At the Interface

Future as Fairness

Ecological Justice and Global Citizenship

Edited by
Anne K. Haugestad
&
J.D. Wulfhorst

Probing the Boundaries

Future as Fairness

Ecological Justice and Global Citizenship

At the Interface

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Volume 10

A volume in the *Probing the Boundaries* project
'Environmental Justice and Global Citizenship'

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Future as Fairness
Ecological Justice and Global Citizenship

Edited by

Anne K. Haugestad & J.D. Wulfhorst

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Welcome to a *Probing the Boundaries* Project

Environmental Justice and Global Citizenship is an inter-disciplinary and multi-disciplinary research project which aims to explore the role of ecology and environmental ideas in the context of contemporary society, international politics and global economics, and to begin to assess the implications for our understandings of fairness, justice and global citizenship.

The project will develop a focus on four interlocking areas;

Area 1: will examine the changing relationship between nature, culture, and society and will look at the impact of environmental thinking and ethics on issues such as animal/species welfare and rights, conservation and preservation, sustainable resources, food and feeding, space and air space, present and future needs, human 'rights', and our obligations to future generations.

Area 2 will examine the ethical and political impact of environmental thinking, looking at its emergence and role in political contexts, the factors which influence the formation of environmental policy, what (if any) is the place of economic methods and considerations, differing perspectives on the interpretation of scientific data, and the ability of national and international communities to successfully implement environmental policies.

Area 3 will examine the international nature of environmental issues and look at the problem solving processes which are or might be employed particularly in light of globalisation. Themes will include how environmental negotiation works in the context of international relations, the responsibilities of multinational companies, the feasibility of establishing environmental 'laws', and the future of ecological 'business'.

Area 4 will examine the themes of justice, community and citizenship, looking at the tensions present in ecological debates, the influence of cultural values, the meaning of ethical business practice, the assessment of what counts as environmental equality, inequality, and justice, and our responsibilities toward the world in which we live.

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Introduction

The chapters in this volume will hopefully contribute to a cooperative and sustainable future. The chapters deal with injustice, risks, vulnerability, trust and hope, and with lessons to be learned from each other's mistakes and successes.

Much of the infrastructure and consumption patterns of 'highly developed' countries are based on unsustainably high levels of resource use. From a sustainable development perspective, 'developed countries' may be viewed not only as unsustainable, but paradoxically also less 'developed' than we often portray them. High rates of consumption in the developed world should, however, imply technological capability to attain a more sustainable level of development. Many citizens in developed countries are more than willing to contribute to sustainable and peaceful development, and they need their countries to shift toward more resource-friendly regulations and infrastructure solutions in order to achieve sustainable patterns of production and consumption.

Less developed countries often must make choices for infrastructural development that will greatly impact future resource use. Resource-intensive, resource-friendly and high-risk technologies are available options on the world market, and some of these countries might look to today's countries with wealth and power when selecting technology or making resource management policy. Some developed countries recognize they are trapped in a resource-intensive, high-risk infrastructure; additionally, many understand the importance that less-developed countries get this message. When the developed world acknowledges its unsustainable patterns, the signal to 'avoid repeating our mistakes' will gain the necessary credibility. This message is not credible if today's wealthy countries refuse to admit that they have serious challenges related to sustainable resource use and development.

At the same time, however, global change does not always occur quickly. Today's developed countries may require some patience from the rest of the world. 'Limits to growth' at a global ecology level was framed as a relatively new concept 30-40 years ago. Hence, today's wealthy countries developed their societal infrastructure in a time when resource-efficiency was not an aim in and of itself. Natural resources were one out of many input factors, and often an inexpensive one, so there seemed to be no incentives to develop resource-friendly alternatives. More than 30 years after the first UN conference on 'the human environment' in Stockholm – which put resource limits to growth high on the agenda – mainstream infrastructural solutions in most wealthy countries are still unnecessarily resource-intensive. This situation must change, but it is also important to acknowledge that relative changes toward resource-friendly infrastructure

solutions will take time. Wealthy developed countries cannot, however, expect patience from the rest of the world if they do not show substantive commitment to sustainable infrastructural development.

Global citizens can learn from experiences from all over the world that resource-intensive infrastructure solutions and production patterns are often not sustainable. We can also learn that a one-sided focus on economic efficiency often leads to solutions that are not socially acceptable or which lead to unemployment and unhealthy environments. And we can remind ourselves that human welfare and integrity should in fact be the goal of all development. We should expect that the means employed to reach this goal are themselves humane and community-oriented. We can learn about cooperative market solutions that are often even more efficient than the competitive ones because of the synergy effects released by cooperative, people-friendly solutions. And we can learn about the forces for change that can be released if wealthy global citizens use their voting and purchasing powers to support and demand resource-friendly and sustainable production solutions and infrastructure development.

All actors that have acknowledged the need to develop in a more sustainable direction can learn very much from each other's efforts. There are many inspiring research projects and experimental projects for sustainable development going on in a variety of development contexts and settings. Learning about each other's efforts offers constructive encouragement. Research partnerships for sustainable development – as exemplified by this volume – are one of many paths toward cooperative and sustainable development in both 'over-developed' and 'developing' countries.

Future as Fairness: Ecological Justice and Global Citizenship takes the reader on a journey which explores reasons for taking responsibility – and reasons for hope. The chapters have a common place of origin at The Second Global Conference on Ecological Justice and Global Citizenship in Copenhagen February 2003. The chapters deal with several aspects of environmental and ecological justice and global citizenship: problems generated by unsustainable development paths from the past, challenges in the present, as well as actors taking responsibility for the past, present and future to support the building of alliances for future change. Even though many aspects are dealt with in most chapters, we organized the chapters into three thematic sections: 'Facing the Challenges', 'Taking Responsibility' and 'Building Alliances'.

The first chapter in Part I is about facing the challenges of ecological citizenship. In 'Ecological Citizenship and Global Justice: Two Paths Converging?' *Andrew Dobson* connects readers to debates on

citizenship, cosmopolitanism, environmental sustainability and social justice. Dobson's chapter also provides a bibliography of some important contributions to these debates. Dobson identifies the global 'environmental space' as the origin of citizenly obligations and the challenges facing each global citizen are linked to one's 'ecological footprints' in this environmental space.

To take citizenly responsibility requires a certain degree of empowerment and also beliefs about the situation which imply that one's actions matter. While many groups and societies may lack these prerequisites, each has the potential and capacity for empowerment. Powerlessness and a lack of meaningful alternatives are often linked to previous development paths. In the post-communist societies whole regions need to recognize past development paths as disastrous for the environment and public health. In 'Environment and Health in Post-Communist Societies: Public Concerns, Attitudes and Behaviour' *Ivan Ivanov, Angela G. Mertig and Roberto Bertollini* take a closer look at this situation and analyze potentials for moving toward more sustainable development paths. They find that in societies where large groups are negatively affected by environmental and societal problems it may prove difficult to establish necessary hope and agency. However, they find that introducing health-related variables in explanatory models can significantly change our understanding of development effects and impacts. Hope for improved health for oneself, one's children, and grandchildren might thus provide a bridge from apathy to agency.

In their chapter 'America's Nuclear Waste: Tribal Sovereignty, Injustice, and Technological Conflict', *J.D. Wulfhorst and Jennifer Kamm* explore the legal frameworks affecting a core conceptual challenge of environmental and social justice revolving around nuclear waste storage. This chapter argues: What is just is not always fair. And what is just is not always ecologically sustainable. Previous development has set some societies on unsustainable paths. Top-down criticisms of the choices made by these societies do not necessarily lead to progress and change. This chapter illustrates how past injustice to a cultural group, can affect contemporary attempts to negotiate political agreements. Without attempts to heal past wounds, our search for other development paths remains undirected.

In the next chapter *Achim Schlüter* describes a parallel situation, but this time in a producer town in Scotland. 'Views from a Producer Town: Public Perceptions, Technology and the Distribution of Environmental Risks' shows us how high risks may become socially constructed as acceptable as long as those risks are linked to the production of prosperity for the society. Parallel processes of reduced

production of prosperity and increased environmental risks create a new situation for the members of society. Facing the challenges might direct the society toward more sustainable development paths with lower perceived risk. However, Schlüter's study also shows that an increasing skepticism toward yesterday's risky technologies does not imply skepticism toward potential risks of tomorrow. Instead, the members of a local community appear proud to host clean high-tech businesses involved in 'genetic modification (GM)' research.

Genetic modification of organisms, according to some, might be perceived as a sign of a whole civilization heading for a development path with new and unfamiliar risks. Does humanity need to take such risks in order to feed the people of the earth? Do the GM scientists underestimate the risks involved? In 'GM Scientists and the Politics of the Risk Society' *Peter Robbins, Elisa Pieri and Guy Cook* share some of the more private thoughts of GM scientists as well as laypersons' thoughts about GM and the associated risks. Their research reveals distrust on both sides of these groups, but also points toward a significant potential for constructive dialogue between scientists and interested publics.

Transitioning from Part I to Part II offers several alternative perspectives on 'Taking Responsibility'. This set of chapters includes critical analyses from global governance to the ecological footprint of a single dwelling.

Using the trade in toxic waste as an example, *Lucy H. Ford's* chapter 'The Power of Technocracy: A Critical Analysis of the Global Environmental Governance of the Toxic Waste Trade' shows how technocratic solutions fail to address the root causes of environmental problems. The chapter illustrates a struggle between different ways to take responsibility, voiced by technocrats and a growing environmental justice movement respectively, and shows how the latter's voice may promote more long-term, socially just and sustainable solutions to the global toxics crisis.

Road transportation is an activity that by definition usually makes ecological responsibility difficult. In 'Tradable Fuel Permits: Toward a Sustainable Road Transport System' *Evy Crals, Mark Keppens and Lode Vereeck* present a possible tool for authorities and citizens who want to take responsibility for cutting emissions from road transport. Tradable fuel permits are presented as a socially fair, economically efficient and environmentally effective way to meet the present and future challenges of protecting the climate and our common atmosphere.

One possible way to take global responsibility in one's own life and affairs is to use the Earth Charter as a checklist. In 'The Quest for "A Beautiful Act": Meeting Human and Ecological Rights in Creating the

Sustainable Built Environment' *Bob Fowles* suggests how the Earth Charter may be used to develop criteria for an ecological, ethical and sustainable architecture. He identifies those rights in the Earth Charter that are of relevance to the built environment and gives examples of how a checklist for a holistically sustainable architecture might be used to evaluate building projects. He also illustrates how building users can assert the right of participation in all stages of the design, construction and management process.

In 'The Environmental Impact of Housing: Local and Global Ecological Footprint of a House' *Roselle Miko and Shirley Thompson* explore the potentials for sustainable building practices from the point of view of an actual building project. What happens if an individual house builder wants to take ecological responsibility? Is it easy to find responsible solutions? Are these solutions affordable? Miko and Thompson show that ecological, societal and economical win-win solutions might prevail when people consciously choose to tread more lightly on the Earth.

Following Part II, Part III stresses the art of 'Building Alliances', and provides several cases to enable readers to envision a cooperative and sustainable future.

In 'Forestry and Illegal Logging: Law, Technology and the Environment in Natural Resource Management' *Paul Toyne* gives a picture of the global timber trade, where illegally logged timber constitutes a significant share of the world market. Toyne's chapter demonstrates how different actors can join forces in a common struggle to prevent illegal logging, and offers practical advice on the building of alliances between all stakeholders.

Local environmental empowerment is also an important part of the journey toward a sustainable future. In 'Solid Waste Management in Jamaica: Household and Institutional Perspectives' *Ruby Pap* deals with both problems and potentials related to popular beliefs and practices in solid waste management. Her case study shows that new technology alone is often not enough to solve waste-related problems. These issues often require a need to build trust and to empower people and find a more ecologically sustainable mix of traditional practices to combine with the use of new technological solutions.

In 'Norwegians as Global Neighbours and Global Citizens', *Anne K. Haugestad* relays an optimistic picture of some wealthy consumers' willingness and interest to take part in efforts to promote cooperative and sustainable development. Haugestad suggests that an image of the market's 'invisible heart' might empower wealthy consumers to make more globally responsible consumption choices.

This volume concludes with a chapter that takes a journey through the history of globalization. In 'Globalisation from a Complexity Perspective: Explored not as an Abomination but as Irresistible Human Enterprise', *Robert Woog and Vladimir Dimitrov* deal with how the globalized scope of some people's actions affects other people's lives negatively. They identify three 'attractors' which have shaped history until now – 'nourishment', 'identity', and 'will to power'. To these they add a fourth attractor – 'good will and hope'. They link some of the reasons for hope to the empowerment of people's abilities and motivations for self-organization. With reference to complexity theory they suggest that such empowerment might lead to a development which no one can control, but which can help steer us toward desirable and sustainable directions.

Human enterprise is the explicit theme of the final chapter. Implicitly, human enterprise and its consequences is the theme of the whole volume as well as the international debates on sustainable development.

After the report from the World Commission on Environment and Development, *Our Common Future*, was published in 1987, there have been numerous attempts to operationalize the challenges posed to the world society by the Brundtland Commission. Two of the most interesting ideas are linked to the concepts of a global 'environmental space' and 'ecological footprints'. In the opening chapter Dobson links these two approaches in an inventive way and establishes the material source of transnational citizenly obligations: Those who have larger ecological footprints than a sustainable global average have a citizenly obligation to reduce their footprints and compensate those affected by their unsustainable resource use. Dobson labels this 'distributive cosmopolitanism'.

Reducing one's ecological footprint toward a sustainable global average might serve as a meaningful enterprise to individual global citizens. In her chapter Haugestad reports on how some Norwegian 'citizen-consumers' respond to such a challenge. Miko and Thompson's chapter on the 'eco-home' also explicitly address the challenge to reduce one's ecological footprint through responsible decisions.

Construction activity is a necessary enterprise in every human society, as well as in many animal societies. Fowles' chapter on sustainable architecture and Miko and Thompson's chapter on an actual construction project show potential for short-term and long-term reduction of ecological impacts from construction activity. They also thematize how this kind of approach might improve the social qualities of building projects, thus creating win-win situations where the ecological impact is reduced and welfare is increased.

Waste seems to be a necessary byproduct of human enterprise. Some enterprises create waste which will remain a problem for hundreds of generations to come, as exemplified in Wulfhorst and Kamm's chapter. The international society has taken steps to prevent trade in toxic waste, but as shown in Ford's chapter this aim is not easily achieved through a one-sided technocratic approach. Pap's chapter takes the waste question down to the very local level. The waste generated in households might not seem 'toxic' when perceived as household events, but management of waste from hundreds and thousands of households requires us to consider local communities, the environment, and other collective aspects of life to prevent severe and unsustainable outcomes.

Greenhouse gas emissions from millions of private cars is another kind of 'waste generation' that might seem insignificant to the individual, but when taken together, the emissions contribute to global warming and climate change. In their chapter on tradable fuel permits, Crals, Keppens and Vereeck present a system that might deliver reductions in greenhouse gas emissions without severe reductions in individuals' privilege to mobility.

The constant invention of new technologies is another aspect of enterprise. It is an empirical question that has to be answered from case to case whether such inventiveness leads to improved welfare for humanity in general, or primarily for some people who make profit from the inventions. In their chapter on America's nuclear waste, Wulfhorst and Kamm ask: "have we already gone too far with our technology?" The same question is implicit in Schlüter's chapter on industrial risks in a producer town, Ivanov, Mertig and Bertollini's chapter on environmental health, and Robbins, Pieri and Cook's chapter on GM technology.

But even if some technologies have been and still are going too far on paths of uncertain risk, this does not imply that technological progress should be deemed impossible. One way forward is the opening up of scientific risk assessments to public scrutiny. Schlüter's chapter on traditional industrial risks and Robbins, Pieri and Cook's chapter on potential risks emerging from GM technology, illustrate this kind of new dialogue between scientific and popular perceptions of risk.

Several studies reported here stress the need for *respectful and candid dialogue* in order to make better and more sustainable decisions for the future. Pap's chapter points to potentials emerging from better dialogue between complex institutional levels in solid waste management from the national policy makers to local government waste managers, to local communities. Solid waste, especially more dangerous waste generated from new materials, must be handled with proper technology, but equal attention must be paid to building and maintaining genuine local

capacity to maintain new technology, as well as establishing trust related to that technology in local communities. New technology can also be combined with traditional waste handling such as sorting and composting. Increased focus on dialogue, shared responsibility and appropriate technology is the common lesson within global reach illustrated by Pap's study, but connecting all of the works herein.

