. It then proceeds to explore the meaning and significance of teleology within Aristotle's main texts, reading across works that are often subdivided into specialisms. It then outlines the potential problems with teleology and why Epicureanism – in the form of Lucretius' *De Rerum Natura* – may represent a worthwhile alternative. The chapter finishes by proposing why Epicureanism itself fails without reference back to at least some aspects of Aristotelianism.

ARISTOTLE AND CAPABILITIES

The central claim of the capabilities approach is that there is no single, reducible metric of justice and well-being (Sen 2009). All humans (indeed, all living creatures) require adequate levels of nourishment, shelter, health, social interaction and so forth. But the capabilities required to realize these basic 'functionings' are highly diverse and context-dependent. Capabilities must imply some notion of substantive freedoms and opportunities, but what these mean will vary between different communities, places, cultures and eras.

Sen (2009: 231–47) believes that the best we can do is to mark out a 'space of capabilities' which equips people with the freedoms they need to live their lives as best they can. By contrast, Nussbaum (2006: 392–401) offers a list of capabilities which she holds to be universally applicable:

- live a life of normal length;
- possess bodily health and integrity;
- cultivate and express imagination and thought;
- form emotional attachments;
- form and pursue a conception of the good and engage in critical reflection about one's life;
- interact with and be respected by others;
- relate to the natural environment and other species;
- play and enjoy;
- have some control over one's political and material circumstances.

She acknowledges that the meaning and implications of these capabilities will vary from one national-cultural context to the next; peoples and communities must be empowered to shape and control the social, political, cultural and economic institutions which translate these abstractions into concrete social realities. Both Sen and Nussbaum reject any attempt to be overprescriptive and top-down.

The capabilities approach carries implications for social and environ-

mental ethics. Firstly, it relates to the political and ethical governance of citizens; for example its account of justice diverges from Rawlsian ones. Secondly, it prescribes relations between polities on a global scale, such that all nations and citizens belong to a worldwide moral community with a duty to observe basic human rights. Finally, it pushes in the direction of a distinct environmental ethic since non-humans possess capabilities and functionings also, suggesting that they share a similar fate to humans within a shared ecological space.

Nussbaum in particular traces the genesis of this approach to ideas that go back many centuries. *Creating Capabilities* briefly illustrates the importance Aristotelianism holds within her political ethic. For Aristotle, the best life is that in which individuals choose – and are able to choose – to pursue those activities which allow their life to flourish (Nussbaum 2011: 125–8). Nussbaum emphasizes activities because while there are methods which commonly facilitate practical wisdom (*phronesis*), particularly education, Aristotle never posited a single goal suitable for all people at all times. Since no individual can supply themselves with all the goods that enable a life to go well – education, communal meals, decent water, civic festivals – these are public goods for which governmental action is required. Given his inegalitarian views on human worth and his Greek-centredness, there are limitations on the extent to which Aristotle offers a model for modern politics and ethics. Nonetheless, Nussbaum (2011: 129–31) insists that another strand within ancient philosophy – namely Stoicism – provided what Aristotle does not: an emphasis on equal human dignity. Together, Aristotelian and Stoic ideas provide a foundation for the best elements of modern thinking, including Adam Smith, Thomas Paine, John Stuart Mill and the founding fathers of the US constitution (Nussbaum 2011: 132–42). In earlier books, Nussbaum had similarly defended what is essentially an Aristotelian liberalism, tempered by aspects of Stoicism (Nussbaum 2006: 81–95, 328–9).

Nussbaum's work is surpassed by very few in its brilliance and originality. Yet one curious fact is that she pays little attention to another great classical tradition, one that arguably challenges Aristotelianism more thoroughly than any of the alternatives: Epicureanism.² In one respect, this is simply because there is less material to draw upon; the surviving texts of Leucippus, Democritus and Epicurus (also known as 'atomists') are hardly extensive.

Even so, this omission leads to a curious lacuna in her work. Thus, on the grounds that what matters is not pleasure per se but the quality and the origins of the experienced pleasure, Nussbaum (2011: 126) applies Aristotle's rejection of hedonism to Benthamite Utilitarianism. An enduring, modest pleasure derived from contemplation is better, she observes,

than an addictive pleasure derived from drug-taking since the former is more conducive to well-being. But although Nussbaum's account alludes to it, she skips over the fact that when discussing hedonism Aristotle's main point of reference was Democritus, who heavily influenced what would become the Epicurean tradition, a tradition that cannot be equated to Benthamism without distorting that tradition's true significance. Nor is this omission an aberration. In her 1978 commentary on Aristotle's *De Motu Animalium*, Epicureanism is not mentioned even in those places where it is most relevant to Aristotle's arguments (Nussbaum 1978: 60, 102–6, 174).

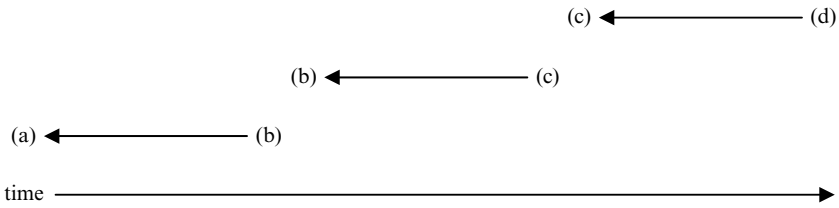
Why is this? Why spend time allying Aristotle to the Stoics while neglecting the Epicureans? Is Nussbaum simply more comfortable with an essentially teleological vision of the universe and of life in which notions of function, purpose and design predominate? Does this explain her attraction to Aristotle and Stoicism, in contrast to the Epicurean emphasis upon mechanism, materialism, contingency and chance as tools for explaining the physical, biological and human realms? Should we follow her lead in this respect?

My purpose below is not to propose that teleological analyses simply be rejected. However, I do want to suggest that because there are severe weaknesses in Aristotle's account of teleology, an insufficiently critical approach to it is potentially debilitating to those who seek to revive Aristotelianism and apply it to contemporary debates and problems. In short, unless it is at least strongly counterbalanced by Epicureanism, Aristotelianism provides a less secure foundation for contemporary thinking (including ethics, social policy and environmental policy) than those like Nussbaum imagine.

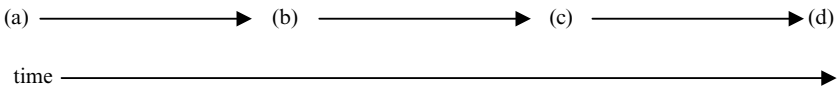
ARISTOTLE'S TELEOLOGY

What is meant by teleology? At its most basic, a teleological explanation is one where future outcomes are used to explain existing characteristics and trends. When painting a picture the artist has an end-state in mind that motivates, drives and therefore explains the earlier stages of the picture's creation. Although the artist's conception may obviously change during the production process, trying to understand the genesis and development of the picture without reference to the goal towards which the artistic process is ultimately pointing would make no sense. The earlier drafts only acquire meaning because they belong to a sequence that culminates in a final product.

A teleological account insists that each step can only be understood with reference to the one following it:



By contrast, a non-teleological account is satisfied with a forward-looking, linear sequence in which each event is explained by the ones preceding it:



So while teleologists read backward from the end-state, non-teleologists read forward from the starting-state. The non-teleological account tells you how something develops; many people are attracted to the teleological account because it proposes to tell you why as well as how.

There are fundamentally two ways of thinking about teleology (Gotthelf 1976: 251–2). One possibility is to attribute causal properties to the end-state, that is, something develops from t_1 to t_2 because the end-state (t_n) is somehow affecting those earlier stages. A vitalist might attribute actual purposes driving physical objects and biological events to their ends. Another possibility is that such accounts are merely explanatory. There are no causal properties through which t_n exerts a backward influence onto t_1 and t_2 . Instead, we simply interpret something as purposeful and goal-directed in order to fully understand its development. You cannot understand an acorn without understanding where it is headed, but the future tree is not causing the present acorn’s growth.