Dialogue, shared responsibility and appropriate technology is also the complex and interconnected lesson to be learned from Toyne's chapter on illegal logging. The chapter can also be read as a 'success story in the making' in that it may inform and support citizen action toward a reduction of the illegal practice. Illegal logging will occur as long as there is a market for illegally logged timber. Toyne's chapter and the international alliances he tells about give reasons to hope that this market will vanish.

Climate change and energy consumption are themes that run through several chapters in this volume. Dobson argues that, "If global warming is principally caused by wealthy countries, and if global warming is at least a part cause of unpredictable weather, then monies should be transferred as a matter of compensatory justice rather than as aid or charity." Crals, Keppens and Vereeck state that, "To make sure that the further increases in temperatures are limited to maximum 0,1°C each decennium, the industrial countries have to limit their greenhouse gas emissions ... by the year 2010 with at least 30-55% with regard to the level of 1990." And Miko and Thompson tell us that, "Awareness of the many associated injustices created by energy overconsumption challenged us to reduce energy-use in the eco-home by: using super-insulation amounts, proper air and vapour barriers, and efficient lighting fixtures."

'Common but differentiated responsibilities' is one of the guiding principles in the UN Framework Convention on Climate Change (UNFCCC). 'Future as fairness', 'ecological justice' and global citizenship' are potential answers to the question how to respond to common but differentiated responsibilities. 'Future as fairness' alludes to John Rawls' famous principle 'justice as fairness'. In her chapter Haugestad suggests a global ecological version of this principle: "A global vision of the future can be regarded as fair if this is a future that all global citizens will choose 'behind a veil of ignorance', i.e. without knowing his or her own preferences and geographic and societal positioning in this future."

The atmosphere's sink capacity is the prototypical 'global common'. And even if one disputes the 'end of pipe' problems linked to climate change, the related 'beginning of pipe' problems remain, such as control over natural resources. At the beginning of the 'climate change

pipe' we find oil (with all its related conflicts) and other fossil fuels. And 'along the pipe' we find individual drivers with their claims to free mobility and individual households with their energy solutions. But we also find societies and individuals negatively affected at disproportionate levels by the extraction, transportation and refining of fossil fuels – leaking pipelines, risky and polluting mining and industries, and unhealthy employment. These latter issues are typical 'environmental justice' concerns. In the first chapter in Part I, Dobson makes a distinction between 'environmental citizenship' and 'ecological citizenship'. 'Environmental citizenship' (and 'environmental justice') is about claiming the right to a healthy environment, and is highly relevant to the chapters that make up Part I. This kind of rights-claiming can, and usually does, take place within the nation-state. 'Ecological citizenship' (and 'ecological justice') on the other hand, is linked to the global environmental space and is thus by necessity a global citizenship.

'Environmental justice' concerns are often voiced as 'not in my backyard', while 'ecological justice' concerns necessarily imply 'not in anybody's backyard'. Most 'environmental justice' issues are, however, *structurally linked* to ecological justice, even if they are perceived as isolated instances of environmental rights-claiming. For environmental justice groups, a constructive path forward is to identify linkages between cases of environmental injustice. If they do not do this, these groups risk pushing environmental hazards back and forth between communities without solving the problems related to unsustainable infrastructural solutions and paths of high-risk developments.

'Global citizenship' is usually linked to universal human rights and obligations. By linking global citizenship to ecological justice the 'future as fairness' approach promotes ecologically responsible global citizenship expressed as resource-friendly production and consumption and compensatory justice toward those affected by environmental and ecological injustice. The concepts of 'ecological justice' and 'global citizenship' further suggest privilege as an important principle for distribution of responsibilities. Those disproportionately privileged by unequal distribution of natural resources and unsustainable development paths are usually not responsible for the historical origin of the current situation. But ecological justice – the fair sharing of the global environmental space, such as the atmosphere's sink capacity – obliges privileged global citizens to *take* responsibility to change global development paths toward fair distribution of natural and environmental resources in the future.

'Future as fairness' might in fact become the source of a new generation of human enterprise, rooted in ecologically conscious and

human-centred entrepreneurial spirit. When people are confronted with the potential consequences of their choices, fairness might prevail. The Internet provides a new vehicle for confrontations with the global reach of one's actions, and actors at all levels can choose to open their eyes and their hearts to the consequences of their decisions – for the sake of our common future.

It has been a great pleasure to work with the contributors to this volume. We believe this collective work represents a unique and cooperative effort to carve a more sustainable future.

We would also like to thank the Series Editor, Rob Fisher, for providing clear directions and a safe harbour for our journey.

August 2003
Nesodden, Norway and Moscow, Idaho
Anne K. Haugestad and J.D. Wulfhorst

Part I

Facing the Challenges

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Ecological Citizenship and Global Justice: Two Paths Converging?

Andrew Dobson

1. Introduction

Global justice and environmental citizenship (or ecological citizenship as I shall henceforth call it, with an explanation of the difference to come shortly) are both social objectives that will be widely regarded as worth aiming for. Few people will say that global injustice is a good thing, or that citizens shouldn't care much about environmental sustainability. But what is the relationship between them? Are they really 'two paths converging' as the title of this chapter suggests? Or do they pull in different directions? In what follows I am going to try to get rid of the chapter title's question mark, and to show that ecological citizenship and global justice are intimately linked – to show, indeed, that when they are properly understood, they entail each other.

Two problems (at least) stand in the way of this objective. First, there are those who claim that 'citizenship' and 'the environment' cannot be sensibly talked of in the same breath. I shall explain shortly why this claim is made, and offer some reasons for refuting it. Second, even if something like ecological citizenship exists, can it be linked to global justice? I shall explain later why I think it can.

2. Environmental and Ecological Citizenship

First, though, let me say why I prefer to talk of 'ecological' rather than 'environmental' citizenship, in this context at least. Elsewhere,[1] I have explained at length that 'citizenship' and 'the environment' most easily and obviously come together (discursively at any rate) in the context of liberal understandings of citizenship. For the liberal tradition (broadly understood), citizenship is about rights-claiming within a given and bounded political territory, usually the nation-state. In this tradition, moreover, the idea of citizenship virtue is almost completely absent. Now I take *environmental* citizenship to be the kind of citizenship that emerges from within this liberal framework. In other words, environmental citizenship is about the claiming of environmental rights within bounded political territories. It should already be apparent why this way of linking 'citizenship' and 'the environment' will not produce the tight relationship between (ecological) citizenship and global justice that I am seeking. This is because there is a tension, to say the least, between the *national* focus of

traditional understandings of citizenship, and the *global* focus of the kind of justice with which we are concerned. I shall say more about this below.

In *Citizenship and the Environment* I have developed an alternative to both liberal and civic conceptions of citizenship that I have called 'post-cosmopolitan'. This deals in the currency of obligation rather than rights (and takes a non-reciprocal view of the relationship between the two, which is to say that in a globalizing world some people owe obligations of justice without being owed anything in return); it has the idea of citizenship virtue at its heart (and regards care and compassion as legitimate citizenship virtues, contrary to traditional conceptions of citizenship virtue); it regards the private arena as a legitimate site of citizenship activity (whereas citizenship is normally regarded as exclusively related to the public arena); and it takes a post-national view of the realm in which citizenship rights and obligations are played out. Now if *environmental* citizenship is comfortably expressed in the liberal and civic republican idiom, *ecological* citizenship is best expressed through the concepts provided by post-cosmopolitanism. From now on I shall refer only to ecological citizenship, and I will focus on the (non-) territorial theme raised at the end of the last sentence. If we are to link ecological citizenship and global justice effectively, the post-national aspects of the former are clearly of special importance.

3. Citizenship beyond the State

So let me take the first of my questions, above, first – particularly in relation to the tension between dominant state-centred understandings of citizenship, and the way, on the other hand, that environmental problems 'overflow' the boundaries of nation states. So it has become *de rigueur* to point out that many environmental problems are international problems – global warming, ozone depletion, acid rain – and that they are *constitutively* international in the sense that they do not, cannot, and will never respect national boundaries in their effects.

Most mainstream accounts of citizenship regard it as a matter of playing out reciprocal rights and responsibilities between the individual citizen and the state. The most common point of critical reference here is the 'Westphalian model' of states and their mutual relations (after the 1648 Treaty of Westphalia), summed up as "territorial sovereignty, the formal equality of states, non-intervention in the domestic affairs of other recognized states and state consent as the basis of international legal obligation".[2]

Given the Westphalian model of political geography it is plausible to claim that this is an exhaustive account of what citizenship

consists in. Yet this 'Westphalian moment' is not only questionable in its own terms (has the sovereignty, integrity and equality on which it is based ever been more than formal?), but it is clearly a historically quite specific moment, sandwiched between situations which are more complex and confused than putative post-1648 arrangements would have us believe. It is no coincidence that the term 'new medievalism' has been applied to the contemporary states' system.

What does this mean for citizenship? More particularly, what does it mean for ecological citizenship given – as I say – that environmental problems 'overflow' the state?

To a large degree, of course, the answer depends on what we think citizenship is. If it is, by definition, about the political relationship between citizens and the state, then all attempts at political relocation beyond (or beneath) the state will fail. Yet the development of the concept[3] suggests that we can talk of it in respect of social configurations other than the state: the city, for example, and, today, supranational organisations such as the European Union. This suggests that linking citizenship with the state, uniquely, is a mistake.

Yet the 'spatial imaginary' suggested by even transnational political communities such as the European Union is still a *bounded* political imaginary. From this point of view it is only possible to speak of citizenship *within* those boundaries. This is important from an environmental point of view, because while the obligations of the putative ecological citizen are in part to do with the nation-state, their nature, and to whom they are owed, take us beyond and between states.

Perhaps the most thoroughgoing contemporary attempt to take citizenship beyond and even between states goes by the name of 'cosmopolitan citizenship', a notion that trades on the possibility of political communities being defined in other than territorial terms. One of its most articulate exponents, Andrew Linklater, is well aware of the conceptual problems associated with it:

> Appealing to cosmopolitan citizenship may inspire fellow nationals to honour obligations to peoples elsewhere, but this distorts the notion of citizenship in their [i.e. opponents'] view. From their standpoint, to be a citizen is to have concrete rights against, and duties to, a specific sovereign state rather than voluntary and inexact duties to the rest of humanity … Traditional approaches argue that appeals to cosmopolitan citizenship amount to little more than an exercise in moral exhortation while the nation-state is the dominant

> form of political community. Their contention is that the idea of world citizenship may have considerable moral force, but, on any strict definition of citizenship, the term is self-evidently and unalterably oxymoronic.[4]

In other words, "critics of world citizenship protest that its exhortatory and rhetorical purposes are entirely divorced from the Aristotelian idea of active involvement in the democratic public sphere".[5] Not so, says Linklater. For him, "involvement in the democratic public sphere" can take many forms, and one of them is political argumentation. In Linklater's view, the "central aim" of cosmopolitan citizenship is the liberal one of ensuring that "dialogue and consent" replace force as the means by which disputes are settled in the international arena.[6] He goes on to claim that,

> [I]t requires political action to build communication communities in which outsiders, and especially the most vulnerable among them, have the power to 'refuse and negotiate offers' and to contest unjust social structures.[7]

Linklater calls this a 'dialogic' approach to citizenship, according to which the central idea of involvement in the public sphere is not abandoned, but rather recast in the non-territorial context of an incipient discursive democracy. This seems genuinely non-territorial, in the same sense that an epistemic community, or a community of the diaspora, is non-territorial.

Ecological citizenship is an example of cosmopolitan citizenship in this dialogic sense. The public sphere in this context is the dialogic sphere in which debates regarding environmental values and objectives take place. The discursive focus for the debate is the idea of 'sustainable development' – an idea endorsed by virtually everyone, but whose meaning is continually, even perhaps 'essentially', contested.[8] In this context, the ecological citizen 'does' citizenship by articulating, defending, and practising, particular answers to general sustainability questions such as, what is to be sustained?, for whose benefit?, and for how long? This is citizenship because it conforms to a broadly accepted notion of what citizenship consists in, at least in part: active involvement in the public sphere.

By deploying the dialogical idea, then, Linklater hopes to have headed off one kind of territorial-based criticism of cosmopolitan citizenship. But there is another. It is clear from the long quotation above that Linklater is sensitive to the charge that not only the *context* of

citizenship, but its *duties*, too, are quite precise – that "to be a citizen is to have concrete rights against, and duties to, a specific sovereign state rather than voluntary and inexact duties to the rest of humanity".

This refers us to a second difficulty in talking about the environmental 'project' in terms of citizenship: are the obligations associated with this project, obligations of *citizenship* properly speaking?

Linklater goes on:

> [T]he argument is that, if it is to have any real meaning, cosmopolitan citizenship must involve rather more than moral commitments not to exploit the weaknesses of others – more than the ethical resolution to treat all other human beings with care and compassion.[9]

To resist this criticism, the discursive, or dialogical, moment in cosmopolitan citizenship is once again enlisted. Linklater's contention is that the commitment to dialogue and discussion is more "political" than more "voluntary and inexact" commitments. So he says that while,

> [W]orld citizenship may embody commitments to treat the vulnerable with compassion … it must also embrace the principle of engaging others as equals within wider communities of discourse.[10]

Quite why "engaging others as equals within wider communities of discourse" is "political", unlike "the ethical resolution to treat all other human beings with care and compassion", though, is not clear to me. They both share the key citizenship idea of active involvement in the public sphere, so the only difference can be that the activity of 'discourse' is somehow more political than the activity of care and compassion. But this is open to the feminist objection that we should pause before consigning apparently 'private' practices and virtues to the category of the non-political. From this point of view, the determination to regard care and compassion as non-political virtues is ideological rather than analytical. It may be that Linklater is giving too much ground to his critics by seeking to 'shore up' the world citizen's commitment to treat the vulnerable with care and compassion with the somehow more political – and therefore more citizenly – principle of dialogical equality.

4. What makes Obligations 'Citizenly'?

But I say all that in parentheses, because I want to make a different point about obligation. It seems to me that the only way to sort out these difficulties is by developing a comprehensive analytics of obligation so as to see what it is that distinguishes the duties we might have towards 'humanity in general' and the duties we have as citizens. We would then be in a position to say whether cosmopolitan and ecological citizenships are citizenships at all. Although beyond the scope of this chapter, a full analytics of citizenship obligations would have to take into account at least three dimensions of obligation: their source (why are we obliged?), their nature (obligation to do what?), and their object (to whom or to what are obligations owed?). Usually it is assumed that the *nature* of citizenship obligations distinguishes them from other types of obligation, but my contention is that we should focus on the *source* of obligation instead.

One way into this is by referring to some very suggestive work by Judith Lichtenberg. Attempting to articulate a cosmopolitan view of international morality, Lichtenberg distinguishes between 'moral' and 'historical' arguments. The moral view has it that,

> A owes something positive to B … not in virtue of any causal role he has had in B's situation or any prior relationship or agreement, but just because, for example, he is able to benefit B or alleviate his plight.[11]

An example of this is the Good Samaritan. The Good Samaritan was not responsible in any way for the poor man's plight, but felt moved to help him anyway. The Good Samaritan was not acting as a citizen, but, as Jesus says significantly, as a 'neighbour' when he bound the wounds of the man attacked by thieves on the way to Jericho.[12]

In contrast, the historical view suggests that,

> [W]hat A owes to B he owes in virtue of some antecedent action, undertaking, agreement, relationship, or the like.[13]

This gives rise to obligations that can more properly be regarded as obligations of justice rather than of charity. They are 'political' rather than merely 'moral'. These obligations are therefore nearer to *citizenship* than to neighbourliness or friendliness. They are nearer, in other words, to the Good Citizen than to the Good Samaritan.

5. Transnational Environmental Obligations

Lichtenberg's 'historical' source of obligation is far-reaching in its implications for a globalised world, in which 'relationships' are forged across the planet at an ever-increasing rate,[14] creating 'historical' obligations whose existence it would have been quite proper to deny until now. Lichtenberg describes this phenomenon in her own way as follows:

> My claim is that history has involved the gradual (or perhaps not so gradual) transformation of the earth from a collection of many relatively open worlds to one closed one.[15]

Perceptively, from an environmental point of view, Lichtenberg goes on to comment that,

> Some of the relationships in virtue of which the earth now constitutes one world are so pervasive and far-reaching that they are difficult to pinpoint or to measure. There are also actions that may have harmful consequences without any direct involvement between agents and those affected. For these reasons it is easy to ignore them as sources of obligation.[16]

It is increasingly pointed out, for example, that many so-called 'natural' disasters may in fact have anthropogenic origins. Climate scientists are fairly confident that, although the disaggregated impacts of global warming are very hard to predict, we are likely to experience an increased incidence of extreme weather events – so called 'strange weather'. When floods devastate large areas of developing countries, we congratulate ourselves for the generous quantities of aid we offer to alleviate the suffering. From the 'closed earth' point of view, though, the campaigning issue is not so much about how generous aid should be, but whether 'aid' is the appropriate category at all. If global warming is principally caused by wealthy countries, and if global warming is at least a part cause of strange weather, then monies should be transferred as a matter of compensatory justice rather than as aid or charity.

What prompts the idea of obligation in this instance is the recognition that our actions affect the life chances of distant strangers. But to call these obligations 'historical' in Lichtenberg's sense is to misunderstand their nature in a globalised world. Recall that for Lichtenberg the historical view has it that "what A owes to B he owes in

virtue of some antecedent action, undertaking, agreement, relationship, or the like". In a globalising world the notion of 'antecedence' wears thin, as both space *and* time tend towards collapse. Thus, in postmodern parlance, inhabitants of globalising nations are *always already* acting on others, as when, for example, our use of fossil fuels causes the release of gases that contribute to global warming. It is this recognition that calls forth the virtues and practices of citizenship. Note once again that the distinction between the Good Samaritan and the Good Citizen is preserved. The obligations associated with the former are those that it would be simply desirable to fulfil, in some broadly virtuous, benevolent and supererogatory sense; those of the latter are obligations that it would be wrong not to fulfil.

While this is a citizenship with international and intergenerational dimensions, it is not itself universalisable. This is a citizenship for those, precisely, with the capacity to 'always already' act on others. In a crucial insight, the Indian environmentalist Vandana Shiva points out not only that the fruits of global free trade are shared unequally around the planet, but that the very possibility of *being global* is disproportionately distributed. She writes that,

> The construction of the global environment narrows the South's options while increasing the North's. Through its global reach, the North exists in the South, but the South exists only within itself, since it has no global reach. Thus the South can *only* exist locally, while only the North exists globally.[17]

The North has the capacity to impose its own local view on the global environment – a capacity that is denied the South. Towards the end of 2001, practically unnoticed amid the sound and fury of the international attack on Afghanistan, 171 countries met in Marrakesh, Morocco, to finalise the operations rulebook for the Kyoto agreement on limiting global warming emissions. Thirty-eight industrialised countries signed the Marrakesh agreement – but 39 had set out on the long road that began in Kyoto. One of the original participants, the United States, dropped out along the way. When George W. Bush's administration pulled out of the talks, critics dubbed the administration 'isolationist'. But it was never that. It was, rather, unilateralist – and unilateralism is, as Vandana Shiva points out, an option only available to the rich and powerful. It may be no coincidence that the power most capable of unilateral action – of existing globally as well as locally – chose the environment (perhaps the most

global topic there is) as the arena in which to exert its own very specific and local version of 'the good life'.

This is not reciprocity, then, and nor is it even interdependence, in any broadly accepted sense of the term. Shiva comments that,

> There are no reflexive relationships. The G-7 can demand a forest convention that imposes international obligations on the Third World to plant trees. But the Third World cannot demand that the industrialized countries reduce the use of fossil fuels and energy. The 'global' has been so structured, that the North (as the globalized local) has all rights and no responsibility, and the South has no rights, but all responsibility.[18]

The obligations of ecological citizenship sketched here are therefore obligations for 'industrialised' countries and their inhabitants, in recognition of the responsibilities produced by the political and social economy of globalisation – responsibilities that are all too often unilaterally ignored.

So (1) we've chipped away at the argument that ecological citizenship is a misnomer because citizenship definitionally has to do with membership of a nation-state. Cosmopolitanism and post-cosmopolitanism suggest the possibility of an *unbounded* citizenship. And (2) I've suggested that the obligations associated with the unbounded nature of ecological citizenship can be regarded as obligations of citizenship. This is because their source is relations of actual harm and these give rise to obligations founded in *justice*. The question mark is therefore toppling. I want, finally, to return to the issue of the 'political space' of ecological citizenship. I am unhappy with the idea of the cosmopolis in cosmopolitanism, mostly because I think it is very hard for people to identify with 'the whole of humanity', and therefore very hard to mobilise people behind the idea that they should meet their transnational obligations.

6. The Material – not Mental – Source of Transnational Environmental Obligation

I should say at this point that there is no one single and undisputed version of cosmopolitanism, and that other versions might be regarded as less susceptible to the sort of criticism hinted at at the end of the last paragraph. I have so far referred mostly to Andrew Linklater's version of cosmopolitanism – what we might refer to, given its organising characteristics, as 'dialogic cosmopolitanism'. A common criticism of this stance is that it requires too much of a suspension of disbelief; that 'commitment to open dialogue' is a hopelessly weak candidate for social glue-dom in comparison with more 'primordial attachments' of family, history and culture. There is another version, though, which I shall call 'distributive cosmopolitanism', that comes closer to the kind of thing we need to bring ecological citizenship and global justice together. In taking justice, rather than dialogue, to be the principal cosmopolitan concern, distributive cosmopolitanism makes more immediate links between duties to distant strangers and justice than dialogic cosmopolitanism is able to do (at first blush, at any rate).

But how persuasive are this other cosmopolitanism's reasons for actually doing justice? The source of obligation for distributive cosmopolitanism is a theory of 'moral personality' according to which "people's entitlements are independent of their culture, race and nationality".[19] The corollary of this is that there is something about all people – their autonomy or their possession of rights, for example – that entitles them to an in principle equal share of whatever is being distributed. This is a step beyond dialogic cosmopolitanism in two senses. First it entails a specifically political type of obligation as opposed to a more broadly moral type, and this opens the door to a potentially more convincing conception of citizenship beyond the state. Second, it deals in the currency of justice rather than compassion, and the obligations connected with the former are less revocable than those related to the latter.

What is common to both dialogic and distributive cosmopolitanism, though, is a thin and non-material account of the ties that bind members of the cosmopolitan community together. For the former it is 'common humanity', expressed through the 'ethical commitment to open dialogue'. For the latter it is again 'common humanity', but expressed this time through the undifferentiated possession of certain characteristics that entitle their possessors to just treatment. What we need, in contrast, in order to link ecological citizenship and global justice more closely is a thickly material account of the ties that bind, created not by mental activity, but by the material production and reproduction of daily life in an

unequal and asymmetrically globalising world. In this conception, the political space of obligation is not fixed as taking the form of the state, or the nation, or the European Union or the globe, but is rather 'produced' by the activities of individuals and groups with the capacity to spread and impose themselves in geographical, diachronic and – especially important in the context of this chapter – ecological space.

7. Ecological Footprints as the 'Obligation Space' of Ecological Citizenship

Given all this, I want to suggest that the most appropriate 'spatial imaginary' for ecological citizenship is the 'ecological footprint'.[20] This idea has been developed to illustrate the varying impacts of individuals' and communities' social practices on the environment. It is assumed that the earth has a limited productive and waste-absorbing capacity, and a notional and equal 'land allowance' – or footprint – is allocated to each person on the planet, given these limits. The footprint size is arrived at by dividing the total land, and its productive capacity, available by the number of people on the planet, and the figure usually arrived at is somewhere between 1.5 and 1.7 hectares. Inevitably, some people have a bigger impact – a bigger footprint – than others (median consumers in 'advanced industrial countries' are generally reckoned to occupy about five hectares of ecological space), and this is taken to be unjust, in the sense of a departure from a nominal equality of ecological space. This approach to determining environmental impact is of course open to all the standard objections to 'limits to growth' and other Malthusian-type analyses of the relationship between human beings and their natural environment. It will be argued that such an approach underestimates the resources available, the capacity for doing more with less through technological advances, the possibility of substituting one resource for another with the same function, and that it ignores the historical evidence suggesting that resource availability is more elastic than 'finitude' analyses would have us believe. Its implicitly egalitarian view of distributive justice is also open to the objection that departures from the norm of equal shares are often justifiable.

I cannot fully review these criticisms here, and nor, I think, do I need to for present purposes. The relevance of the ecological footprint notion to ecological citizenship is broadly unaffected by the criticisms to which I have just alluded, unless we believe in a totally cornucopian world in which infinite substitutability of resources is possible. Its relevance is that it contains the key spatial and obligation-generating relationships that give rise to the exercise of specifically citizenly virtues. The *nature* of the

obligation is to reduce the occupation of ecological space, where appropriate, and the *source* of this obligation lies in remedying the potential and actual injustice of appropriating an unjust share of such space. This, then, is an explicitly ecological version of Lichtenberg's 'historical' argument for obligation, transposed to the 'always already' context of ecological impact in which some countries, and some people within some countries, systematically affect the life chances of others in this and in future generations. It also explains and reflects the asymmetrical and non-reciprocal nature of ecological citizenship obligations. Obligations are owed by those in ecological space debt, and these obligations are the corollary of a putative environmental right to an equal share of ecological space for everyone. This is the *production* of the space of political obligation.

8. Conclusion

In sum, every political project implicitly or explicitly contains an account of political space, and the quest for environmental sustainability is no exception. The state has its uses in this context, but the sub- and supra-national arenas of political action are also crucial for environmentalists. The recent history of citizenship, and its now-dominant articulation as the claiming of rights within the nation-state, suggests that citizenship can neither be talked of nor used in the contexts favoured by environmentalists. But I have argued that there are environmental resources (so to speak) in the burgeoning idea of cosmopolitan citizenship, and that these resources are best deployed by identifying what is peculiarly citizenly – as opposed to broadly humanitarian – about the source of obligations in an asymmetrically globalising world. Finally, ecologism offers the earthy footprint – in addition to the state, the supra-state, or cosmopolitan citizenship's dialogic community – as the spatial imaginary within which citizenship and its obligations are best conceived.

Taking all this together, I think we can finally eliminate the '?' from the title of this chapter, and say that ecological citizenship and global justice are indeed 'two paths converging'.

Notes

1. Dobson, 2003.
2. Held et al., 1999, 37.
3. Reisenberg, 1992.
4. Linklater, 1998, 23-24.

5. Ibid., 27.
6. Ibid., 25.
7. Ibid., 25.
8. Jacobs, 1999b.
9. Linklater, 1998, 28.
10. Ibid., 34.
11. Lichtenberg, 1981, 80.
12. *Luke*, 10:36. I assume that neighbourly acts are not carried out in the expectation or on the understanding that favours will be returned.
13. Lichtenberg, 1981, 80.
14. Held et al., 1999.
15. Lichtenberg, 1981, 86.
16. Ibid., 87.
17. Shiva, 1998, 233.
18. Ibid., 234.
19. Caney 2001, 979.
20. Wackernagel, 1995.

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Environment and Health in Post-Communist Societies: Public Concerns, Attitudes and Behaviour

Ivan Ivanov, Angela G. Mertig and Roberto Bertollini

1. Introduction

In the late 1980s, many countries from the former Soviet block were environmental disaster areas. The paralyzing financial crisis and economic collapse that followed the end of totalitarian regimes in Central and Eastern Europe had both positive and negative effects on the progress of environmental cleanup. On the negative side there have been insufficient funds for environmental cleanup and investment in non-polluting efficient technologies. Individuals and institutions have diverted their attention from environmental to economic concerns. On the other side, the dirtiest industries have shut down or at least curtailed their operations because of the economic collapse.[1]

Marxist ideology that underpinned communist rule emphasized economic growth, industrialization and technical progress. In this worldview, nature was seen as an obstacle to technical progress, to be overcome through scientific and technical development. During communism, public dissent and the formation of public opinion critical of the status quo was ruled out by party control over the means of communication. Now, a decade after the collapse of communism, it is of interest to see how people in the post-communist societies perceive environmental health problems and how their concerns translate into political behavior. This chapter provides information to this effect by utilizing public opinion research from five nations of the former communist block.

Most research on environmental attitudes and behavior in the former Eastern block comes from data on the relatively more affluent and mostly Christian countries, which are now joining the European Union.[2] Little is known about the poorer Muslim countries from the Balkans and Central Asia. Therefore, we chose to examine public opinion in the following countries as representative of the poorer Muslim countries: Albania, Bosnia and Herzegovina, Azerbaijan, Tajikistan and Turkmenistan. Albania is the only country in Europe with an entirely Muslim population. Bosnia and Herzegovina is divided into two entities – Federation of Bosnia and Herzegovina, which is predominantly Muslim, and Republic of Srpska, which is Christian. Azerbaijan, Tajikistan and Turkmenistan were part of the Soviet Union until 1991. Azerbaijan is located in the Sub-Caucasian region, while Tajikistan and Turkmenistan form part of Central Asia. The majority of the population in these three

countries is also Muslim. All five countries are classified in the group with medium human development,[3] with GDP per capita between 3,956 US$ in Turkmenistan and 1,152US$ in neighboring Tajikistan. The population below national poverty lines is between 58 and 83% in the former Soviet Union republics,[4] 19.1% in Bosnia and Herzegovina,[5] and 46.6% in Albania.[6]

Our goal is to increase understanding of the patterns of environmental health attitudes and behavior in these five nations. To do so, we will first review the theoretical basis of environmental health concern and behavior and how it relates to Eastern Europe. Then, we will briefly describe the environmental health situation in each of the five nations. Finally, we will analyze public opinion data on the relationships between attitudes and behavior and we will discuss our findings and their implications for public policy. We test three models of relevance. The first examines environmental concern utilizing socio-demographic variables identified as important in Western societies. The second model adds specific elements of individuals' health status to the first model. The final model attempts to predict political activity on behalf of environmental protection, particularly as it relates to health.

2. Environmental Concern

Despite growing concern about health problems caused by environmental pollution, surprisingly, health issues are only marginally considered in the reviews on the literature of environmental concern.[7] Dunlap explains this gap in the literature with the fact that concerns about personal health and safety represent relatively recent phenomena in the environmental realm.[8] Furthermore, he argues that the concern for environmental quality goes "hand-in-hand" with worries about public health and safety. Dunlap distinguishes two types of environmental concern; one is placing value on the natural environment for its own sake (an "ecocentric" perspective), while the other type is considering a healthy environment crucial to human welfare (a "homocentric" perspective).[9]

Research has also shown that environmental concern has failed to translate into wide spread environmental actions.[10] In other words, environmental attitudes are poor predictors of actual environmental behavior. Some explain this inconsistency by failures to consider the influence of situational factors on the attitude-behavior relationship or use of theoretically unrelated measurements. Therefore, the attitude measurement should be directly related to the target behavior.[11]

The 'cognitive mobilization' theory emphasizes the importance of education and knowledge in explaining environmental behavior.[12] The

'resource mobilization' theory posits that people will engage in individual or collective environmental actions if they have the opportunities and resources to act on their concerns. In addition, the 'rational choice' perspective emphasizes that individuals weigh the alternatives and make rational decisions based on maximization of utility which will bring the best results.[13] Consequently, the feeling of insignificance and limited efficacy can result in enjoying collective benefits without contributing to bringing them about, a phenomenon known as 'free-riding'.

There is a debate in the literature on environmental concern as to what extent it is determined by socio-demographic factors such as social class, age, residence, gender, and ethnicity. Since our study also deals with such questions, we will briefly review the main theoretical points regarding the social bases of environmental concern.