Which interpretation applies to Aristotle? In Aristotle’s philosophy, the final cause is one of the four causes that explain why things exist and evolve. He rejects the atomistic approach because although the material, formal and efficient causes are important, without the final cause they can never provide a comprehensive account. Despite this language of cause and causation, Nussbaum (1978: 60) is not alone in arguing that Aristotle is not identifying some ‘mysterious non-empirical entities’. Kahn (1985: 185) went further, claiming that even Aristotle’s first mover (‘the eternal act of thought’) should be regarded as analogical and metaphorical rather than literal. We return to this issue below. For Nussbaum and Kahn, then, in his teleological approach Aristotle sought merely to give explanatory priority to final causes.

We must first be cautious, however. Although Aristotle no doubt thought that they combined into a systematic narrative, there are distinct layers to his teleology that we must distinguish:

- metaphysical teleology;
- physical teleology;
- biological teleology;
- ethical and political teleology.

I will now review these, and for reasons that will become clear, I begin with physical teleology.

Physics

In Book 2 of the *Physics*, Aristotle (1999: 51) makes a case for regarding final causes as important because chance and accident cannot explain nature since ‘purposes are to be found in natural events and natural objects’. That purpose resides in the fact that ‘wherever there is an end, the whole prior sequence of actions is performed with this end as its purpose’ and, ‘If artificial products have some purpose, then, natural things obviously do too, since in both cases the relation between the later stages and the earlier stages is the same.’

In short, those who explain something merely with reference to its antecedent stages are missing the point: ‘Starting from a given source of change does not result in the same end in every case, but it is not just any chance end either; there is in fact a tendency towards the same end, unless something intervenes’ (Aristotle 1999: 53); ‘the end is also an originating principle – not the originating principle of a sequence of actual events, but of a chain of reasoning’ (Aristotle 1999: 54). Rather than seeing matter as causing the end (as the atomists did), a thing’s purpose is the cause of its material changes.

In Book 4, Aristotle (1999: 94–9) then establishes the principle that everything either occupies or seeks to occupy its ‘proper place’ – the resting place or end-point beyond which further movement need not occur – in contrast to the atomist contention that things move by moving into a void. Thus, it is in the nature of fire to move up and of earth to move down. (He also raises, only to dismiss, the principle of inertia which would be established by Galileo, Gassendi, Descartes and Newton 19 centuries later.) The final cause, then, is the proper place towards which objects move because it is in their nature to do so.

In Book 8, Aristotle distinguishes between living beings which are self-movers – in that the cause of the change they undergo lies within themselves – and non-living objects which undergo change because they

are subjected to some kind of external event. (The status of living things is considered further below.) He then objects to the possibility of an infinite regress where cause and effect extend eternally and posits the existence of a 'first term' or a 'first agent' which underpins the whole sequence: 'if everything that changes is changed by something, and if the first agent is changed, but not by something other than itself, it necessarily follows that it is changed by itself' (Aristotle 1999: 201).

He then proposes that the agent of change must be different from both the objects which undergo change and the instrument by means of which change is caused. In other words, that which causes change must be unchanging and also eternal. Eternal because Aristotle is not identifying an equivalent of a Big Bang which initiates a sequence and then fades; instead, the unchanging changer is the enduring condition of, and that which enables, change.

Aristotle (1999: 208) then ties a knot together that commentators ever since have been trying to unravel. In the *Physics* he asserts the existence of multiple unchanged agents of change on the grounds that different kinds of change require different unchanged agents. These 'self-changers' come into existence at some point and cease to exist at a later point. Aristotle asserts, though, that there must be a fundamental unchanged changer which encompasses these unchanged changers and explains their existence. An ultimate source of change, in other words. As we see below, in the *Metaphysics* Aristotle returns to this conception of unchanging change as being both multiple and singular.

For now, it is important to appreciate that his argument is designed to encompass the atomist view that change is infinite while also rejecting it on the grounds that there must be a principal agent of change for which the notion of atoms, colliding blindly in a void, cannot account. So, he argues that change largely consists of movement which, in turn, implies separation (which is imparted by hatred) and combination (which is imparted by love).³ Aristotle acknowledges that atomists have identified the importance of separation and combination, but have ignored the purposiveness that ultimately explains motion.

Yet at the end of Book 8 Aristotle then makes a major concession to his opponents. The key atomist objection to Aristotelian physics consists in denying that there is anything troubling or incoherent about an infinite regress. Their position was that we do not have to halt the regress by hypothesizing some kind of first term. Now consider the following quote from Aristotle (1999: 229):

although the first cause of movement imparts the ability to cause movement to the air or the water (or whatever else it may be that is, by its nature, capable of causing movement and of being moved), nevertheless the air or water or

whatever does not stop causing movement and being moved at the same time as the first mover stops; it may stop being moved as soon as the cause of movement stops imparting movement, but it retains its ability to cause movement. That is why it imparts movement to something else which is consecutive to it, and the same goes for this in turn.

In other words, that which causes movement imparts this capacity to that which is consecutive to it. This is actually a significant concession on Aristotle's part. Aristotelian physics depends upon a first mover continuing to exert a force on that which moves; recall that Aristotle rejects a principle of inertia. Yet here, the acknowledgement that objects can impart movement to one another without a first mover being present seems to blow a hole in the Aristotelian model. For if, in the above quote, Aristotle allows movement without a first mover then why is he so opposed to the atomists who simply go one step further and eliminate the first mover altogether and make room for an infinite regress? Thus, there is nothing here with which an atomist would strongly disagree, except the insertion of a 'first mover' or a 'first cause of movement'. For the atomist, the sequence of cause and effect, that is, the 'ability to cause movement', can simply continue indefinitely.

That Aristotle inserts a first mover in contrast to the atomists is somewhat akin to contemporary disagreements between: (1) those who believe that the universe must have had a purposeful origin which explains all subsequent events within the universe; and (2) those who see no reason why the universe must be referred to such an origin. The advocates of (1) may support science but also appeal to some kind of God, or spiritual and supernatural substance; how often have you heard the refrain, 'without God nothing would mean anything'? Some advocates of (2) may believe in God, but all will identify scientific principles – empiricism, scepticism, objectivity, universal laws, evidentially grounded reason, observation, experimentation, proof, verifiability, and so on – as fundamental to knowledge and understanding.⁴

Should we follow Aristotle in proposing a first mover or should we regard the atomists as correct when they see the universe as consisting simply of endless collisions of matter? This is the central question pursued in the *Metaphysics*.

Metaphysics

Aristotle's *Metaphysics* is one of the most difficult works ever written and so my only intention here is to explore its central, and most famous claim. In Chapter 6 of Book Λ, Aristotle claims that because the world is necessarily eternal there must be something real and active which enables it to

be so: 'How is everything to be set in motion, unless there is actually to be some cause of movement? Matter is not going to set itself in motion . . . Nothing, in fact, will be moved by chance, but some causal factor must always be present' (Aristotle 1998: 369–70).

This eternal substance changes, without itself being changed. In Chapter 7, Aristotle (1998: 373–5) proposes that this occurs because the 'unchanged changer' is an object of desire engaged in pure thought, that is, contemplation of itself by itself. For all intents and purposes, this notion of self-reflexive contemplation is what we mean by 'God'. In short, the eternal substance is an eternal mind, or absolute consciousness – consciousness raised to its highest degree – that humans can only experience occasionally and briefly. This is what we do when we realize the good through the exercise of *phronesis*, or practical reason and wisdom.