Advocates of the 'postmaterialism' thesis posit that increases in environmental concern – as a 'post' material concern – are directly related to increases in affluence.[14] According to postmaterialism, the economic security enjoyed by the middle class results in a shift-in-values away from economic and security concerns toward higher order needs, such as protection of the environment and quality of life. However, some researchers have found a negative relationship between national affluence and national levels of environmental concern and maintain that environmental and health concerns largely depend on people's direct experience with environmental problems.[15] Indeed, 'social context theorists' argue that the rise in environmental concern is a result of the perceived personal threat from the broad array of environmental problems.[16] The question is whether concern for personal health as it relates to the environment is part of postmaterialist values or represents a materialist value for personal security. Inglehart argues that when environmental protection is a matter of survival, then it is supported by both materialists and postmaterialists.[17] Eckersley argues that the 'new class' (e.g. middle class, professional, technical, administrative, intelligentsia) is getting involved in green politics, and due to the nature of its awareness of environmental problems, it is more likely to play a role in their solutions.[18] In contrast, using international data, Mertig and Dunlap have found that membership of the new class, along with the other demographic variables, poorly predicts support for environmentalism.[19]

Environmental concern has also been related to other socio-demographic variables. The 'age' hypothesis assumes that younger people tend to be more concerned about the environment than older people.[20] The explanation is that younger people are less integrated into the dominant social order, and since environmental solutions are often viewed as threatening the existing social order, it is logical to expect the young to

accept pro-environmental ideologies more readily than their elders. Another explanation for the higher level of environmental concern among younger people is offered by Manheim's theory of generations. This theory suggests, "important historical events occurring at the crucial adolescence and young adulthood phase of the life cycle can permanently affect a cohort throughout its existence".[21] According to this theory, the environmental movement as part of the human rights movement in the 1960s in the West, and as part of the democratic political movement against the totalitarian regimes in the former communist countries in the 1980s would have affected the younger generation more. Using national data from the United States, Mohai and Twight argue that the age/environmental concern relationship reflects cohort-generational differences, rather than aging effects.[22]

Some also argue about urban-rural differences of environmental concern. The 'environmental deprivation theory' relates public concern for environmental problems to actual levels of pollution and degradation. Thus, urban residents would be more concerned about the environment because they are exposed to higher levels of environmental problems.[23] However, van Liere and Dunlap argue that environmental deprivation is relative rather than absolute, since the lower classes are accustomed to their poor environmental situation, as they have never experienced anything better.[24] The theory of 'nature exploitative occupations' suggests that the lower level of environmental concern in rural areas is rooted in the occupations of their inhabitants, such as farming, mining, and logging, which are based on exploitation of natural resources.[25] Other researchers have found that while urban-rural differences in environmental attitudes disappear when removing the effect of socio-economic status, the differences in behavior still persist suggesting a link to occupation.[26] The theory of 'community boosterism and pro-growth' explains the low level of environmental concern in small size communities with their needs to develop at the expense of the local environment. Urban-rural differences in environmental concern have also been explained with 'man-modified versus natural environmental orientations'.[27] In this view, a metropolitan environment is seen as man-modified, whereas rural environment represents the work of 'God' or 'Nature'. Therefore, urban residents are more likely to see man's efforts as the proper solution to environmental problems rather than their rural counterparts who think of the environment as natural and God-given. Lowe and Pinhey tested these theories of explaining the urban-rural difference with empirical data and found no support for any of them.[28] Similar conclusions have been reached by other authors who claim that environmental concern in rural areas is rising in regard to environmental problems caused by their economic

development[29] or changes in the values of nature in some rural areas adjacent to nature reserves.[30]

The findings about the effect of gender on environmental concern are also controversial. Stern et al. offer a social-psychological model to explain this relationship.[31] According to this model, women are more accepting than men of messages that link environmental conditions to potential harm to themselves, others, and other species, or the biosphere. The 'gender socialization' theory attribute gender differences in environmental concern to the oppression of women resulting from their ascription to the natural realm.[32] In contrast Mohai argues that gender makes a difference not in environmental attitudes but in environmental behavior; i.e., environmental activism.[33] He has found that environmental activism of women appears to be constrained by factors other than those constraining general political activity. Other studies which have implied specific risks have produced gender specific effects, but these results are construed as communication events in which respondents who feel vulnerable answer in a way that urge caution on policymakers.[34]

The relationship between environmental concern and ethnicity has been explored mainly in North American literature in the context of race. Race or ethnicity was found to be a significant negative predictor for items which make economic costs explicit and salient. However no ethnic differences have been found in assessment of local pollution and environmental health hazards. Others point out that black Americans display strong environmental concern, at least, and some times exceeding that shown by whites.[35] This is supported also by the studies of Mohai, who also argues that although blacks' environmental concern equals that of whites, the rates of environmental participation are much lower for blacks than for whites, even after controlling for differences in type of environmental concern and socio-economic status.[36]

How do theories of environmental concern established in the Western societies apply to the post-communist countries? Although there was some diversity among the former Eastern block countries, their ideological systems were dominated by Soviet ideas. Ziegler argues that the socialist environmental paradigm is characterized by the belief that economic growth shall continue, that environmental problems could be solved through better central planning, more science and technology and establishment of environmental agencies, and that the decisions about the environment shall be made by the communist party with the help of experts. In the Soviet Union, the most prevalent image of the environment was the official image and survey data on perceptions of the environment were not systematically collected, or at least the results were not disseminated. Personal opinions could be expressed through letters to the

press, which printed a small and not representative sample of such letters, or through illegal underground (*samizdat*) literature.[37]

However, there is evidence that people in these countries became aware of environmental problems long before the fall of the Berlin Wall and the breakdown of the Soviet Union.[38] Gorbatchev's *perestroyka* and *glasnost* have revealed the environmental situation and have allowed for some expression of environmental interests. The collapse of the communist regimes led to declassification of environmental information and revealed the damage to environment and health caused by the planned economy.

Lee and Norris have explored the social basis of environmental concern and environmental political behavior in five Eastern European countries, using the World Values Survey (1990-93). They have found that the basic structure of environmental concern in Eastern Europe shows similar patterns to those found in the West, with the younger, the better educated, the wealthier and those employed in the non-productive sectors being more pro-environmentally oriented. The study has also revealed that environmental concern does not translate automatically into political distrust and political action. The authors explain this with the preoccupation of Eastern Europeans in the early 1990s with the economic issues of unemployment and inflation.[39]

In this chapter, we test the socio-demographic model of environmental concern, developed primarily in Western societies, in relatively poor post-communist societies. In Western societies with defined middle class and social stratification socio-demographic factors typically explain very little of the variance in concern for the environment.[40] Post-communist societies have not yet achieved the level of social stratification typical for the West. Therefore, we suspected that socio-demographic factors might prove even less useful in explaining the variance in environmental concern in such type of societies. After testing the contribution of socio-demographic characteristics by themselves, we test an additional model, which incorporates elements of a person's health status as precursors to environmental concern. Social context theorists, mentioned earlier, would suggest that a person's direct experience with environmental problems and their consequences for human health would play a pivotal role in determining concern about the environment. While our initial model includes variables of importance to the basic socio-demographic model as well as the postmaterialism thesis (i.e., social status and income), our second model also incorporates variables more akin to 'social context'.

In Eastern Europe, environmental protest was one of the characteristic features of the period following the collapse of the

communist regimes. While the level of governmental tolerance during communism differed in each country, protest over environmental issues became linked to a movement for human rights and liberation.[41] However, initial enthusiasm immediately after political change was followed by erosion of support for the environmental movement.[42] Examining protest potential in five post-communist nations in Central Europe, Lee and Norris have found that psychological involvement in politics, postmaterialist values, and pro-environmental orientation explain likelihood of participation in protest activities, such as signing petitions, joining boycotts, demonstrations, etc.[43] Unfortunately, not all of these variables were measured in our study. Hence, the final model tested in this chapter attempts to explain environmentally related political activity in the five nations using a combination of socio-demographic variables (identified as somewhat important in Western societies), personal health status variables, and a measure of perceived efficacy of taking action (labeled 'environmental democracy'). As others have noted,[44] a person's motivation to act on behalf of some issue may become stifled if they perceive an inability to do anything – it can be argued that this may be an even stronger disincentive in previously communist societies than in the long-time democratic societies of the West.

3. Environment and Health in the Five Nations

Economic hardship and the closure of many industrial enterprises in Central and Eastern Europe and the former Soviet Union has led to some improvement in the overall status of the environment. In the countries which are acceding to the European Union (EU), the changes in the quality of the environment have been much faster as a result of EU pressure for environmental cleanup, introduction of stricter environmental standards and provision of funds for their implementation. In other countries of the former Eastern block, however, improving the quality of the environment has not been as straightforward. The initial reduction in environmental pollution due to the collapse of industry was overwhelmed by pollution from increased traffic and recently by the emergence of new economic activities that disregard environmental health standards.

In Albania, air emissions have decreased sharply, dropping in 1998 to 45% of their 1989 levels. Particularly high concentrations of total suspended particulates and black smoke were measured in 2000 in several big cities with industrial production and intensive traffic. Contamination of drinking water with chemical substances (pesticides) and bacteria is also a problem. In 1994 there was a water related cholera outbreak and drastic measures were taken in high-risk areas. The problem with

contamination of drinking water is exacerbated by uncontrolled and irregular chlorination. International experts have defined poor food quality as the most serious environmental health problem in the country.[45] The incidence of brucellosis has increased because of food being illegally sold on the streets, especially dairy products and meat. During 1992, 1996 and 1997 outbreaks of lead poisoning occurred in some rural zones as a result of the use of flour ground in old mills, repaired with lead. Occupational health problems have decreased with the collapse of industry. The closure of many industrial plants has lead to sites where hazardous compounds have just been abandoned. In addition to that, the country has inherited considerable stocks of pesticides. During the past 10 years noise from traffic has increased. Political, economic and social changes have created opportunities for private activities with uncontrolled noise levels mostly within residential areas. Until the late 1980s the problem of radon exposure was considered only in the framework of occupational exposure in uranium mines; in the early 1990s a survey found increased health risk due to the soil's high radon concentration in 5 percent of the country's territory.[46]

In Bosnia and Herzegovina, air pollution from motor vehicle traffic has recently increased in addition to pollution from industrial sources. Sulfur dioxide levels are around or below the norms. Between 25 and 37 percent of the samples of drinking water in the Federation of Bosnia and Herzegovina do not comply with health requirements for chemical contaminants and between 18 and 25 percent do not comply with microbiological standards. Insufficient water treatment and chlorination are to be blamed for this problem. Between 11 and 17 percent of food samples show deviation from microbiological standards and 17 percent from chemical standards. During the war, chemical weapons with unknown composition were used in the country. Toxic waste from drugs and chemicals with expired dates, and polychlorinated biphenyls (PCBs) has been stored and buried in barrels. Contamination with depleted uranium from the military operations has also been measured.[47]

Internationally available data on the environmental health situation in Azerbaijan are very scarce. There has been a reduction in overall air pollution from stationary sources but an increase in pollution from motor vehicle traffic. The highest levels of air pollution have been registered in five big cities. More than 60,000 hectares of land are polluted with industrial waste, especially oil.[48]

In Tajikistan, overall air pollution levels have decreased after 1990 but the pollution from some industrial plants has increased. Eighty percent of motor vehicles do not meet the standards for exhaust gases. Burning of waste is another cause of increasing air pollution in some

areas. Drinking water is a major problem all over the country. More than 50 percent of piped water samples do not comply with microbiological standards. Food safety problems are related to the growing number of small food producers and street trade. Increases in gastro-intestinal infections have been observed in the last several years. In some regions food is contaminated with heavy metals. High risks of injury, poisoning and occupational diseases have been determined at workplaces in some industrial locations. In addition, toxic waste is being stored at numerous industrial sites. Radioactive waste has accumulated in dumps near uranium mining enterprises. Radiation above permissible levels has also been detected in households in proximity to uranium production and waste depositories.[49]

There has been an increase in air pollution in Turkmenistan from both stationary and mobile sources accompanied by an increase in the number of allergic diseases, including asthma. The major problem, however, is water supply and quality of the drinking water. Forty-two percent of the samples of piped drinking water do not meet the chemical standards, while 33.9 percent are substandard in terms of microbiological indicators. This contributes to a high incidence of water related infections. Morbidity caused by consuming contaminated food products has increased, mainly due to food of animal origin. Ten percent of food samples do not meet health requirements. The concentrations of dust and chemical substances at industrial plants are above permissible levels. The wide use of pesticides in agriculture has resulted in their accumulation in the soil.[50]

Given these severe environmental situations and their pertinent consequences for human health and wellbeing, it is of interest to evaluate public concern for environmental quality and its impacts in these nations. Specifically, in this chapter, we assess the utility of explanations derived in the West for understanding environmental concern and behavior in these post-communist nations.

4. Methodology

The data come from the 2002 international study on environment and health attitudes in Albania, Azerbaijan, Bosnia and Herzegovina, Tajikistan and Turkmenistan organized by the Regional Office for Europe of the World Health Organization and executed by Gallup International. The questionnaire was translated by Gallup national affiliates into the appropriate language(s) for their nation and then ‘back-translated’ into English to ensure comparability. In Azerbaijan, Tajikistan, and Turkmenistan the questionnaire was also translated into Russian and

interviewing in Russian was offered in addition to the local language. The surveys were conducted via face-to-face, in-home interviews between November 2001 and February 2002. Nationally representative multistage cluster probability samples of adults (older than 15 years) were used in all countries but Turkmenistan where rural areas were underrepresented (and thus caution must be used in generalizing the results to the nation as a whole). Achieved sample sizes were as follows: Albania, 1000; Azerbaijan 1000; Bosnia and Herzegovina 1000; Tajikistan 1000; and Turkmenistan 498. The achieved national samples are comparable to the socio-demographic characteristics (age and gender) of the general population of the individual countries and yield results that should have margins of error of approximately 3 percent of the respective national populations and 4 percent for Turkmenistan. The data were combined into a pooled sample of 4498 respondents.

Variables used in our analyses are presented in Table 1. The data were analyzed using linear regression and exploratory factor analysis. The structural equation models were developed using Amos 4.0, statistical software for the analysis of moments of structures.

Table 1: Description of Variables

Environmental concern

1. *National environment*
   Question wording: "How would you evaluate the quality of the environment as a whole in <this country> according to this scale?" *Coded as:* 1=Extremely good, 2=Very good, 3=Somewhat good, 4=Not bad not good, 5=Somewhat bad, 6=Very bad, 7=Extremely bad. (Don't know and refused were deleted from the analysis.)

2. *Local environment*
   Question wording: "How would you evaluate the quality of the environment in your city/village according to this scale?" *Coded as:* 1=Extremely good, 2=Very good, 3=Somewhat good, 4=Not bad not good, 5=Somewhat bad, 6=Very bad, 7=Extremely bad. (Don't know and refused were deleted from the analysis.)

3. *Dissatisfaction with governmental performance*
   Question wording: "In your opinion has the government done too little, too much or the right amount to address the health problems caused by environmental pollution in this country?" *Coded as:* 1=too much, 2=The right amount, 3=Too little. (Don't know and refused were deleted from the analysis.)

Health variables

4. *Health status*
   Question wording: "If you have to evaluate your own health according to this scale, where would you put yourself?" *Coded as*: 1=Extremely bad, 2=Very bad, 3=Somewhat bad, 4=Not bad not good, 5=Somewhat good, 6=Very good, 7=Extremely good

5. *Environmental health impact*
   Question wording: "If you have to evaluate according to this scale the effect of environment on your own health, where will you put yourself?" Coded as: 1=Extremely bad, 2=Very bad, 3=Somewhat bad, 4=Not bad not good, 5=Somewhat good, 6=Very good, 7=Extremely good

Political variables

6. *Environmental democracy*
   Question wording: "In your opinion, to what extent do citizens in your municipality have a say when decisions about environmental health are made?" Coded as: 1=Not at all, 2=A certain extent, 3=Big deal

7. *Political activity*
   Question wording: "In the last five years, did you ever participate in any public events related to health concerns about environmental pollution, – like meetings, protests or petitions?" Dummy coded as: 0=No, 1=Yes (Can't remember and refused were deleted from the analysis.)

Socio-demographic variables

8. *Ethnic minority*
   Question wording: "How would you define your ethnicity? Would you say you are…?" (Respondents were given a list of ethnicities in their country and asked to choose among these. Option "other" was also offered.) *Recoded as* dummy variable 0=Ethnic majority, 1=Ethnic minority. Ethnic majorities were defined according to the World Fact Book.[51]

9. *Social status*
   Factor score created from the following items (Cronbach's alpha 0.697):
   a. *Education:* number of years of formal education
   b. *Income*: amount of household monthly income in USD
   c. *Work status* coded as: 1=Unemployed, 2=Housewife, 3=Student, 4=Retired, 5=Self-employed, 6=Part-time, 7=Full-time

10. *Gender*
    Dummy coded as 0=Male, 1=Female

11. *Age*
    Number of years at respondent's last birthday

12. *Residence*
    Number of people living in respondent's settlement. Coded: 1=up to 2,000; 2=2,001 to 10,000; 3=10,001-50,000; 4=50,001-100,000; 5=100,001-200,000; 6=more than 200,001

5. Analysis and Major Findings

To analyze our data, first we will explore the results regarding environmental concerns, attitudes and behavior in the different countries, and then we will study the relationship between the variables using the pooled sample.

A. Measurement of Variables by Country

Environmental concern

To measure environmental concern we used three items measuring concern for the quality of both the national and local environment, and the level of dissatisfaction with governmental performance on environment and health issues. A factor analysis shows that there is only one underlying factor linking these three variables which accounts for 63% of the variance explained. This factor taps the worries of the respondents about the quality of their national and local environment and their level of dissatisfaction with the performance of the government to protect citizens from environmental threats. We used the score of this factor as the variable 'environmental concern' in our subsequent analysis (Cronbach's alpha = 0.70). Table 2 shows the means and standard deviations of the variables measuring environmental concern.