Chapter 7 also associates the first mover with spatial rotation, perhaps on the grounds that because circular motion is the most self-replicating motion that can be imagined it comes closest to expressing the perfection of God. Looking out at the universe 24 centuries ago, what Aristotle saw was a fixed Earth around which the planetary spheres revolved. Where else was God to reside but on the final sphere? Yet if God represents perfect, necessary motion then because the heaven contains plural motions there must be a plurality of Gods. This, at least, is the assertion of Chapter 8, where Aristotle identifies anywhere between 47 and 55 first movers. Aristotle's conception of unchanging change being both multiple and singular therefore derives from his perception of the physical universe as understood at the time.

These arguments aside, by the final chapter Aristotle (1998: 385–6) returns to his view that because God is good, goodness derives from a contemplation of God which we achieve not merely through study and deliberation but through good actions and judgements. In short, if the metaphysics is a completion of his physics, the metaphysics is itself incomplete without consideration of ethics and moral conduct. Book Λ therefore provides not only a 'cosmological argument' for the existence of God – where God is the cause of all physical causation – but also the foundation of our ethical life.

De Anima

Before exploring Aristotelian ethics, however, it is first necessary to appreciate how and why Aristotle applies his teleological approach to living beings. In Book 1 of *De Anima*, Aristotle (1986: 140) repeats his charge against the atomists that matter cannot cause itself to move, no more than a wooden statue can move by having molten silver poured into it. Matter cannot give form to itself.

In Book 2 he then argues that the anima is gradated in that some parts of it are more separable from the body than others. Thus, plants are dominated by their nutritive and reproductive faculties, animals are characterized not only by those faculties but also by their capacity to perceive, sense and desire, and humans are distinguished by all of those qualities and by their possession of thought, intellect, imagination and belief. As such, unlike animals and plants, humans can understand the existence of a first mover and so are closer to God than the lower beings. These gradations of nature exist within the hierarchy of a reality in which humans alone can emulate, however imperfectly, the pure contemplation of the first mover.

The anima is thus the form of the body's matter. Living things must be understood through the concept of *entelechy*. This means that the anima is its own end; its purpose does not reside in some external object but is instead intrinsic; that is, the anima's end resides within the anima itself. It is this inherentness which supplies matter with its form, its actuality and thus its capacity to live (Aristotle 1986: 161). So, the intrinsic end of one type of living being will be fundamentally different from that of other types: 'We must, then, seek out in each case what the soul of each thing is, what for instance is the soul of a plant and what of a man or a beast, and we must consider for what reason it is that they stand thus in series' (Aristotle 1986: 163). This series places humans closer than non-humans to the first mover. The rest of the work then proceeds to lay out the specifics of this gradated and hierarchical model.

Aristotle has therefore influenced functionalist accounts of biological processes in which the arrangement of matter has to be understood in terms of the ends that the arrangement serves, and to which its evolution is therefore directed. Evolution is ends-directed, then, and not the unwinding of a mechanism that was set in motion in the distant past. At each stage of the process – whether we are talking about a gene, an organism, a species or a genus – what comes later matters as much as, and perhaps more than, what came before. So when an organism is identified as a 'survival machine' for a gene (Dawkins 1976: 36; see Fitzpatrick 2005), or when a virus is said to kill host x but not host y because y allows it to multiply whereas x does not, then what is being advanced is a functional account behind which stands a teleological explanation of living matter.

Not surprisingly, then, it is with respect to natural processes that Aristotle finds his most receptive, modern audience among scientists. You can be a materialist while acknowledging that for life to be breathed into matter, we must appreciate the organic, interactive system of matter. Call this system 'anima' and you can be a biological teleologist without all that stuff about first principles and purpose which dominates the *Physics* and *Metaphysics* (see note 3).

*Ethics*⁵

This leads, finally, to Aristotle's perspective on ethics. An overview and critique of Aristotelian ethics is provided in Fitzpatrick (2008a: Ch. 4). So far as its teleological dimensions are concerned I need to highlight the following.

Aristotle weaves together ideas that the preceding sections have illustrated. Firstly, just as physical objects have an 'end' or final cause – a proper resting place which they are drawn towards because of some tendency inhering within the object – so humans possess a function (*ergon*) that must be fulfilled if their potential is to be realized. Like objects, living beings are defined by the end towards which they move. Secondly, human anima is characterized by our capacity for intellectual activity, and the more ably we perform such activities – in the thoughts, actions, habits and words which are expressive of our disposition – the more we approximate, however modestly, to the goodness of God. In short:

if the function of man is an activity of the soul in accordance with, or implying, a rational principle . . . and if the function of a good man is to perform these well and rightly; and if every function is performed well when performed in accordance with its proper excellence . . . the conclusion is that the good for man is an activity of soul in accordance with virtue. (Aristotle 1976: 76–7)

Aristotle again contrasts his position with that of the atomists. For whereas someone like Democritus stressed what humans share with animals – feelings of pleasure and pain, with an inclination to avoid the latter and maximize the former – Aristotle is concerned to distinguish humanity from animality. To find satisfaction in sensation alone risks reducing us to the licentious status of brutes (Aristotle 1976: 137). Although we will often find pleasure in performance of the good, it is not the case that the pursuit of pleasure is itself good. The gradations of nature therefore imply a moral hierarchy too: 'if people are to give the name of wisdom to the knowledge of what is beneficial to themselves, there will be more than one wisdom; because there is no one wisdom that is concerned with the good of all animals, but a different kind for each species' (Aristotle 1976: 212).

Phronesis is multilayered, such that just and virtuous actions in relation to humans are of a different and higher order to whatever makes an action just and virtuous in relation to non-humans. (And since Aristotle (1976: 226) thought that Greeks were superior to non-Greeks – and men superior to women – the implication is that wisdom towards the former is distinguished from wisdom towards the latter.) Thus, humans ascend nearer to God by developing and exercising that part of our nature which distinguishes us from animals and plants: 'The life of the Gods is altogether

happy, and that of man is happy in so far as it contains something that resembles the divine activity' (Aristotle 1976: 333). If, though, someone practises vice then they descend lower than brutes since vice represents the corruption of 'the highest part' of what it is to be human (Aristotle 1976: 241).

In summary. The good is already the end of all actions; whatever we do, we do in order to achieve that which is good. We are most likely to achieve the good when we fulfil the function of what it means to be human, that is, when we live excellently in both deeds and thoughts.⁶ Excellence means cultivating virtues and inscribing them into our character so that morality is habitual and not a matter of obeying rules or following inclinations. True happiness (*eudaimonia*) is a self-fulfilment, or accomplishing that which is already in you to accomplish; a goodness of spirit which comes when the *anima* is at rest with itself. Virtue means aspiring to the goodness of the Gods, while vice makes us more brutish than the brutes. The more we act morally the more we appreciate what morality means and the more likely we are to practise virtue: moral conduct generates a capacity for moral conduct. For Aristotle, ethics is inherently teleological since justice implies actualizing the potential, the function, which resides within the soul of humanity. It is this moral philosophy which has inspired a revival of interest in, and support for, Aristotelianism over the last half-century or so.

CRITIQUING ARISTOTLE'S TELEOLOGY

Status

From the few book-length analyses of Aristotelian teleology (Johnson 2005; Leunissen 2010) it is clear that several questions suggest themselves:

- To what extent can we separate the *telos* of the *Physics* and *Metaphysics* from that of *De Anima* and the *Nicomachean Ethics*?
- Should Aristotle's model be taken merely as an explanatory framework or as a depiction of actual causation?

These questions are closely related. If Aristotle was presenting an integrated account in which the actions of living beings cannot be understood without close reference to the physical and metaphysical, then it seems harder to treat *telos* simply as an explanatory model since it seems clear from the *Physics* and *Metaphysics* that Aristotle is trying to identify real, literal, causal mechanisms. On the other hand, if we can separate them – if the *telos* of a ball is radically distinct from that of a dog and even more so

from that of a human – then it becomes easier to ignore Aristotle’s physics and metaphysics, and treat *telos* simply as an explanatory tool for understanding humans (and perhaps all living beings).

Over time, prevailing opinion seems to have swung from the former interpretation to the latter. Aristotelianism fell out of favour with the rise of modernity and scientific materialism, in part due to a resurgence in Epicureanism (Johnson and Wilson 2007; Baker 2007).⁷ In his work up to and including the *Dialogue*, Galileo ridiculed Aristotelian physics as a deductive flight of fancy (White 2007: Ch. 5, 172–6). Indeed, filtered through Aquinas, such attacks helped to condemn Galileo in the eyes of the Catholic Church since without an Aristotelian distinction between the substantive and the contingent, the basis for Holy Communion and transubstantiation was made manifestly weaker (White 2007: 188–9). And if Aristotle’s physics was discredited and if his metaphysics appeared dated, then there seemed little reason to apply his teachings to the realm of biology and the humanities.

But since the 1950s, momentum has been swinging back towards Aristotle. Aristotle may well have believed in *telos*-as-causation, an idea that is now discredited, but so what? Who can doubt that humans find meaning in acting purposively, that is, towards some end? And who can therefore doubt that it is in deliberative interaction with others that they achieve their highest purpose, that is, the good life? As such, humans are political beings insofar as they practise the virtues by realizing and promoting the common good of the whole community (Sandel 2012; Skidelsky and Skidelsky 2012). This is a powerful argument and since it does not require extensive reference to Aristotelian physics, metaphysics and biology (though Aristotle’s writings on biology and psychology now have receptive audiences) it has rarely received one. According to this interpretation, a teleological defence of human behaviour and ethics does not stand or fall based upon what Aristotle says about teleology in his other works.

Which reading do Aristotle’s books actually support? As you would expect, views differ. One possibility is that Aristotelian teleology is entirely heuristic, a tool for acquiring scientific knowledge that can be discarded as and when needed. In short, Aristotle is drawing attention to how phenomena might be explained but not necessarily identifying causal factors about the world.

Yet even if we allow Aristotle some leeway here, travelling too far down this interpretative road is to risk inviting indifference. The dilemma is akin to those who would defend religious stories as metaphors only. For if such stories do not provide anything that we are meant to take as literal truths then surely their status is fatally undermined. To you, it is a valuable

metaphor; to me, it is not. Similarly, if Aristotle does not mean us to treat his concept of final causes as ontologically real, it becomes unclear why we should be especially bothered. To you, teleological explanations offer a rich heuristic; to me, they do not. In other words, unless the *telos* captures something essential about the world – a unity of all ends in the ultimate substance of God which draws goal-directed phenomena towards it – then it is unclear why we should regard teleological accounts as particularly interesting in the first place.

The alternative is to follow Leunissen (2010: 110–23, 150–51; also Johnson 2005: 182–7) when she proposes that while it has some heuristic intent, teleology does provide us with actual knowledge about the reality of the world since the final cause is what allows the material, the formal and the efficient to combine in a systematized and thus goal-directed whole. Teleological causation is real and not merely a take-it-or-leave-it construction made for explanatory convenience: ‘the goal-directedness of art and agency are ontologically dependent on that of nature . . . because they imitate nature and are themselves endowed with natures’ (Leunissen 2010: 218).

If this is the case then we are entitled to judge teleological accounts in cross-disciplinary terms, that is, to read across the physics, the metaphysics, the biological and the ethical, such that weaknesses in one affect its relevance to another. If we find teleology unconvincing in one sphere then we may doubt its veracity within, and applicability to, another. So far as I can see, this is not an exercise that has been performed systematically by the most prominent Aristotelian moral philosophers of recent years. MacIntyre (1981: 196) observes that although his ‘account of the virtues is teleological, it does not require any allegiance to Aristotle’s metaphysical biology’.

Thus, the post-1950s revival of Aristotelianism in moral and political philosophy depends upon a kind of intellectual butchery, in which we pick and choose the choicest bits of Aristotle’s work from those which have gone stale.

There is a good reason for this strategy.⁸ If you wish to promote an ethical teleology then the last thing you would want are Aristotle’s thoughts on the physical, the metaphysical and, to some extent, the biological intruding also; thoughts which are at best contentious and at worst ridiculous. In her defence of Aristotle, Leunissen (2010: 174–5) argues that although ‘teleological explanations of heavenly phenomena may sound rather unusual’ to a modern audience, this is because he lacked the data upon which his scientific method depended. Yet we may make allowances for this while still finding Aristotle’s approach less convincing than other ancient scientists and philosophers who, of course, also lacked the requisite data.

But whether there is good reason for it or not, the problem with that

slice-and-dice, pick-and-choose strategy is that it allows Aristotelians to invoke the authority of someone while rejecting a central pillar of his world-view. We therefore have two possibilities:

1. Aristotelians are allowed to reject Aristotle's own attempt to integrate different fields of knowledge, in which case *telos* can be applied to human affairs as an explanatory tool.
2. The slice-and-dice, pick-and-choose approach distorts the essential point Aristotle was making about human affairs and ethics being woven into the physical and metaphysical aspects of reality. Or as Leunissen puts it, art and agency are endowed with the nature that they try to emulate.

Criticisms

Possibility (1) risks the shrug described above. For critics, Aristotelians thereby undermine their own attempt to promote teleological methods. Maybe it is a rich heuristic or maybe it isn't. There are lots of explanatory tools. Why regard *telos* as essential and indispensable? It also leaves Aristotelians with another major problem. Aristotle sought a teleological account of everything in contrast to the atomists' non-teleological account of everything. Most modern Aristotelians want a bit of both. But here is the problem: how can teleological beings (humans) emerge from a non-teleological universe? If there is no unchanged changer (because the *Physics* and *Metaphysics* are being rejected, remember) then what is the origin of *telos*? To claim that *telos* originates within humans themselves is circular reasoning, assuming what needs to be explained. It is tantamount to claiming that 'humans are goal-directed because it is in their nature to be goal-directed'. This is why critics shrug. Without an explanation of its cause, *telos* cannot explain anything that cannot be explained using other tools, metaphors and heuristics; it just seems to come from nowhere.⁹

Possibility (2) avoids this risk but leads to its own problems. On the basis of an integrated, cross-disciplinary reading we might identify the following three difficulties with Aristotelian teleology.

Firstly, it severely reduces the role played by chance, luck, spontaneity, arbitrariness, accident and contingency in nature and society. With very few exceptions, Aristotle emphasizes final causes rather than material and efficient ones, even in the case of physical objects (such as the heavenly bodies). In other words, motion and process is always goal-directed, only to be explained as the realization of some outcome.

Aristotle is of course aware that luck exists but it is not central to his world-view (Guthrie 1981: 233–41). Good character and practical wisdom

will resist the effects of luck by acting nobly even in adverse circumstances (Nussbaum 2001: 333). By downplaying the vicissitudes of our environments and circumstances – the extent to which they are dominated by undeserved advantages and disadvantages – and by imagining that good character will always triumph, this gives Aristotle's thinking a hue of social conservatism (see below).