Table 2: Environmental Concern by Country

	Concern for national environ-ment	Concern for local environment	Dissatis-faction with government	Environ-mental concern (factor score)
	M±*SD*	*M*±*SD*	*M*±*SD*	*M*±*SD*
Albania *N*=897	4.79±1.45	4.41±1.42	2.93±0.26	0.30±0.81
Azerbaijan *N*=890	4.41±1.21	4.14±1.20	2.81±0.42	0.07±0.86
Bosnia and Herzegovina *N*=906	4.72±1.20	4.41±1.28	2.84±0.38	0.37±0.79
Tajikistan *N*=891	3.84±1.43	4.01±1.49	2.50±0.61	-0.32±1.05
Turkmenistan *N* =335	3.30±1.01	3.50±1.06	1.85±0.70	-1.18±0.93
Total *N*= 3919	4.32±1.39	4.16±1.35	2.69±0.55	0.00±1.00

Note: *N* indicates the number of cases after listwise deletion for factor score of environmental concern

People in the Balkans are somewhat more concerned about the quality of the environment than in the other three countries. The means of both variables measuring concern for the quality of the national and local environment in Albania and Bosnia and Herzegovina are higher than the corresponding statistics for Azerbaijan, Tajikistan and Turkmenistan. These differences are statistically significant ($p<0.001$) when the means are compared using Bonferroni's post-hoc contrast. The means of the composite factor measuring environmental concern are also much higher in the two countries in the Balkans than in the former USSR republics. The lowest level of environmental concern is in Turkmenistan.

Health and the environment

The means and standard deviations of the variables measuring health-related attitudes, i.e. self-rating of health status (*health status*) and perception about the impact of the environment on one's health (*environmental health impact*) are shown in Table 3.

Table 3: Health Attitudes by Country

	Health status[a]	Environmental health impact[b]	Valid *N* (listwise)
	M±SD	*M±SD*	
Albania	4.85±1.09	4.21±1.03	1000
Azerbaijan	4.34±1.22	3.68±1.20	1000
Bosnia and Herzegovina	4.88±1.50	3.90±1.28	1000
Tajikistan	4.74±1.24	4.12±1.28	998
Turkmenistan	4.78±1.01	4.65±1.01	450
Total	4.71±1.26	4.05±1.21	4450

Note: [a] The higher number indicates better health; [b] The higher number indicates higher negative impact of environment on respondent's health.

As evident from the table Azerbaijani respondents rate their health status substantially lower than people in the other four countries. This difference is also supported by the Bonferroni post-hoc contrast, which shows that the mean of health status in Azerbaijan is significantly ($p<0.001$) different from the means in the other countries. However, when it comes to the perceived impact of the environment on one's health, the countries are much more diverse. The Bonferroni post-hoc contrast shows significant differences between all countries ($p<0.001$) with the exception of the pair Albania-Tajikistan ($p>0.05$).

Environmental democracy and action

The frequencies of the variables measuring environmental democracy and participation in political action are shown in Table 4. The results show that Azerbaijani, followed by those in Bosnia and Herzegovina, are the most skeptical nations when it comes to the ability of the citizens to influence decision making about environmental health. In contrast, the large majority of respondents in the Central Asian republics of Turkmenistan (79.9%) and in Tajikistan (69.1%) believe that public participation in environmental health could make a difference. The skepticism of the Azerbaijani about their opportunity to influence the decision-making clearly translates into low political activity, such as participation in public meetings, signing petitions and going on protests. Only 6.1% of the respondents in Azerbaijan have done so during the last 5 years, while the activity in Central Asia is quite high – in Tajikistan 19.3% and in Turkmenistan 15.7% of the respondents have participated in political actions regarding environment and health.

Table 4: Environmental Democracy and Political Action by Country

	Environmental democracy (% who believe that citizens have say in decision-making)		Political action (% who have participated in public meetings, petitions and protests)
	A certain extent	Big deal	
Albania	55.2	2.5	12.7
Azerbaijan	26.3	2.3	6.1
Bosnia and Herzegovina	33.2	0.4	14.4
Tajikistan	56.1	13.0	19.3
Turkmenistan	55.1	24.7	15.7
Total	44.2	6.4	13.3

B. Environmental Concern: Socio-demographic Predictors

The first model to be tested is the use of socio-demographic predictors, as established in literature on environmental concern in Western societies, to explain environmental concern in five relatively poor, post-communist nations. Table 5 presents a linear regression model using age, minority status, social position, residence and gender as independent variables and environmental concern as the dependent variable.

Table 5: Social Basis of Environmental Concern: Linear Regression Model

Predictors	Standardized regression coefficients	t-test	Significance
Residence	0.042	2.47	0.01
Ethnic minority	-0.059	-3.58	0.00
Gender	0.00	0.021	0.98
Social status	0.104	6.17	0.00
Age	0.104	6.33	0.00

Note. Total R^2=0.028, F(5,3624)=21.17, p<0.001.

Overall, these socio-demographic variables are poor predictors of environmental concern in these five nations as a whole, explaining only

2.8% of the variance of environmental concern. Older age, higher social status and urban residence are positively correlated with environmental concern. In contrast, belonging to an ethnic minority is negatively associated with environmental concern. Gender has no effect on environmental concern.

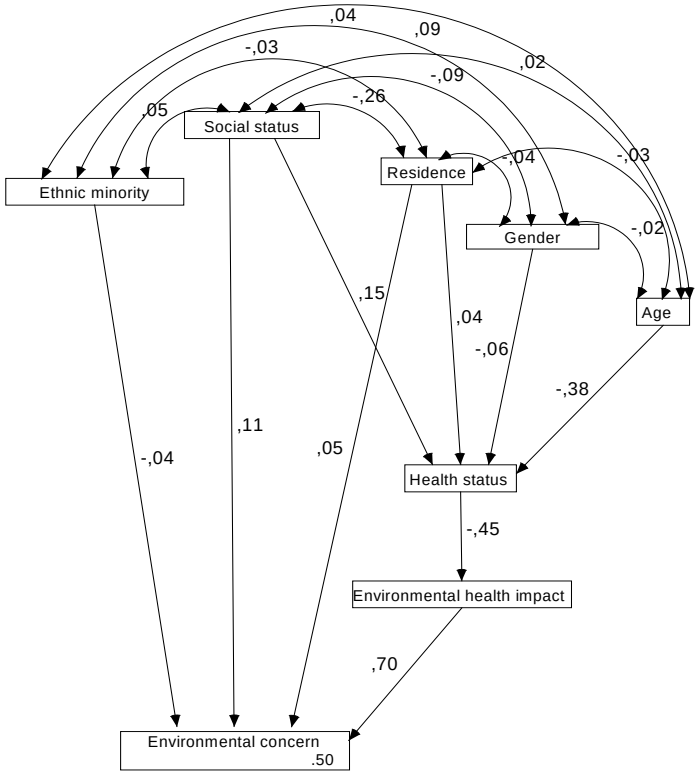
The positive association between social status and environmental concern makes sense considering the postmaterialist thesis. The other positive association between environmental concern and the size of respondent's settlement can also be explained by the theories for urban-rural differences in environmental concern, and most probably by the fact that the quality of the environment is worse and the health threats are higher in the urban areas. However, the positive association between age and environmental concern contradicts the findings from Western literature. One possible explanation for this phenomenon is that our environmental concern variable taps the notion of environmental pollution and its threat to health. In the next model we will explore whether the higher levels of environmental concern of older people could be explained by their poorer health status. Finally, the lack of association between gender and concern about environmental health is another surprise. We expected that women, because of their social role as mothers, would be more concerned about health issues related to the environment[52] and would have a higher level of environmental concern than men.

One possible explanation for the difference between our findings and the literature on the social basis of environmental concern is the fact that this study focuses on concern for human health, or the 'homocentric' part of environmental concern, while most of the studies in the literature focus on 'ecocentric' concerns. Another explanation could be that the patterns of environmental concern in these five nations are different from those found in the West.

C. Environmental Concern and Health

The second model tested here incorporates the additional consideration of a person's perceived health status and how it relates to the environment. We introduced two new, health variables into the first model to see to what extent health makes a difference in explaining environmental concern. Based on evidence from the literature that health inequalities are socially determined[53] we hypothesized that the differences between social groups would also determine different levels of personal health and different perceptions about an individual's own health status. We also hypothesized that worries about personal health would be related to perception about the impact of the environment on one's health, which

in turn would explain some of the concerns about national and local quality of the environment, and the distrust in government's performance on environment and health issues. Therefore, we introduced the health variables into the model as intervening variables in explaining environmental concern.



N=3627, Fit measures: χ^2=63.0, df=9, parameters 35, P=0.00, RMSEA=0.04 (0.003-0.005), PCLOSE=0.99

Figure 1: Structural Equation Model of Environmental Concern with Health Variables

The structural equation model of environmental concern with the health variables is shown in Figure 1. The model in the figure shows only the path coefficients, which are statistically significant at $p<0.05$. The P test of significance of chi-square shows that the model does not fit perfectly in the population. However, keeping in mind that the chi-square tests the null hypothesis that the model fits perfectly in the populations, it is very difficult to judge using only chi-square how good the model is. Browne and Cudeck have proposed the use of root mean square of the error of approximation (RMSEA) which indicates how reasonable is the error of approximation of the model.[54] They recommend that values of between 0.05 and 0.08 indicate a reasonable fit, and values below 0.05 indicate close fit of the structural equation model. In this model the value of RMSEA (0.04) shows a close fit to the sample data. In addition to RMSEA, we used PCLOSE as a measure of how well our model fits the data. PCLOSE gives a test of close fit, while P gives a test of exact fit. PCLOSE is a 'p value' for testing the null hypothesis that the population RMSEA is no greater than 0.05.[55] In this model, the value of PCLOSE (0.99) does not allow us to reject the null hypothesis of close fit, therefore, we finally conclude that our model reasonably fits the data.

The model shows that when health variables are included, the percent of the variance of environmental concern explained rose dramatically from 3% to 50%. The effect of health status on environmental concern is not direct, but mediated by the perceived impact of environment on one's health. Perceived health impact has the greatest influence on environmental concern, with a path coefficient of 0.70. The greater the perception that one's health is negatively influenced by the environment, the higher is the overall environmental concern. These results show that health plays a very important role when it comes to the 'homocentric' part of environmental concern, i.e. the threat of environmental pollution to humans or more generally, environmental quality.

D. Political Activity

To study the factors explaining political behavior about environment and health issues, such as participation in public meetings and protests and signing petitions, we expanded the model by adding political activity and an intervening variable measuring the level of environmental democracy. The latter reflects the belief of the respondents that citizens have a say in environmental health decisions. In constructing this model, we found that the direct effects of age and residence on the other variables are not statistically significant at $p<0.05$ and therefore do

not contribute to the overall performance of the model in explaining political activity. Therefore, they have been eliminated from the final model, which is shown in Figure 2. The figure displays only those path coefficients which are statistically significant at p<0.05.

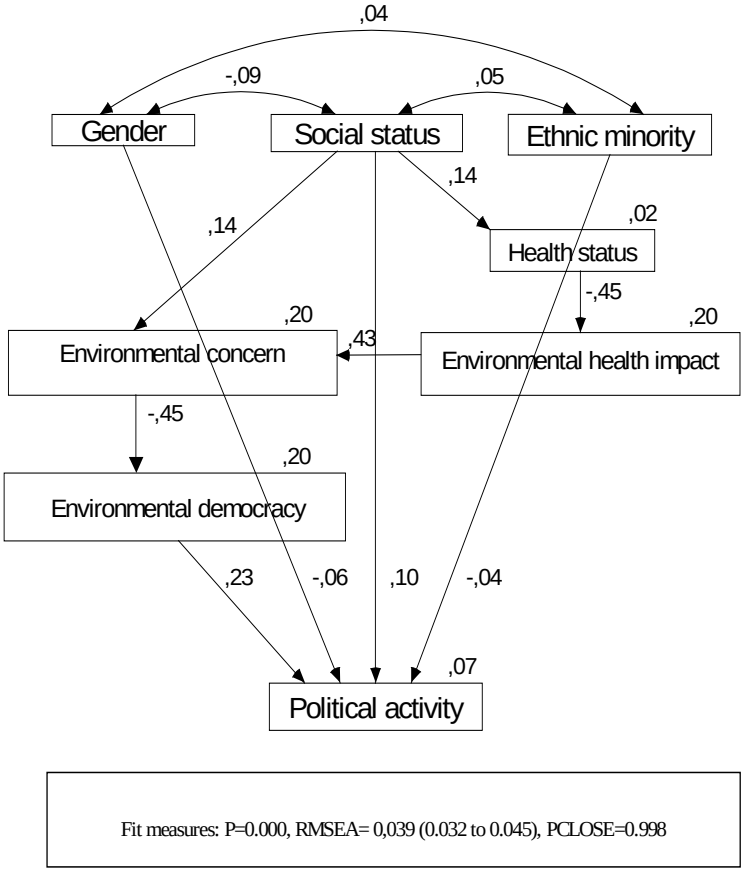


Figure 2: Structural Equation Model of Political Activity

Although the model shows reasonably close fit in the population (P=0.000, RMSEA= 0,039 (0.032 to 0.045), PCLOSE=0.998), it explains relatively little of the variance (~7%) in political activity about environment and health in the five nations. A statistical explanation for this is the lower level of political activity (13.3%) in these countries and

the dichotomous measurement of the variable. However, the relationship between the variables is interesting. A strong negative path coefficient links environmental concern and environmental democracy. It shows that people who are concerned about the status of the environment in their country are more skeptical about the ability of citizens to influence the decision making about environment and health and ultimately less likely to participate in political actions.

In sum, according to this model people who perceive themselves as affected personally by the environment have higher levels of concern about overall environmental quality but fail to translate this into political action because they do not believe in environmental democracy. People who engage in political actions are those upper-middle class individuals, who strongly believe that they have a say in environmental health issues. Thus, participation in political action, as a type of collective behavior, is an expression of personal political resources and political opportunity, rather than expression of one's worries about personal and national environmental health issues. Our data indicate support for the resource mobilization theory of environmental behavior, which reinforces the importance of the opportunities and resources that are required in order for individuals to act on their concerns.[56] These results are also in line with the conclusions of other studies showing that in Eastern Europe environmental concern does not translate automatically into political action.[57]

6. Conclusions

Our results suggest that for societies living in extreme poverty, environmental quality is a matter of survival. Their environmental concern emerges from personal threats of environmental pollution, and not from postmaterialist values. Having in mind the strong mediating role of health status and perceptions about environmental impact on individual's health, it is not surprising that older people who have more health problems than their younger counterparts, experience more health effects of environmental pollution and are therefore more concerned about environmental quality. Health concerns, rather than concerns about the environment per se, or nature, are most probably the explanation of the higher levels of concerns in low-income countries. These results are not in contradiction to the postmaterialist thesis, according to which the issues of personal security take precedence over higher level needs.

Our results indicate moderate support for some of the theories about environmental concern established in the West, in particular the theories about urban-rural difference, and the social class theories. We

found that ethnic minorities are somewhat less concerned about environmental quality and the performance of the government on environment and health and less active in solving the problems. These results contradict the findings from North American studies showing no difference or higher levels of concerns of minorities, but support the arguments that ethnic minorities participate less in environmental action. Ethnic minorities in post-communist societies tend to feel a social distance and therefore probably perceive environmental health problems, both nationally and locally, as belonging to and being addressed by the ethnic majority. Thus, ethnic minorities become somewhat alienated from environmental problems, and therefore they don't participate. For example, Chelcea has found that in Romania the factors contributing to determination of social distance and ethnic attitudes include relations between majority and minority populations, along with historical, economic, and environmental variables.[58] Further research is needed to understand how ethnic minorities perceive personal threats from the environment and whether there are difference in their perception about individual environmental health hazards and their health effects.

Another difference between the West and the post-communist societies is the effect of age on environmental concern. In our case older and not younger people are more environmentally concerned. We attribute this difference to the fact that health variables have strong mediating effects on environmental concern. Therefore, older people who have more concerns about their personal health tend to be also more concerned about the environment, than younger and typically healthier individuals. Overall, we conclude that socio-demographic variables are poor predictors of environmental concern. Similar results have been found by other researchers in Western societies.[59]

We have found that the strongest predictor of political activism about environment and health is the level of perceived environmental democracy. However, the belief that people can make a difference in decision-making about environmental health is attenuated by their concern about the environment. The higher the concern about environmental quality, the less people believe that citizens can influence the problems, and therefore, they don't participate in political action about environment and health.

In the Western world, the environmental justice movement contributed to the incorporation of health issues into environmental policy with its critique that the dominant environmental protection paradigm reinforces inequalities of class and race, trades human health for profit, places the burden of proof on the victims and legitimates harmful environmental exposure.[60] Environmental justice argues for a new

paradigm, which calls for the universal right to a healthy environment and protection against environmental hazards

The results of this study provide insight into the intersection of social inequalities, environmental concerns and political behavior in some post-communist societies. The conclusion is that in the Balkans and Central Asia, social class is related to inequalities in the level of both environmental concern and environmental behavior. People belonging to the elite are those who are most likely to participate in environmental health action.

The strategies of the environmental justice movement established in the advanced capitalist societies and based on the awareness of social injustices would hardly work in societies where almost everyone is suffering from environmental problems. In the words of Sokolowska and Tyszka, "being aware of high dangers and only moderate benefits of risks, poor societies seem to believe that they must accept (tolerate) them because of the economic situation. They seem to follow an old Polish proverb: 'When one doesn't have what one likes, one has to like what one has.'"[61]

Acknowledgements

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Notes

1. Ivanov, 2000; Yarnal, 1995.
2. Dimova, 1995; Gooch, 1995; Ivanov, 2000; Ivanov, 2001; Lang, 2000; Lee and Norris, 2000.
3. UNDP, 2002c.
4. UNDP, 2002c.
5. UNDP, 2002b.
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America's Nuclear Waste: Tribal Sovereignty, Injustice, and Technological Conflict

J.D. Wulfhorst and Jennifer Kamm

1. Introduction

Many have pondered the relationship between society and technology. Few have conclusively answered the questions of when those relationships are sound, fair, and just. We have the immense capacity to create and implement technology beyond common human comprehension, and therefore, perhaps, our own collective manageability. Each of us might ask ourselves: what have we created, such that one society can threaten another with fear and anticipated devastation so as to change the course of humanity with the thought of menace, human-induced disaster, and war? In the lingering but too-soon-forgotten wake of another recent American Space Program disaster, we are reminded of our peaceful power to be both progressive and destructive at the same time, so that we begin to feel almost culpable in our development. Perhaps the human race lacks the humility to withstand itself and the perceptions of technological advancement that dominate our everyday thinking, self-imposed consequences included.

In contrast, Langdon Winner had the presence of thought to outline the concepts of *manifest social complexity* and *concealed electronic complexity*.[1] The former refers to the ever-increasing "totality of interconnections" incomprehensible to almost anyone; the latter refers to how much of our mundane experience and interactions (that once helped us gain a sense of understanding of social complexity) now occur as functions of instrument, machine, and automated processes.[2] Concealed electronic complexity now replaces much of the manifest social complexity shaping the contemporary world. Out of that shifting complexity, we arguably experience bewilderment with the mass and compression of information we expect ourselves to process. The coping mechanism we created to deal with this pace – technological optimism – convincingly overshadows the doubts and questions we harbor about whether we have gone too far.

The case of nuclear waste storage in the United States exhibits an interesting scenario to ask the question: *have we already gone too far with our technology*? But what can that mean – *too far?* – especially when we have technical solutions for problems like nuclear waste management? The 'too far' component of this question refers to the apparent irreconcilable social, cultural, and ethical concerns associated with what we might call technological conflict.

The pattern of disagreement and inequitable distribution of impacts between affected interests that plagues many resource management issues constitutes technological conflict. Such is the case for the civilian and military waste the United States continues to produce, yet for which our country fails to implement a comprehensive management plan that can appease public fears and perceptions of vulnerability. In the shadows of this stalemate, a small American Indian nation awaits, poised to stir the balance of complexity we take for granted and command a new understanding of sovereignty among the non-native public and decision-makers that have long denied rights to indigenous peoples in North America.

2. The Skull Valley Band of Goshute Indians and Nuclear Waste

Over twenty years ago, the U.S. Congress passed the Nuclear Waste Policy Act (NWPA) to establish a permanent repository for spent nuclear fuel rods from operating commercial and government research reactors. Despite (1) progress on technical assessment at Yucca Mountain, Nevada; and (2) a recent official declaration that this site will become the repository, no centralized operational facility exists in the U.S. to store this waste. The bulk of the waste currently remains in on-site storage at the reactor sites, primarily in the eastern U.S. Some see the current, decentralized, default storage distribution as a more viable and equitable permanent storage plan compared to a central facility. In contrast, the most optimistic predictions for centralized storage suggest another decade will pass before any waste could be shipped to Yucca Mountain, not accounting for social and political conflict over perceived risk, transportation safety, and the appeals by the state of Nevada as the impending host. As this policy has evolved, it reminds us that if we have to designate a sacrifice zone, the western U.S. – particularly its deserts – will likely face that burden.

The Yucca Mountain chapter of this story, however, remains distant, futuristic, and uncertain if we concentrate on what lies in between the waste and that technical hole in the ground now slated to serve as the permanent geologic repository. The Skull Valley Band of Goshute Indians remains the only committed and well-known entity acting in pursuit of hosting a temporary storage facility for high-level nuclear waste – and even this statement, as we'll explain, is not unilaterally true. The Skull Valley Band consists of 121 enrolled tribal members and maintains a relatively small reservation that sits on approximately 18,000 acres within the state of Utah on the edge of the West Desert in the Great Basin. The Skull Valley, although flanked by the Great Basin's characteristic north-

south pattern of mountain ranges, lies in a unique extremely arid ecosystem with intensely hot summers, harsh winters, and scarce water, wildlife, and fuel on the desert floor. The Skull Valley Band has little-to-no economic enterprise on the reservation with the exception of the remote tribally-owned and operated convenience store. The rocket-testing facility that leased land on the reservation and provided a handful of jobs for more than two decades withdrew from that location over two years ago. The majority of the Skull Valley Band members does not live on the reservation, but instead reside in neighboring towns, the Salt Lake City metropolitan area, and in states as distant as Montana and California.

Over a decade ago, the Skull Valley Goshute Tribal Council began exploring the possibility of hosting a temporary storage facility for the nuclear waste – then through a federal program that aimed to build a Monitored Retrievable Storage facility (MRS) – the more technical name for a temporary facility to serve as an interim solution to the delays with Yucca Mountain. The Band outlasted the federal government in that process as well as the Mescalero Apache Indian Tribe of New Mexico. After the failure of the MRS program during the mid 1990s, both Indian Nations began negotiating directly with a private consortium of nuclear power utilities, known as Private Fuels Storage (PFS). Eventually, the negotiations between PFS and the Mescalero Tribe also failed due to internal strife within the Tribe and irresolvable differences over how much compensatory money the Tribe would receive as the host.[3] While we have grossly oversimplified the process of how the Skull Valley Band of Goshute Indians arrived at this point, the small Nation of dispersed individuals sits at a crossroads of precedent setting environmental policy, federal-state-tribal law, and our common understanding of justice in local communities. At the outset, we note that the Skull Valley Band position on the waste storage is not a monolithic perspective. In fact, the group's members are not simply polarized, but factionalized into several groups, with little agreement, cooperation, and hospitality between each at this time, and dynamic change being the primary constant thus far between these figures.

The perspective of the Skull Valley Goshute Tribal Executive Office – of which the representation is also part of the debate and contention about the waste facility – officially continues to support the project and recruit PFS to lease land to store over 40,000 casks of spent fuel. Undoubtedly, the Skull Valley Band has negotiated an agreement with PFS to receive substantive monetary payments in compensation for hosting the facility. The contract for this agreement was allegedly signed at the end of 1996 and the dollar figures remain unknown except to a few

individuals privy to the Executive Office information. The courts, thus far, have upheld the Tribal Executive Office's rights to keep that information proprietary despite internal claims of fraud and discrimination by tribal members disenchanted with the project.

Keeping in mind the diverse views within the Band, the Tribal Executive Office has asserted the position that the project is not merely about direct economic gain, although that benefit is not denied. In an official report released early in the Band's investigation of this project, the Skull Valley Goshute Tribal Executive Office asserted the intent to host the project is reasoned and rational, and not solely economic.[4] Rather than focusing on the large sum of money promised by PFS, their logic includes:

- the need to establish local living-wage employment;
- a sound scientific basis for the facility (in contrast to the many fly-by-night proposals brought to tribal representatives);
- the interest to make partnerships with different government entities rather than enemies of those in control of so many surrounding resources;
- restoration of community on the reservation including cultural traditions, infrastructure, and people; and last, but not least,
- a sovereign political right to pursue independent development that fits within a local context and meets local needs.

Other perspectives within the Band, that do not favor the current leadership or the proposed facility, assert counter arguments such as:

- the Tribal Executive representatives are politically corrupt and do not have legal authority to represent the full Band in this decision;
- the project will result in the loss of heritage, values, and the customary way of life germane to the Goshutes' identity and livelihood;
- the project will put human and environmental health at risk; and
- the official Executive Office position is untenable as it rests on an abuse of the right to exercise sovereignty to meet harmful and destructive – rather than sustainable – ends.

In spite of these different perspectives as well as political turmoil between the factions in the past two years, the status quo of support to host the facility remains in place within the Tribal Executive Office and has been endorsed by the regional District Superintendent's office of the Bureau of Indian Affairs – the official federal agency that monitors and approves American Indian development enterprises within the government.

To make matters more complicated, the state of Utah (primarily through its outspoken and conservative governor) has vehemently opposed the private licensing efforts of PFS to site the facility in Tooele County, home to the Skull Valley reservation, and over which the federal government has control through the Nuclear Regulatory Commission. The state has reclaimed a county road to prevent the waste from legally being transported by highway to the site. The company made designs for a rail spur to the site. The state passed legislation outlawing the facility and restricting the county (which supports siting of the facility and has negotiated a separate compensatory contract with PFS) from providing law enforcement and emergency services to the remote reservation. Federal courts ruled these statutes unconstitutional.

In contrast, the state regulatory agencies and politicians have continued to provide explicit support for a similar permitted facility that operates 30 miles west of the proposed PFS site and accepts class-A low-level radioactive waste and has applied for permits to store class-B and -C wastes as well. Class-B and -C wastes refer to different waste stream classifications of higher radioactivity levels, but are not considered 'high-level nuclear waste' from a technical standpoint. An organized coalition of environmental activist and citizen groups recently lobbied strongly for a taxation scheme that would have put this company out of business, but the referendum was soundly defeated largely as a result of political influences within the state supporting the industrial position to maintain the business status quo.

Finally, we should shed some light on the environmental and geographical contexts in which this scenario emerged. As noted, the extreme nature of this region creates a unique environmental condition with restricted rainfall, undeveloped remoteness, and a landscape described by many as a barren wasteland. In the case of several entities – private business, the U.S. Military, and Tooele County – some have translated these unique environmental features into a competitive advantage for siting unique and hazardous operations and facilities. Tooele County is roughly the same size as the small state of Connecticut and contains the entirety of the following list within its boundaries:

- Two separate U.S. Air Force Training Ranges (high-speed jets)
- Dugway Proving Grounds (U.S. Army Biological and Chemical warfare testing facility)
- Tooele Army Depot – North (conventional weapons storage facility)
- Deseret Chemical Depot (chemical weapons storage; demilitarization facility)
- MagCorp (magnesium production plant; labeled the #1 polluter in the U.S. for five years in the 1990s)
- Hazardous Industries Area (county-specified zone for hazardous industrial operations) including:
  - Two hazardous waste incinerator sites
  - One hazardous waste landfill
  - One low-level radioactive and mixed waste landfill (same as noted above)

In conjunction with one another, these facilities represent the largest concentration of hazardous operations located in such geographical proximity to one another in the country. Truly, they are spread out from one another by any quasi-urban human settlement standard. Symbolically, however, the facilities as a group literally surround and encircle Skull Valley and the proposed site for the temporary high-level waste storage facility. Moreover, with the exception of the Air Force Training Ranges (but not the planes themselves that do fly over this zone regularly during training), each of these facilities lies within 50 miles of Skull Valley making them all relatively proximate to those observing the cumulative landscape and perceiving impacts from the facilities. Tooele County, and therefore each of these facilities, sits due west of the Salt Lake City metropolitan area, home of the 2002 Winter Olympics, and one of the most booming urban areas in the western U.S. for the past 15 years.

3. Sovereignty and American Indian Development

This brief overview of an incredibly complex situation raises a number of questions about the legal jurisdictions of different governmental entities, including the Skull Valley Band, in relation to technological complexity, political sovereignty, and environmental equity. Below we outline several background and discussion points related to sovereignty as further context.

The legal establishment of tribal sovereignty in 1832 by *Worcester v. Georgia*[5] enables internal social and political self-governance.[6] Similar to states and the federal government, tribal governments possess the power to enforce tribal laws over both their members and their territory. The fundamental authorities of tribal sovereignty include: (1) the establishment of a governmental and justice system; (2) the determination of tribal membership or exclusion; (3) sovereign immunity; and (4) business development, including zoning and development controls. Since the beginning of federal-Indian relations, tribes have relentlessly fought to maintain separatism in perpetuity as a foundational agreement of sovereignty within treaty negotiations. Under this assurance of their freedom from non-Indian interference, the tribes relinquished 97% of their land.[7]

However, it remains unclear as to when and whether tribal sovereignty is as stable or powerful as federal sovereignty. Within the U.S. Constitution, the plenary power grants Congress the unlimited authority over native people and their lands. One influential judicial guide is the 'Farris Rule', which says that generally applicable federal laws apply to Native American Tribes.[8] Through the establishment of treaties during the latter parts of the eighteenth century, the native nations and the United States established government-to-government 'mutual' relations. Most Indian land is held within a trust by the United States, with the tribal members as the 'beneficiaries'. The Bureau of Indian Affairs (BIA) coordinates land management programs for any tribes that do not manage such programs themselves. However, federal funding is now redirected from the BIA to the tribes, as a result of President Clinton's signing of the Tribal Self-Governance Act of 1994.[9]

Due to the transfer of native lands to the federal government, the federal government has a 'trust responsibility' for the benefit of the tribes, regardless of treaty agreements. Within the trust responsibility it is expected that the federal government protect the rights, resources and culture of the native nations from non-native society. This is a legal responsibility that is often enforced by tribal leaders to ensure that the federal government is living up to their responsibility.[10] Federal government misconduct often ends up in litigation. Since the trust responsibility lies with the U.S. government, all federal agencies are bound by this trust responsibility. Each agency must respond to the trust obligations in decisions that have an effect on tribes.

The complexity of the trust obligation arises in the context of implementation of natural resource management programs that affect tribes and tribal land. However, due to the multitude of environmental statutes that Congress has passed as well as the many agencies responsible

for natural resource management, it often remains difficult to enforce and protect tribal interests. Along these lines, Flanders has pointed out the inherent dilemmas of trying to govern large systems, such as ecosystems or other natural resource classifications with centralized bureaucracies dislocated and disconnected from the affected people and communities.[11]

Present lifestyles and structures for many Indians remain inextricably linked to tribal land tenure, and may limit the option for mobility if their land becomes polluted or resources decimated.[12] Due to inequities of land and resource distribution, special interests often emphasize the need for agencies to not subordinate their trust obligations to private economic incentives. Courts have upheld this trust responsibility due to lines of authority stating that agencies do not have the right to sacrifice the Indian treaty rights to special interests.[13]

However, difficulty remains in the prioritization of tribal rights due to the varying circumstances of public interests, tribal property rights, and statutory mandates. The balance of statutory and trust obligations is a difficult task, especially due to the bureaucratic nature of land management agencies where no executive guidance on Indian law or trust responsibility exists, not to mention binding regulations.[14]

Most federal environmental statutes allow for delegation where tribes maintain primary enforcement responsibility on their own lands. The 'tribes as states' clause resides in the following statutes: the Clean Air Act (CAA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA).[15]

The Resource Conservation Recovery Act (RCRA) sets requirements for the management, production, transport, treatment, and disposal of hazardous waste. In 1989, the Eighth Circuit Court of Appeals decided that tribes were responsible for cleaning up waste facilities on their reservation. Waste management thus became an important issue on reservations, but RCRA does not contain the 'tribes as states' clause. Therefore, under RCRA tribes do not have the authoritative power for regulating hazardous waste activities (unlike states), however the law does include them in the classes the statutes may be enforced against.[16]

Issues arise from the lack of tribal jurisdictional authority mixed with state jurisdictional authority in RCRA. Along these lines, Sitkowski posed an interesting question: *to what degree was RCRA intended to apply to Indian land and people*?[17] In *Blue Legs v. United States Bureau of Indian Affairs*, the Eighth Circuit Court of Appeals found that RCRA can be enforced against tribes and that tribes have the authority to regulate waste facility activities that do not comply with RCRA. The Ninth Circuit Court of Appeals in the state of Washington found that states have no

jurisdictional power to enforce RCRA on reservations.[18]

However, relations between tribes and states are increasingly understood as points of vulnerability for the former because both the tribes (over 400 federally recognized domestic-dependent Nations) and the states are quite diverse – in comparison to the federal government as a unique single entity – and face interpretive variations in legal judgments.[19] States have consistently tried to gain jurisdictional control over many tribes' resources as well as expand their authority in cases or places where legal decisions have not favored native rights.[20]

To articulate the importance land holds for Indian Nations, O'Brien wrote: "Allocating, regulating, and protecting land are primary functions, and essential elements of, a government's sovereignty."[21] The checkerboard land tenure within most tribal reservations obscures the process of land-use planning by tribes. Tribal land exists in four classifications: (1) land held in trust by the U.S. for the benefit of the tribe ("tribal land trust"); (2) land held by tribal members subject to a trust ("Indian allotments"); (3) land held in fee by tribal members ("Indian fee land"); and (4) land held in fee by non-Indians ("non-Indian fee land").[22] Regulatory power of each classification of Indian land is based on the source and extent of potential endangerment of tribal health and environment, as determined by sovereign tribal powers[23] but is also complicated by numerous stages of legal interpretation and evolution.[24]

Tribes implement land-use planning through tribal zoning ordinances. In theory, the land use planning process determines both the desirability and the location of a waste facility on the reservation through full public participation and governmental management. The major barrier to a tribe's comprehensive land use plan – its most effective tool to regulate activities that may have negative consequences for its well-being – is the tribe's inability to govern non-Indian activity within the reservation.