Therefore, for Aristotle, scientific laws derive from some natural, intrinsic principle, the unfolding and actualization of which is what drives the object towards an end which is already implicit within it as a potential. Although many Aristotelians are presumably non-religious, this emphasis upon purpose and function chimes with a spiritual belief that 'there just has to be' more to life and the universe than the collision of matter. Even when it is pointed out that the regularities of scientific laws bring stability to those material collisions, the teleologist and/or spiritualist will still object to the possibility of those regularities deriving from matter alone.¹⁰

As I said at the beginning of this chapter, my intention is not necessarily to reject Aristotelian teleology per se. Nonetheless, we might condemn as mere prejudice the view that natural events must have a goal-directed purpose. Indeed, as discussed earlier, Aristotle acknowledges that objects can impart movement to one another without a first mover, leaving open the possibility of an infinite regress and thus sole reliance upon material and efficient accounts of cause and effect. Thus, if we have reason to doubt that physical nature is teleological, and if, as Leunissen maintains, art and agency are ontologically dependent on nature, then Aristotle's methodological edifice begins to crumble.

Leunissen (2010: 219) herself, though, may well deny that this is the case as 'Teleological explanations are most successful in biology', since they highlight the extent to which life depends upon the interconnectedness of parts in a systematic whole. This suggests a second criticism, though: that Aristotle's version of nature is unduly gradated and hierarchical.

As the earlier section on *De Anima* made clear, Aristotle's world is ordered in a sequential chain, with plants at the bottom, followed by animals, then humans and then God or Gods who reside within the perfect, circular spheres of the heavens. This model is strongly anthropocentric.¹¹ Humans are self-movers in that while they possess the same faculties as plants and animals, they are not ruled by them.¹² Our agency and our capacity to live good lives comes ultimately from our ability to reason, to practise rationality through virtuous actions and to comprehend the realm of God, who possesses eternally what we humans can only demonstrate imperfectly and infrequently. In short, Aristotle's biology relates to his insistence upon a first mover, something to which Leunissen (e.g. 2010: Ch. 1) pays no attention.

Now, as in the case above, an Aristotelian may prefer a non-religious interpretation, in which the first mover is either ignored or – as with Johnson (2005: Ch. 9) – is not deified and, instead, the emphasis is placed upon life as an integrative, teleological system. Yet it then becomes incumbent upon them to revise those parts of Aristotle's biology where it seems difficult to ignore the role played by a first mover. The fact that humans can – at least in part – share in the pure, contemplative existence of God is what makes the soul of man distinct from that of animals and plants. They are dominated by their natures (their biological programming, we might say); we are not. This is what makes living beings 'stand thus in series' (Aristotle 1986: 163). So, even assuming that the metaphysical underpinnings can be dispensed with, what this may well leave is an anthropocentric ethos that neglects the strength and interdependencies of the natural connections and relations within which humans are enmeshed.

In short, though he highlights what they share in common, for Aristotle the distinction between humans and non-humans appears to be one of kind rather than degree. By contrast, De Waal (2006) is among those who stress that our morality is rooted in emotional responses that we share with many non-human species. The latter, too, are characterized by 'emotional interest', empathy and the kind of group affiliation and behaviour which manifests itself as a sense of fairness and reciprocal exchange. We may regard humans as advanced creatures who occupy a powerful position within the rest of nature (such may be the source of the equally powerful obligations we possess towards the rest of nature), but an ecocentric ethic will nevertheless stress the connectedness that Aristotle ignores when he ranks the *animas* of plants, animals and humans into distinct spheres of being.

From the viewpoint of environmental ethics, then, Aristotle's moral philosophy disconnects that which is interrelated and interdependent. Even a thorough Aristotelian like MacIntyre (1999: 8, 58–9) has to turn against Aristotle to argue that: 'In transcending some of their [that is, animals'] limitations we never separate ourselves entirely from what we share with them.'

The final criticism is this: if Aristotelian teleology implies that motion and evolution are to be explained as the unfolding of a potential, or internal essence, and if it derives from a hierarchical vision of the cosmos, one implication is that our job is to recognize, accept and manage the natural operation of things. The good is always the unfolding of something that is already there. Thus, what may be and what is are always present within one another. This is a philosophy of providence, fate and deference to the established order. Aristotle offers solace to those who appeal to what they see as the permanent, inescapable, asocial characteristics of human nature.

Given his own emphasis on good character (see above) it is little surprise,

then, that Aristotle has appealed so strongly to religious, moral and political conservatives. Even a defender of Aristotelian teleology like Johnson (2005: 237–46) finds problematic his tendency to subordinate parts to wholes when discussing ethics, society and politics. If the good of the part (an individual, say) is dependent on the good of the whole (a community, perhaps) then the order of the latter is what matters and the part is obligated to subordinate itself to the whole so that the good can be realized.

Thus, in MacIntyre's (1981, 1987) account, modern societies lack a shared moral vocabulary, and a set of common cultural understandings (the 'traditions'), due to the moral-cultural incoherence that liberalism both derives from and promotes. He therefore calls for the reintegration of the self with its ends (*telos*) and the *telos* with the social roles which are made meaningful by the communal traditions to which they belong. This means reinventing the narrative self which strives for continuity and stability by inhabiting the social roles of tradition-bound communities. To be a virtuous citizen, to live and search for the good life successfully, you must respect, identify with and participate in the practices which have historically defined that role (MacIntyre 1981: 187).

This means that education, maturation and socialization depend always on the rule of authority, a hierarchical, asymmetrical relationship between those of different rank (MacIntyre 1981: 191): teacher–student, parent–child, ruler–ruled, elite–laity. For sure, traditions and conventions evolve over time, just as we could – theoretically – alter the rules of chess so that pawns can move backwards. But this is always against a background in which established authority wields power and determines the horizons of deliberation and social reform.

This is not to claim that Aristotelians cannot contribute to a moral and political radicalism. If we were living in a genuinely Aristotelian economy it seems difficult to imagine that we would face contemporary extremes of wealth and poverty. Those seeking a more ethical, responsible capitalism can find much within Aristotle's work to bolster their case (Skidelsky and Skidelsky 2012). Yet my point in this chapter has been to observe that such accounts cannot afford to ignore those aspects of Aristotle's teleology which encourage an ethos of submission, deference and obedience to the existing order.

EPICUREANISM

Given such criticisms, have Aristotelian and teleological accounts been overrated in recent decades? Are we entitled to look elsewhere? One possible alternative is to make greater reference to the body of thought that

Aristotle rejected and which, centuries after his death, would result in what came to be called Epicureanism.

The biggest hurdle we face is that few primary sources have survived. The reason is simple: Aristotle's work was far more palatable to the medieval, Christian vision of the universe than that of the Epicureans. The latter displace humanity from its privileged position at the centre of things. The Gods exist, they say, but they have no more reason to care about you than they do a mote of dust in some distant part of the cosmos. Aristotle, meanwhile, has humanity bridging the gap between God and beast, and is open to the possibility that *nous* is that part of the soul capable of surviving once the body has perished (Aristotle 1986: 201–3). Greenblatt (2011) reveals how close one of the last remaining Epicurean works came to being gnawed by mice and lost forever.

What did Epicurus propose, then? Nothing exists, says Epicurus (1994), except atoms and the void. All atoms move downward through the void at the same speed, though a 'swerve' causes an occasional sideways movement that allows atoms to collide. All objects are compounds of atoms that have stuck together in a diversity of combinations, thus explaining the immense diversity of objects which exist. Because matter always endures, the atoms from which they are composed must be indivisible and indestructible. However, specific material things do not endure forever because the arrangement of atoms eventually breaks down and the atoms fly off into new combinations. The motion of individual atoms through the void is halted when something is fashioned, and is resumed when that something comes to an end. Without the void nothing could exist, but because of the void nothing can exist forever. Hence, creation and destruction, birth and death, are inextricably entwined. The cosmos is infinite because the void is without limit (nothingness cannot be bounded) and so there must be an infinite number of atoms, since the void is that where atoms are not. Indeed, Epicurus (1994: 8) speculates that there must therefore be an unlimited number of 'cosmoi'.