In *Berndale v. Confederated Tribes and Bands of Yakima Indian Nation*, the courts acknowledged the Tribe's sovereign right to zone land within reservation boundaries, but abolished the opportunity for a tribe to zone non-Indian land use within the non-Indian land ownership types of the reservation. Similarly, a U.S. Supreme Court ruling on *Lone Wolf v. Hitchcock* in 1903 held that 'surplus' lands on Indian reservations could be opened to non-Indians, and simultaneously asserted that Congress maintained jurisdictional relations with Indian tribes, not the courts. This relationship, resulting in the loss of the sovereign power of a tribe, arises from the 'plenary power' of Congress, enabling 'extra-constitutional' powers as part of the federal trust obligation.[25]

Tribal law and tribal constitutions include requirements for due process and public participation. When other statutes and legislation do not make the necessary requirements for due process or public participation clear, the tribal statutes and rules clarify for the affected public, tribal government agency staff, and tribal courts, to know just what the requirements are.[26]

4. Environmental Inequity and the Question of Justice

With the above legal context in mind, the voices of Indian country ring loud in Utah. That has not always been the case. Did anyone listen as to whether the Goshutes protested the siting of all the facilities that currently operate in Tooele County, Utah? As an example of this selective attention to Indian and Goshute matters, it took the Skull Valley Band 30 years to gain retribution from the U.S. Army's accident in Skull Valley when a nerve agent test went awry in 1968 and killed 6,000 sheep. Until a few years ago, those sheep, buried on the reservation by the U.S. Army, may have stayed at that location forever had the Goshutes not begun to develop leverage to force relocation of the sheep through a high-profile project such as their prospective lease to PFS. Fearing the contamination risk to subsurface natural resources, the Goshutes – in both a spiritual and literal ecological sense – forced the Army to remove the sheep burial. Their effort to reclaim that portion of their reservation as such became politically strategic, rather than inconsistent with their efforts to host the *managed* waste storage facility. As a result, the Goshutes' time in the spotlight has arrived and has changed the dynamics of whether, when, and how others listen to the multiple perspectives of the Tribal members and representatives.

The Goshutes' situation culminates an historical pattern of exploitation of Indian subordination in the United States specifically correlated to the nuclear age. Not exclusively, but disproportionate to non-native communities, Indian lands and people have long experienced impacts related to nuclear technology development in the U.S. Native lands held the resources extracted for nuclear experimentation, design, and development. Native workers in many cases held the extraction positions to mine and mill uranium for poor wages and prior to safety regulations. Nuclear weapons testing more heavily impacted Indian communities and resources in several states, including the Goshutes' territory. Nuclear power developments have impacted many traditional-use areas, with considerable degradation to sustaining native customs and practices. And now, we have concentrated efforts to remove nuclear waste to Indian

reservations to seemingly complete the cycle. Evidence substantiates all these as patterns.[27]

In this specific case, several forms of environmental inequity plague the situation to a point that community in Skull Valley deteriorates rather than develops, and Indian-State relations have become increasingly strained, less cooperative, and more dysfunctional. The state of Utah claims it can prevent the Skull Valley Band's effort to exercise its sovereignty. The state, through financial, political, and moral assistance, has partnered with the Goshute Tribal members in opposition to the project, other Natives opposing the project in principle, and a coalition of community and interest groups not usually found on the same side in debates over natural resource management in the western United States. In essence, the actions of PFS and the Skull Valley Goshute Tribal Executive Office have catalyzed one of the most conservative governor's in the U.S. to pick some of the most unlikely team members for the environmental policy duel that cannot seem to resolve itself – conservation-oriented environmentalists who have fought the gubernatorial positions on most other resource issues in the same region.

Regardless of which of the several tribal positions you might align yourself to (most can sympathize with more than one), widespread recognition exists for the fact that the Goshute reservation, and the whole of Skull Valley for that matter, lie surrounded in a sea of risk, none of which they affiliate with or benefit from directly. The Goshutes did not recruit these facilities; they have merely tried to jump on the wagon after several decades of it circling the reservation. The state's emphatic attempt to block the PFS facility oozes with economic, civil, and political injustice because it supports and receives compensatory benefits from other similar facilities – whether through taxes or mitigation fees. This is the heart of the sovereignty question: *do the Indians have the basic right to develop their own land, community, and resources (remote barrenness in this case) in the way that they choose, or only via limitations set by other state or federal governments*? From the review above, some case law indicates the tribes ought to have that right. Other law qualifies the right(s), so as to maintain some ambiguity and consistency with the political whims of federal sovereignty.

This raises the internal question of who then has the right to assert that sovereignty. Do Tribal leaders as 'elected' officials, contested as they are in this case, have more right(s) to assert that sovereignty than members at large? Legally, perhaps, the sovereignty that tribes retain exists within the 'officially' recognized group of tribal representatives – the Skull Valley Goshute Tribal Executive Office – as the entity the

federal government recognizes as another government. As such, this struggle will continue between the state and that official sovereign part of the Tribe.

On another level, however, an irony of injustice becomes clearer every day as the battle fought by those opposed to the project grows further and further from a clear victory. All members of the tribe seek to maintain their livelihood in some way or another. Quintana notes the challenging daily realities of these Natives and documents the various development attempts they have made toward that effort.[28] The state of Utah has used its own political tactics on numerous occasions attempting to block the project, and has to a large extent relied on the heels of the Natives disenfranchised from the official sovereign position. Thus, the state's position disingenuously exploits the sovereignty concept by arguing one side (opposition) of the debate in which it does not even have a formal legal role.

The Skull Valley Goshute Tribal Executive Office has noted that,

> the charges of 'environmental racism' and the need to 'protect' and 'save' us smack of patronism. This attitude implies we are not intelligent enough to make our own business and environmental decisions.[29]

This brings a cultural relativity to how we evaluate technological complexity, environmental policy, and inter-governmental relations in general. Gerrard emphasized this point as follows:

> Traditional Western notions of democracy are confounded when assessing the nature of tribal consent to a hazardous facility. In some tribes, the governing body is elected by the members of the tribe, but other tribes are governed at least in part by hereditary leaders or by theocracies (with officers selected by religious leaders). Outsiders who try to challenge the legitimacy of a decision made by a tribal council find themselves in the awkward, if not untenable, position of attacking the way a different culture has come to govern itself.[30]

How could we blame and find at fault any individual or entity for trying to balance what it deems the most appropriate combination of self- and collective-actions? Moreover, we remain at the whim of those with decision-making authority, especially with respect to technological complexity.

5. Conclusion

Unfortunately, justice is not always fair – there are losers. But justice is about process, integrity, and identity. The case of trying to centrally store nuclear waste in the U.S. has prematurely set us against one another and made old wounds deeper; it should illustrate to U.S. citizens that we do live in a discriminatory system. We try to limit what others can and cannot do in a land of freedom as a function of who they are rather than respecting them for who they are, recognizing their rights, and living with choices we may not prefer. Nuclear waste is a poison other countries have learned to negotiate, even if imperfectly. In the United States, the poison of our limited openness, cultural biases, and imperialist attitudes still appear to outweigh the threat of the radioactive harm we fear so much.

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Notes

1. Winner, 1977.
2. Ibid., 284-285.
3. Sachs, 1996.
4. Skull Valley Goshute Tribal Executive Office, 1995.
5. Sitkowski, 1995.
6. Tribal representatives explain that they have always had ‘sovereignty’, thus we qualify this statement as to the point from which the U.S. government recognized that officially.
7. Wood, 1995.
8. Ibid.
9. Ibid.

10. Ibid.
11. Flanders, 1998.
12. LaDuke, 1999.
13. Silvern, 2002.
14. Wood, 1995.
15. Sitkowski, 1995.
16. Williams, 1992.
17. Sitkowski, 1995.
18. Ibid.
19. Bays and Fouberg, 2002.
20. Mason, 2002.
21. O'Brien, 1993.
22. DuBey et al., 1998.
23. Sitkowski, 1995.
24. Deloria and Lytle, 1998.
25. Hauptman, 1992.
26. Suagee and Lowndes, 1999.
27. Brook, 1998; Kuletz, 1998.
28. Quintana, 2002.
29. Skull Valley Goshute Tribal Executive Office, 1995, 67.
30. Gerrard, 1994, 137.

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Views from a Producer Town: Public Perceptions, Technology and the Distribution of Environmental Risk

Achim Schlüter

1. Introduction

This chapter analyses the development of the perception of environmental risks of a community proximate to a major petrochemical complex for several generations. The focus here is not about *modern*, mega-hazard risks that involve real uncertainty and are often global in scale, such as in risks associated with genetic engineering, biotechnology or nuclear energy. The focus on risk here are those familiar to the people we observe and related to the perceived safety or hazards associated with technological change. Nonetheless, a substantial uncertainty about them remains. People have been exposed to this sort of modern risk and have experienced them in the form of explosions as an example. Perceptions of these risks have changed considerably over the years. Here, I analyse this change in relation to the perception of other, newly emerging, modern environmental risks.

The contribution is based on a comparative ethnographic study looking at two 'producer' towns, Grangemouth in Scotland – known mainly for its BP petrochemical complex, but also host of many other chemical companies – and Ludwigshafen in Germany – hometown of BASF. It focuses on the Scottish part of the study.[1] Primary attention is given to one important subgroup in the analysis – the residents of Grangemouth.

First, some historical background information is especially valuable to understand the people's relation to technology and industry in Grangemouth. I focus on the environmental risks observed in Grangemouth to discuss people's perceptions as to how these have changed over time. I highlight the role many ascribe to technological change in that process. This view is then broadened, to compare views about other, modern environmental risks – particularly biotechnology – also present in the town. Interestingly, significant opposition exists against environmental risks associated with petrochemicals, but the same population appears to have far fewer reservations about other environmental risks.

2. Setting the Scene: Experiences with Technology

Grangemouth was built in 1768 as a port town at the end of the Forth and Clyde canal in Scotland. Despite its short history, a clearly identified pride exists in Grangemouth. Via its collective identity, Grangemouth also tends to distance itself to a certain extent from the other places around it. To be a Portonian – a person born and bred in Grangemouth – has traditionally been a source of pride.[2] This pride developed around technological inventions and technological leadership. Very shortly after its establishment, Grangemouth left behind the once-bigger port of Bo'ness. This began the community rivalry, in which the people of Grangemouth have considered themselves to be ahead for some time. Exemplary of this relationship between collective identity and inter-community rivalry, people in Grangemouth express strong pride and ownership over the first built steamboat – the 'Charlotte Dundas':

> "… the first ocean going steamer came out of Grangemouth. The canal was built from here to Glasgow. Not the other way around because we had the docks and we wanted to link up with Glasgow." (Bill,[3] resident)

As the second largest port in Scotland, considerable wood-yards, ship-building, soap-works and other industries, historically characterised the thriving economy of Grangemouth. However, with containers introduced into the shipping industry – a logistic and technological revolution – the port has completely lost its economic importance as an employer in Grangemouth.[4]

The subsequent reinvention of Grangemouth, which determined the relation of the residents to technological risks for a long time, was the arrival of the chemical, and later the petrochemical industries. In 1919 ICI started its dye production in Grangemouth and in 1924 Scottish Oils opened the first refinery in Grangemouth. The commercial growth in Grangemouth occurred after World War II, when North-sea oil was discovered and the refinery was expanded. The expansion of the petrochemical industry converted Grangemouth completely and it became known as a boom town;[5] "… some people called Grangemouth the sort of Kuwait of the central part of Scotland. Because it had this huge amount of oil money" (Henry, Council officer).[6] As a result, modern technological development brought incredible wealth to the community. It became popular to move to Grangemouth and houses could not be built quickly enough to absorb the Glasgow overspill and others.

During its short life Grangemouth has experienced a lot of growth and declines of various industries. Traditionally, the industries translated into a lot of wealth for the population at the beginning of their lifecycles; similarly, the decline cycles have hit hard, but have usually been offset by the arrival of another industry or other technological invention.

3. Environmental Risks within the Petrochemical Industry

> In the process of reaching that objective [reducing emissions and environmental effects] we've learned a great deal. We can now measure our emissions with much more precision than we could five years ago. … And we've learned a great deal about the potential to resolve the challenge of climate change through technology. Behind much of this is the fact that over the last three years we've merged with two great American companies, … That has given us access to great American technology – to what someone called the American genius – the ability to find answers to any challenge with the help of technology.[7]

The BP chief executive quoted above paints a positive picture about the development of certain environmental risks over the past few years, referring to the whole BP group, not only Grangemouth. He attributes an extremely positive role to technology in reducing environmental risks associated with the petrochemical industry. In this context, we present views from the people living closest to such a petrochemical complex as to how they think about the development of environmental risks over the past few years and how this relates to technological change

When people spoke about the *environmental* effects of the industry, they differentiated between safety, environmental, and health impacts, although they sometimes mentioned all of these in one breath. For example, a local politician speaking about the concerns of the residents following the redundancies of a third of the BP's workforce said: "They are concerned about safety, about the health and about the environment we're living in because it is not a clean town" (Stuart). From the point of view of the residents, safety of residents in the community is *the* most important 'environmental risk' associated with the petrochemical industry, even if most of the people would neither call it environmental nor a risk.[8]

> "Yes because if that goes [blows] up, half of Scotland will go with it! No that is more important – the safety of the people than the environment – the cleaner, the cleanliness of the environment." (Margaret, resident)

Environmental risks in the form of pollution of the elements are often not perceived to be a crucial risk. A person working but not living in Grangemouth told us in relation to the concerns of the population:

> "… but I mean the safety, but there was no mention of the environmental impact. And the healths of the environmental impact, it's safety from the point of view it being blown up. Not safety from the point of view, what might be air borne in the environment, what might be happening to water. You know what it might do upon your health. It's you know and that would be very much borne out by what I believe to be the case is, if there is any concern it's about 'Oh lets hope it's not blowing up'." (Mary, working in Grangemouth)

A Councillor reporting about the topics brought up in his surgery confirmed this impression:

> "Safety overwhelmingly. Every incident that I have had people complaining and as I say they go back 20 years now although certainly the vast majority have been in the latter part of the period are relating to safety, I can't think of anybody who has ever really brought concerns regarding the environment other than what would happen to the environment if it blew up!" (Charlie, local politician)[9]

Much like this teenage resident expressed, pollution affecting the environment is often believed to be blown away with the wind over the Firth of Forth:

> "You don't normally see the clouds coming over from the BP it is normally going the other way … Other countries get affected by hazards such as acid rain and that. In England they must be getting some pollution from us." (Lewis, resident)

Those interviewed showed less concern regarding the pollution of nature versus the perceived effects of potential human health risks in relation to the industry. It would be inaccurate to say that the effect industry has on long term health is a major concern; however, it is also an issue which rarely gets debated in the public domain as much as safety concerns. These quotes from residents illustrate ongoing factors of mistrust and uncertainty.