None of which is meant to depress us. Epicureans thought of themselves as scientifically enlightened, bringing illumination to a world long disoriented by ignorance and fear. The human soul is disturbed when it cannot account for how things work and thus seeks refuge in a 'longing for immortality'. Knowledge brings a realization that 'death is nothing to us' because 'when we exist, death is not yet present, and when death is present, then we do not exist' (Epicurus 1994: 29). The secret to a good death is a good life, which means seeking pleasure, or the soul's freedom from disturbance. This is not an hedonic profligacy but a philosophy of simplicity, prudence and freedom from desire.¹³ (This is why it is a distortion to regard criticisms of Benthamite utilitarianism as applying to Epicureanism.)

Unfortunately, only three (and possibly just two) letters actually written by Epicurus himself have survived, leaving us dependent on other sources. It is to Lucretius that we must therefore turn (Godwin 2004). Although Epicureanism is often presented as lying outside the mainstream of ancient Greek philosophy, there are many points of agreement. Like Aristotle, the Epicureans were empiricists who thought that knowledge derives from close examination of the facts as revealed to the physical senses. Any inferences must be consistent with observable phenomena and thus atomism was grounded in scientific methods and data. And like the Stoics, the Epicureans believed that, since the structures of matter are always temporary, death is nothing to be feared. However, by displacing humanity from the centre of the universe the Epicureans challenged some key orthodoxies within Hellenistic thinking. In the light of the above critiques of Aristotle, three Lucretian themes are worth illustrating.

The Contingencies of Nature

Lucretius's *De Rerum Natura* makes no comprehensive assault on Aristotle's philosophy (he is never mentioned by name), but it clearly presents an alternative to the latter.¹⁴ In particular, it includes a distinctly non-teleological account of the universe, for instance.

In Book 1, Lucretius (2007: 8–9) refers to the 'basic particles of generation' that spring from specific seeds and which grow – 'preserving their own species as they go' – once environmental conditions are right: 'Each thing springs from the source that has the matter that it needs'. This is a statement of fundamental, atomist principles. In Book 2, Lucretius (2007: 41) then attacks those who invoke divine intervention:

But certain people, ignorant of matter, are at odds
 With this, and think it is impossible without the gods
 For Nature to create the crops and alternate the seasons
 In such convenient accord with our human reasons,
 And when they daydream it's for *our* sake that the gods arrayed
 Everything in the universe, these men have grossly strayed
 From reason's strait and narrow in every way.

In Book 6 Lucretius (2007: 208–10) invokes something close to the arguments associated with modern times: namely that man created God and not the other way around. If this were not so, then how do theists propose to make the existence of God consistent with the injustices and the sheer inefficiencies of the world?

It is in Book 4 that Lucretius (2007: 131–2) then assails teleological explanations directly:

don't imagine that the bright lights of our eyes
Were purpose-made so we could look ahead, or that our thighs
And calves were hinged together at the joints and set on feet
So we could walk with lengthy stride . . .

This rationale, and all the others like it people give,
Jumbles cause and effect, and puts the cart before the horse –
For nothing is born just so we can use it – in due course,
That which is born creates its own use. Before the light
Of eyes arose, there was no such thing as a sense of sight.

In short, the organs and the limbs existed, I surmise,
Before there was any use for them. Thus they did not arise
For the purpose of performing certain functions.

So, while things possess a function – for example, the tongue's function is that of speech – the function does not explain the thing ('the genesis of the tongue by far pre-dates the word'). Functions are ultimately the consequences of materialist interactions. True, humans create things with a purpose in mind but it is the function which belongs to us and not we to it. In any event, this class of human-made things should not be confused with that of bodily organs and sensation. In his 1951 prose translation, John Godwin expresses the same point succinctly: 'nothing in our bodies was born in order that we might be able to use it, but whatever thing is born creates its own use' (Lucretius 1994: 116).

The Aristotelian counter-argument to Lucretius is, of course, that Aristotle never imagined that later events cause earlier ones, that is, where the cart is before the horse, but was merely inserting a teleological framework into our explanations of causes. However, as argued above, unless it makes reference to some form of ontological realism it is unclear why teleology should be of much interest.

It is, then, clear that Lucretius eschews divine accounts of the metaphysical and believes that material causation offers a sufficient frame of reference. So, unlike Aristotle, Lucretius (2007: 151) rejects any possibility that the mind and intellect can exist independently of the body. His universe is one in which neither God nor Gods occupy a significant place. They exist but they are indifferent. He pays tribute to the atomists for resisting the yoke of superstition and roaming the 'whole immeasurable cosmos' (Lucretius 2007: 5). The same impulse to reach the heavens is why Lucretius (2007: 30) has chosen to place Epicureanism in poetic form:

Why? Because I teach great truths, and set out to unknot
The mind from the tight strictures of religion

The association between superstition and religion is made explicit in Book 5 where Lucretius (2007: 185–7) alleges that belief in Gods sprang both from an ignorance of nature and a yearning for beauty and perfection. The fear people feel at the immensely destructive forces that assail humanity make it unsurprising that they would turn to Gods to animate the inanimate, to locate the source of nature's wrath in humanity's unworthiness and to pray that submission to divinity will pacify those Gods. Yet:

It is not piety to cover up your head for show,
To bow and scrape before a stone, or stop by as you go
At every altar, flinging yourself upon the ground face down
Lifting your palms at the gods' shrines

Instead, true piety means 'to look on all things with a mind that's free from care' (Lucretius 2007: 186). And lest this translation feel like a suspiciously convenient intervention into recent battles about secularization, the Godwin translation is equally powerful (Lucretius 1994: 159), as is Smith's revision to Rouse's translation of 1924 (Lucretius 1975: 471–3).

What, then, is left once Lucretius has dispensed with teleology and organized religion? Unlike Aristotle, Lucretius makes considerable room for luck, chance and contingency. Indeed, such is the nature of free will and Lucretius' (2007: 42) famous account of the swerve in the motion of atoms:

when bodies fall through empty space
Straight down, under their own weight, at a random time and place,
They swerve a little.

Unless inclined to swerve, all things would fall
Right through the deep abyss like drops of rain. There would be no
Collisions, and no atom would meet atom with a blow,
And Nature thus could not have fashioned anything

Thus, randomness prevails within the fundamental building blocks of existence and, contrary to the determinism of the earlier atomists, places indeterminism at the heart of things. And since the swerve is also the origin of free will, randomness exists within the biological realm too. Lucretius (2007: 174) speaks of the Earth giving birth to freaks and monsters who were not able to survive.

Nature – even the regularities we call laws – is thus a series of temporary, fortuitous but beautiful accidents. We should admire and explore it precisely because it has no final cause or essential direction.

Struggle and Conflict

Contingency affects the time and manner of our death too:

There was no common remedy that would be sure to save –
For what had given one the breath of life, so he could sigh,
Thankful to behold the shining regions of the sky,
Proved fatal to another and dispatched him to his doom.(Lucretius 2007: 236)

For Epicureans, humans should strive to live a happy, contented and fulfilled life. This does not imply a Benthamite hedonism in which anything that tickles the pleasure centres of the senses is acceptable. But nor does it imply Mill's alternative in which those who experience the higher pleasures learn that they are superior to the lower ones. For an Epicurean, the 'lower' pleasures may be legitimate sources of satisfaction too. What is important is to use reason and experience so that one's preferences and expectations are realistic and not those sources of disappointments that we try to correct by generating yet more impractical desires. It means developing and exercising the inner resources which allow us to cope with changing circumstances over which we often have little control. In this sense, Epicureanism shares much in common with other moral systems like Stoicism.

Yet Epicureans do not embrace a philosophy of fate where, since 'whatever will be will be', it is better to resign and submit. Lucretius' account of human and social development is replete with struggle and conflict. Biological evolution is itself a struggle for existence in which nature is brutal and often 'gets it wrong' (Lucretius 2007: 174), suggesting that much about evolution is purposelessness and without direction. Early humans joined together to hunt and to protect each other against those animals who hunted them (Lucretius 2007: 177–9). Then human communities were themselves subjected to strife, the toppling of those who rise to power. Though out of this came a more settled form of society based on laws and constitutions, though this did not stop the cacophony of war after war (Lucretius 2007: 183–5, 188–91). Our history is the history of attempts to control these impulses through reason, the arts and 'restless intellect' (Lucretius 2007: 195).

In Book 6, this emphasis on struggle is applied to questions of how individuals should perceive the world around them and live their lives accordingly. His famous account of the plague which struck Athens in 430 BC is intended not to suggest that we should submit to our fate, but that through a mastery of fear and desire we can release ourselves morally and psychologically (if not physically) from the ailments that will inflict all of us sooner or later. Lucretius (2007: 235) reminds us not only of our

mortality but ‘the price such dread of dying cost’ when people mutilated themselves out of ‘grave terror’. For:

what was saddest and most cause for gloom
 Was that, when someone saw the plague upon him, he would start
 Thinking like a man under sentence of death, and would lose heart,
 And lay there listlessly, his mind sunk deep in morbid thought,
 And dwelling on his death, gave up his spirit on the spot. (Lucretius 2007: 236)

Epicureans agree with Stoics that dying is one thing, but the manner of our dying is something else. Nonetheless, there are important differences here. For Stoics, fate implies that things are as they are because they could not have been otherwise. This is not necessarily a philosophy of determinism, as Cicero (see Epicurus 1994: 49–51) argues in his essay *On Fate* (see Gould 1974). Yet the Stoics did accord a considerable role to fate. I can choose either ice-cream or cake for my dessert but, whatever my choice, I could not be doing something other than what I am doing. The Stoics’ fate is a partnership with God who works with and through us. For Epicureans, by contrast, the absence of Gods and the swerve of the atoms represents an alternative to Stoic views about providence and fate. We cannot evade certain events, but rather than submitting to them as the Stoics would have us do – as manifestations of the God who acts on the world through us – Epicureans believe that by mastering ourselves, by struggling against our inclinations to fear, desire and blame, we can achieve a moral space that conquers, if only temporarily, our mortalities.

Interconnections

If free will is due to the swerve of atoms, this may suggest that humans occupy a privileged place in the cosmos. (Unless we attribute a degree of free will to animals too, though Lucretius does not seem to consider this possibility.) And yet, the division between animals and humans is less pronounced in *De Rerum Natura* than in Aristotle’s *De Anima*. The same processes that either killed other species, or allowed them to thrive, affected the earliest humans too (Lucretius 2007: 172–3):

Only Earth is left, therefore, deserving of the name
 Of Mother, since it’s from the Earth all living beings came.

Since it was she made man, and at fixed times, made every other
 Tribe of beast that roisters across the mountainsides

We share the same drives as animals. True, reason and education intervene, but the old traces remain (Lucretius 2007: 80–81). Mother Earth is

the parent of all species because all living beings are subject not only to birth but to the inevitable decay through which new beings will be born (Lucretius 2007: 173–4).

And although humans command great power, to the point where we affect the destinies of other species, this does not erase the fact that our origins are common to that of non-humans. Civilization, culture and the arts are not God-given but developed from the lessons the earliest humans learned from nature; for example, human language is but a more sophisticated version of the communicative expressions and emotive cries made by animals (Lucretius 2007: 181–2). It is because we often forget this that we risk losing ourselves in the endless, unfulfillable craving for more acquisitions, in having rather than being (a philosophy of simple pleasures and basic needs) (Lucretius 2007: 192–5). Nature is a life force which may be blind, instinctive and materialist but is no less a source of joy and exultation.

Thus, if there is a contradiction here – humans are free, due to the swerve of atoms, and yet also connected to the evolutionary determinisms of other species – it is not one that is irresolvable even though Lucretius himself does not appear to resolve it. Kennedy (2007: 389–95) identifies a tension in Lucretian thinking between nature-as-purposeless and nature-as-designed.

Gillespie and Hardie (2007: 9) highlight the extent to which, by preferring a materialist interpretation of nature, Lucretius is able to stress what we – as material beings – share with the rest of nature, and to place human development in the context of natural evolution; though in his primitive Darwinism this implies species succeeding one another and not the evolution of a species itself. This very interconnectedness is one reason why any attempts to conquer nature are futile: ‘For Lucretius, what men need is not new desires and new arts, but moderation that comes from understanding the natural limit of pleasure and from knowing and accepting the natural necessities that establish the unchanging framework within which human life has its place’ (Nichols 1972: 174).

Additionally, a proper inquiry into nature can only be conducted once the illusions of religion have been dispelled; this is because ignorance about the causes of natural events leads to a fear of nature, a fear that primitive humans sought to exorcise through submission to Gods. Once knowledge replaces fear, then nature stands revealed to us and there is no more need for fear and submission (see Nichols 1972: 49–50, 164–7). The notion that human happiness comes from communion with the natural environment of which he is a part is expressed also in Virgil’s *Georgics*.

What we have, then, is a philosophy distinct from, and often at odds with, the dominant ideas of the ancient world, including Aristotelianism. This is most clear in relation to teleology, which Lucretius firmly rejects.

And if change and motion should not be understood as inherently purposive then there is no goal-directed order to the universe but, instead, a restless violence, the endless struggles of birth, decay and destruction with no guarantees and no ends. Natural laws and regularities are not anchored by a first mover but are, themselves, to be seen against the background of relentless chance and contingency. None of which is an excuse for pessimism. Instead, humans ought to enjoy what they can while they can, in accord with the rest of the material world, rather than separating and disconnecting themselves from nature in pursuit of some illusory, idealistic projection of what it means to be human and what it means to be good.

EPICUREAN LIMITATIONS

All of which said, there are nonetheless at least two respects in which an Aristotelian approach is superior to an Epicurean one. Firstly, invoking a swerve in the downward motion of atoms will clearly not suffice as an account of free will. True, attempts have been made to argue that it is quantum indeterminism occurring in the brain which explains free will (see Penrose 1994: 349) but although indeterminism may make free will possible, it is not equivalent to free will. Epicurus had been concerned to revise the mechanistic determinism of Democritus while preserving the atomists' basic explanation of the physical universe. The school of thought to which this approach belongs (incompatibilism) is a credible one and many of the finest philosophers have associated themselves with it (see Fitzpatrick 2008a: Ch. 1). Nevertheless, the Lucretian account lacks a proper appreciation of the problem. Aristotle does not engage in debates about free will *per se*, but his thoughts about what does and does not count as a voluntary action are much more considered (Guthrie 1981: 360–64).

Secondly, living and writing in the period following Rome's 'social wars' it is clear that Lucretius rejects any notion of man as a political being. Instead, friendships and withdrawal from the public world of animosity, ambition and power is the epitome of pleasure and community (Fowler 2007). Even marriage and children are, as Brown (2009: 180) puts it, 'too much trouble'. Politics is always localized and there is no abstract polity other than the fellowship of like-minded compatriots in association with one another. This is because political society – like religion – is motivated by fear, where people group together for mutual security. For Epicureans, once scientific knowledge dispels fear then political systems of restraint and punishment are no longer needed (Nichols 1972: 128–31, 145–8).

The Aristotelian rejoinder is simple. Apart from the obvious fact that no such community of friends can persist unless the correct political condi-

tions and civic virtues are in place – conditions and virtues which need to be fought for and defended in public venues – politics is as much about the endless reconfigurations of friends, strangers and enemies (not only who belongs to which category, but what these categories mean), as it is about friendship per se. The nature of ‘the private’ and private goods is itself a political construct requiring engaging in public life. Nussbaum (1994: 276) observes that Epicureans risk seeking an unrealistic and undesirable individualism, or a ‘godlike self-sufficiency that pulls against the injunction to live in accordance with nature, accepting the limits of a finite life’.

Brown (2009) makes a valiant effort to suggest that the Epicurean position is more nuanced and less apolitical than is sometimes thought; nonetheless, by addressing himself to the diverse interpretations of, and ways of living, the good, Aristotle comes closer to appreciating the civic nature of political relationships.

CONCLUSION

For ancient Greek philosophers questions about the nature of reality and about how we should conduct ourselves were intimately related. Few would surely have understood the modern tendency to separate these discussions into discrete categories and specialisms. This tendency has benefited those who prefer a teleological account. Despite the first mover supplying the lynchpin – that which underlies all forms of motion – because Aristotle never wove his metaphysical, physical, biological, and ethical and political accounts of teleology into a systematic whole, it is easy for modern defenders of ethical and political teleology to ignore those aspects of Aristotle’s work that they find inconvenient. Aristotelian teleology represents a comprehensive account of the cosmos, but it is rarely presented in a comprehensive manner. Aristotelians then win the argument by default. ‘Don’t worry about all that metaphysical stuff. Isn’t it just obvious that humans are goal-directed and purposeful?’

As noted at the outset, my intention is not to dismiss teleological reasoning. Yet because the recent revival of Aristotelianism has not been accompanied by a revival of Epicureanism we now have less access than our predecessors to debates and disagreements that were taken for granted throughout the ancient, medieval and early modern worlds. This is unfortunate not only for those of us sceptical towards Aristotelianism but also for Aristotelians themselves. The capabilities approach will remain distinctly one-sided unless and until it admits Epicureanism into its debates. Similarly, those who would apply teleological reasoning to social policy should pause to consider the philosophical basics. It is seductive to talk

about the good as implying the realization of goals. But where does the *telos* come from? And if you cannot account for its origins then can you be sure it will guide us in the right direction when, for Aristotle, the *telos* implied:

- a downgrading of the role played by luck and contingency in human affairs;
- divisions of kind between human and non-human nature;
- fate and submission to the established social order within a hierarchical world-view?

For environmental ethics, too, the stakes are high. Environmentalism tries to speak across the disciplines, inheriting the ideas of those from previous centuries who also established continuities between the intrinsic value of nature, personal conduct and political ethics. Seeing nature as teleological gives it an internal dynamic, an explanatory completeness, which for some is more satisfying than the Epicurean concept of nature as an always temporary yet nonetheless astounding and beautiful series of accidents. Yet those who accept the teleological approach may also have to pay a price. In terms of Aristotelianism, this implies suppressing the significance of contingency and spontaneity, allowing hierarchy, order and anthropocentrism to predominate and bolstering an implicit socio-political conservatism. Environmentalists may find that paying such a price is too high. If so, waiting in the wings of advanced modernity for too long, the time may yet come for Epicureanism to move centre stage once again.

NOTES

1. I am not going to focus on policy, however (see Fitzpatrick 2008a: Ch. 4, *passim*; and 2008b). What follows relates more to social and environmental ethics.
2. In Nussbaum (1994) she devotes some time to Lucretius' *De Rerum Natura*, in terms of its implications for sexual morality and mortality; themes we are not concerned with here.
3. This, again, raises the question over whether such terms should be treated as explanatory metaphors (see below).
4. I say 'somewhat akin' because I do not dispute that you can be an Aristotelian and a non-spiritual, scientific materialist (see Nagel, 2012: 44–61, 88–95). However, such people have to reject much of what Aristotle says in the *Physics* and *Metaphysics*. In addition, note that some advocates of (2) will also reject infinite regress arguments by identifying an origin to the universe (for example, the Big Bang) but the point of (2) is that it eschews according purpose to such events. (Incidentally, the idea that the Big Bang was one stage in a possibly infinite series of events throughout a 'multiverse' is now more common than it once was.)
5. I am not going to look at Aristotle's *Politics* both for reasons of space and because his *Ethics* supplies the essentials.

6. Though because Aristotle has defined God as pure contemplation he regards intellectual contemplation as the highest good for man.
7. The heliocentric model demands that the planets and stars are much more remote than previously thought. Copernicus (and many who came later) therefore retained Aristotle's and Ptolemy's prejudice against the void, the vacuum. Why would God create so much empty space? Kepler, too, originally tried to fill space with his Platonic shapes. It was only once the idea of a vacuum was gradually accepted that the Copernican revolution took off. See North (2008: 253, 317).
8. Johnson (2005) is an honourable exception to this tendency to slice Aristotle into small chunks. For my response to his defence of Aristotle see notes 10 and 11 below.
9. Note that I am not claiming that such an account is impossible, merely that one has to be attempted. So far as I can tell, within ethical and political philosophy this is rarely the case.
10. Johnson (2005: 258–63) makes two observations. Firstly, that Aristotle relates teleology to specific entities (stars, plants, animals, humans, and so on) and is not claiming to have identified an overall teleology applicable to everything; an 'overarching cosmic good'. Secondly, that his metaphysics deals with: (a) the necessity of a first mover (as an eternal principle of motion and change); and not (b) God as designer or creator. However, Johnson does not establish why it would be 'limited and unusual' to characterize (a) as God, nor why (a) contradicts the idea of an overarching cosmic good. He insists that Chapter 10 of Book Λ (in the *Metaphysics*) is mistranslated and that, for Aristotle, the good of something is intrinsic to it. I cannot judge the quality of Greek-to-English translations but if the first mover is the eternal accompaniment of all motion and change then surely contemplation of it is both an intrinsic and overarching good. As such, even if (b) misinterprets Aristotle's metaphysics, (a) does underpin his work on physics, biology, ethics and politics. Thus, (a) implies an intrinsic good: the contemplation of that which makes contemplation possible; and a universal good: contemplation is possible because the first mover makes all motion (including physical, biological and social change) possible.
11. Johnson (2005: 222–37) would disagree strongly with this interpretation too, claiming that by recognizing nature's intrinsic value Aristotle challenges anthropocentrism. The problem lies in Johnson's equation of anthropocentrism with instrumental value and non-anthropocentrism with intrinsic value. There are certainly parallels, yet it is possible to recognize intrinsic value while still according humans a privileged, unique position in nature. In effect, Aristotle says that non-humans have intrinsic value (we should not just use them for human ends), but one nevertheless inferior to the intrinsic value of humans.
12. This notion of being a self-mover (including the concept of *entelechy*) is not circular because for Aristotle the first mover is what enables humans to be self-movers. But if you reject the notion of a first mover (by rejecting the *Physics* and *Metaphysics*) then you do not have recourse to this explanation, in which case the view that goal-direction is inherent to what it means to be human is an example of circular reasoning – as argued above.
13. The resemblance to Buddhism is clear except that Epicureans are materialists. Once you are dead, you are dead. By seeking release from the chain of cause and effect, Buddhists, it might be said, are still yearning for immortality.
14. I will make principal use of A.E. Stallings's translation (Lucretius 2007), but will refer to earlier translations where appropriate.

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