> "They hand out sort of statements er, you know, its not injurious to your health but they just need to ask anyone in the area who has chronic emphysema what happens when these flares start venting off." (Lorna, resident)

> "I er developed er breast cancer just 2 years ago and when I went up to that infirmary the people from Bo'ness and Grangemouth in that infirmary being treated and people G from next door, his wife, myself, a lady across the road, a friend up there. And we've all you know been unfortunate … Now there's something. That is a, that's big." (Nancy, resident)

Most respondents did not begin the interviews by discussing and focusing on their health and usually did not raise the issues if they were not directly asked about. One of the key actors was visited and seen about 20 times before he explained how he and his wife took photos of the exceptionally smoking chimney, because they were asking themselves to what extent the pollution of the industry could be related to his wife's cancer. When I first met this person, he shared his perspective that the health effects of the industry could not be so bad as indicated by all the green plants in Grangemouth doing very well.

Burningham and Tush found in their analysis of communities living close to major industrial sites that they usually focused more on local environmental concerns rather than global environmental problems.[10] The latter were certainly not much of a focus for Grangemouth residents and were hardly mentioned when asked about the 'environmental problems of today'. Given this trend, I argue that it is useful to differentiate between environmental problems in relation to nature or the ecology and the local environment in a much broader sense, embracing not only pollution affecting health, but also litter or even the social environment. Local environmental problems in relation to nature appear low on the agenda of most Grangemouth residents. Ecologically, the predominant local concern in Grangemouth could be the mudflats – a

place classified as being of special scientific interest because of its biodiversity. The mudflats have suffered substantially in the past due to the chemical-based industries. However, none of the residents ever mentioned the mudflats as a concern in their interviews. Only once in a community council discussion about a proposed chemical storage facility in the docks did residents raise concerns about the potential negative effect on the mudflats. Other than that, the only actors mentioning the mudflats were environmental activists and people from BP themselves, because BP has invested in cleaning up the mudflats over the past few years.

4. Development of Environmental Risks over Time

Grangemouth never experienced major environmental disasters like those at the Flixborough or Bhopal plants, which many people in Grangemouth remember. Nevertheless, the history of local incidents over the last 80 years has been quite considerable.[11] However, the high exposure to those risks in the past is often not acknowledged. It is even often rather heroically recalled when people speak about the different colours of the collars at the Saturday night dance 30 years ago, indicative of the dyes in different worksheds. Regarding safety risks, residents tell similar stories:

> "Well I mean the ICI started off as Scottish Dyes and I mean two years after production there were all sorts of explosions and things, and I mean so, but er, none of them were really terribly bad, you know. One famous occasion an old friend of mine, she was coming out of the baker's shop in the old town carrying the rolls and the milk and the bread, she was working in the hotel just across the road, and she just come out of the thing and she saw before she heard it, the first explosion from the dye works and she dropped all the stuff and it was, you know, the glass broke and everything got ruined and it cost her a whole week's pay. ... Then about, maybe about nine years later there was another big explosion and they thought it was a flying saucer … one of the vats in the ICI exploded and the whole top of it which was bigger than this (showing the size of the ceiling of the roof) flew in the air." (Bob, resident)

The rather constant flaring of gas and smell of the past is sometimes mentioned but never became a major topic. One of the few

persons recalling the change which had taken place over the years was a manager who had been working in Grangemouth for a long time:

> "… we are almost victims of our own success as far as the air quality is concerned because when I started here flares were flares and they were smoky and they were smoky every day because that is what a flare does so people were used to seeing a smoky flare so that was the norm. We have worked so hard to get a clean environment around about here that when you do get a smoky flare it is an exception and people say, what is happening here? And you can't say, there is no argument, you can't say 'you should remember the bad old days'." (Mathew, manager)

Many people interviewed did not recall those days and the associated environmental risks local residents may have been exposed to. However, it is not solely the awareness towards those environmental risks determining local behaviour. Various respondents stated that some years ago nobody in the community would have raised a voice against any of the major industries in Grangemouth. It was essentially a silent cartel of those who profited. Those who tried to criticise got beaten down by the unions and by the community itself, as this local politician indicates:

> "Harry Ewing [the former Member of Parliament for the region] in eighty six got a hammering for complaining about the fact that clearly on the plant things were not being managed right but what he, what he touched on in a sense is he touched on a raw nerve of the people." (Alistair, local politician)

As noted before, people in Grangemouth have become extremely concerned about the safety of the plant and are starting to voice their complaints. Many remain reluctant to do so openly, but more and more people are starting to criticise the companies in relation to the environmental risks and safety hazards to which they expose the population. A series of three safety incidents within two weeks in the year 2000 resulted in the highest fine ever enforced by the Health and Safety Executive (HSE) on an individual company.[12] The effects of the explosions were visible in the community (no resident got killed). Similar incidents had happened before (in 1987 there was a series of incidents of a comparable magnitude), but did not lead to much public concern.

The following article in the regional paper about the three incidents, illustrates the conflict of interests between the part of the community, which still has a stake in the industry and keeps up the old unblameable image of it and the other part of the community which now understands the industry as a threat and a nuisance.

> COMMUNITY DIVIDED OVER SPATE OF INCIDENTS: Opinion in Grangemouth is divided over what should happen in the wake of a string of incidents at the giant BP petro-chemical complex. LOCAL opinion on BP's high profile catalogue of incidents has been split into two opposing camps. In one corner, politicians, residents and workers' unions have slammed the firm for continuing mistakes. In the other, BP workers and a number of councillors have appealed for 'scaremongerers' to stop whipping up concern. Several workers at BP are said to be ready to 'lynch' Falkirk East MP Michael Connarty for his strong stance. But the unrepentant MP is standing by his comments.[13]

Obviously there exist a wide variety of opinions among the residents about the local exposure to environmental risks. The following opinion expresses the 'old' end of the changing spectrum:

> "And the slight problems to them are catastrophic to some people but if I wake up and BP is still there there's, there's maybe been a bang or something like that, as long as there has nobody been hurt or as long as just metal is twisted, I'm quite happy. When houses are being demolished because of the blast, that's when you start worrying." (Bill, resident)

But nevertheless, it is also evident that safety risks are becoming more and more of a local concern for a lot of residents. Statements range from enthusiastic condemnation to rather silent worrying.

> "We are sitting on a time bomb." (Lucy, resident)

> "It is very alarming for you in your house and you don't know what is happening. You are all issued with warnings with cards of what to do, like keep your

> window shut and listen to music and don't go out." (Janet, resident)

In the community the growing unease with the exposure to environmental risks emanating from the petrochemical industry manifests itself through enthusiastic fighting against all sorts of new installations planned in Grangemouth. "Dumping Ground Row Step-up" writes the local *Grangemouth Advertiser*[14] about a campaign against a Chemical Storage facility planned "right behind our Bingo Hall".[15] This anger is directed primarily toward chemical companies coming from outside. However, well-established companies are also meeting increasing opposition when they plan to augment the risk to which they expose the local population.[16] One local politician said:

> "Were you at the community council meeting when I told SEPA that, why don't you just evacuate all of the population and let BP build in our front gardens? That is how bad it is getting here." (Gordon, local politician)

5. Environmental Risks and Technological Change in Petrochemicals

Above, I described changes in the perceptions of the environmental risks associated with the petrochemical industry. What role does technology play in relation to environmental risks? Technological change is an important contributing factor in the overall plant safety. This is a view held by many residents of the town and particularly those who used to work in the industry:

> "You still need the naked eye you still need the naked eye because the computer doesn't recognise a fire, it doesn't recognise a breakdown, it has effects maybe immediately or later on. But a naked eye going around inspecting his part of the unit can look and actually hold on say I've found a tube splitting and is going to bust or something like that. He can see a level alter and a tower and that you know it's not been caught with the technology a lot of damage can get done you know." (Tony, ex-employee)

Understandably, the debate about technological change is often discussed in the same breath as reductions in employment levels. In

Grangemouth, a significant percentage of people have had to take early retirement. The debate about technological change is also often mixed with comments about changes in business practices and globalisation, which also play their part in augmenting the environmental risks.

The quote above tells us something about the trust in technology versus the trust in human beings, i.e. 'the naked eye'. However, in this local setting, are these doubts concerning technology in petrochemicals also transferred to other more modern technologies?

6. Grangemouth and Post Petrochemical Technological Risks

> Hi-tech jobs on the menu. Bio-tech plant to attract investment. UP TO 80 new hi-tech jobs could be created in Grangemouth.[17]

This was the headline in the local newspaper when the planning permission for a bio-tech research centre was announced in Grangemouth. I have observed various chemical-based planning applications discussed in the local community. Each of these created an outcry and strong opposition by the residents. In theory, I would have expected that the creation of a biotechnology centre, mainly dedicated to research and with its potential technological risks, would have also created some concerns about associated risks. However, this issue passed the local community council instantly and the high tech jobs which are going to be provided were praised. One Community Councillor remarked: "After it is built, the only noise coming from there will be when they switch the lights off in the evenings in their offices to go home."[18] Little preoccupation with these modern technological risks seems present. A representative of the community described the companies and the project with some pride:

> "Dulux paint but that's a, but they are into polymers, they're into fungicides, they are into making er false erm imitation mushrooms, they are into making all sorts of different things. Er they are setting up a science park. So if you've got a great wee gem of a bit of knowledge. Of er you know but you don't have the facilities. The science park, they will invite you into occupy some of the building, 'you want some of the stuff made, that's no problem, we are next door'." (Bill, resident)

Another company located in Grangemouth – a leading producer of agrochemicals – is heavily engaged in genetically modified

engineering, not at its Grangemouth plant, but within the company as a whole. However, residents have never questioned the company's community relations officer in regard to this subject (Lorraine, manager). In the interviews I asked about today's risks, technological progress and well-being. Concerns about genetic engineering and genetic modification were only raised once by a resident. Telephone masts for mobile phones, as a modern environmental risk, where there are uncertainties about the effects on humans and which create a considerable concern in the whole council area, so beyond Grangemouth, did not emerge in a single interview. Nevertheless, when applications of telephone masts where discussed for the local area at a community meeting some concerns were raised and it was obvious that there is an increasing awareness – even if some members tried to allay some concerns. Telephone masts exemplify a potential environmental risk which gives no potential benefit (apart from the site owner) to the particular community that it is placed in, but it serves a much broader area that may result in a unified opposition.

Douglas and Wildavsky claim that, "in the amazingly short space of fifteen to twenty years, confidence about the physical world has turned into doubt. Once the source of safety, science and technology have become the source of risk".[19] Thinking about the attitude of people of Grangemouth, responses related to biotechnology compared to safety hazards related to chemical handling and processing from this case study indicate an inconsistency with Douglas and Wildavsky's assertion. Grangemouth did not become a 'border town' which is scared about all sorts of technological innovations; instead, some indicators show the opposite effect of life in Grangemouth. New technologies are seen as an opportunity to diversify the town's economy relying on petrochemicals. Clearly, a change in perception, similar to Douglas and Wildavsky's description, occurred in relation to the petrochemical industry. I address this question in the last section.

7. Discussion

A. Context Embeddedness of Environmental Risks and Technology

Various studies underline how important the local context is when studying the understanding of risks.[20] It is information about the place and various other aspects of the life of the community which, if combined, deliver an understanding of the perception of risks. This picture is not static. It is rather a dynamic process in which the community learns. Through experiences and discussions, environmental risk perceptions emerge and take shape.[21] According to Beck,[22] societies that are

trespassing to the risk society move away from bargaining about the distribution of wealth to the conflict about the distribution of risk. Following the experience in Grangemouth, we have seen that bargaining about environmental risks has become more important over the years. However, it would be wrong to understand this as a move away from the importance of the wealth distribution debate. Furthermore, the discussion about the distribution of risks is not understandable without the discussion about the distribution of wealth and vice versa. It is an overall 'contract' between the industries and the community, which is well followed and evaluated from time to time, to see if it is still a positive equation for the community. In this equation numerous variables enter into the picture. First, the main positive contribution by the companies is definitely the provision of jobs. However, this relative benefit has deteriorated considerably over the years:

> "There used to be advantages, I don't know so much about now, but years ago if you come to Grangemouth, and I came to Grangemouth from outside, right, if you came to Grangemouth there was a good chance you could have got a job. People came from all over this district to get a job at BP or BHC or ICI, … So that's scored off, you used to get an advantage that is out the window." (Charles, resident)

The amount of people employed within the industry has reduced considerably. BP alone will have reduced its employees from about 5,000 to 1,400 people after they have finished with their last round of redundancies.[23] If you consider that it is argued that each person employed at BP creates another 4 to 6 other jobs and that the other chemical companies have reduced and continue to reduce their workforce,[24] it becomes apparent as to the magnitude by which this asset has reduced. Additionally, it is often mentioned that nowadays most of the workforce no longer lives in Grangemouth, but can afford to live further away with little disturbance felt by the industry operating locally.

Until local government reorganisation Grangemouth used to be a borough in its own rights, and received huge industrial rates which provided Grangemouth with tremendous facilities. But since then nothing more has happened, at least in many people's perceptions.

Even if the size of the workforce has reduced considerably, the complex has expanded over the years and moved closer to the residents. Due to environmental legislation, the flaring that sometimes occurs has to be done with a lot of steam which cleans the gas being burnt. The side

effect is a loud noise when the steam is pressed through the 150 m high flare stack.

> "We don't have the quality of life in Grangemouth that we deserve; the quality of life is down in Grangemouth. I mean up here, you don't hear the flaring when you're up in Falkirk you don't see any smoke. I mean you can go in the Zetland park [in Grangemouth] at night and you can get a newspaper and read it at two o'clock in the morning it's that light with the flares going on and you don't need an alarm clock because it's kept you awake all night. I mean that's me being a bit humorous but it's not, it's normally, it's a very serious argument in Grangemouth." (Stuart, local politician)

B. Old Technology, Environmental Risks and the Future of the Town

One of the worst effects of the petrochemical complex – closely linked with the safety of the facilities – is the perceived development blockade. This is due to the hazards stored and processed within the different companies. The legislation introduced mainly after the Flixborough disaster in 1974 led to the fact that the HSE now advises against all developments which bring more people within the proximity of major hazards. Therefore, various developments which the people wanted to come to Grangemouth were not supported by the HSE: A do-it-yourself shop, various supermarkets and other applications. A supermarket would be especially desired, for example, because apart from the new shopping facilities it would bring jobs into the town which the people seem to need. Some residents would like call centres, but only other hazards are allowed into a hazardous zone or activities like warehousing which do not create many jobs.

Throughout the rise and decline of various industries the people of Grangemouth have seen how new technologies can overcome the crisis of old industries (decline of the docks was offset by the arriving chemicals, and later through containerisation the port became successful again). However, this time a lot of people perceive that Grangemouth is trapped in an unsafe and dying industry and has its new purpose reflected in this headline from the local Advertiser: "Residents fear town has been given new role: *Danger Dump*."[25]

The rejection of a supermarket development by the HSE – the HSE is a so called 'statutory consultee', therefore has the right to advice in favour or to object against certain planning applications – in the dock area

close to the town centre was a cornerstone for the people's understanding of feeling trapped in the environmental risks of the petrochemical industry. Before the HSE had issued its recommendation against this development, the community council convener commented that, "If the Health and Safety Executive turns this applications down, we will go to Tony Blair direct."[26] The community council launched a petition in which they express the perceived injustice and the lack of development opportunities for the town centre.

C. Environmental Risks, Technology and Distribution

Beck argued in *Risk Society* that modern environmental risks are 'egalitarian'. "Nitrates in the ground water do not stop at the general director's water tap."[27] Baxter et al. found out in their study that this hypothesis does not seem to hold when it comes to modern local risks.[28] Additionally, Beck sees a reduction in the distributive effects of modern environmental risks, but for Germany also a reduction in the frequency of people framing problems in this distributive perspective, especially in the conflicts between capital and labour.[29] Neither argument seems to hold for Grangemouth. The discussion about environmental risks from the petrochemical complex is often framed as a distributive bargaining conflict between Grangemouth and the others.

> "Chemical industries in Grangemouth are a national asset but a local cross to bear." (Minutes of a council workshop about the reformulation of the local plan)

It is often framed as a conflict between the residents and the regulatory bodies: *Who has the right to determine what happens in Grangemouth?* This was especially apparent when – because of lobbying by the industry – the Scottish Executive introduced into the structural plan for the dock area of Grangemouth that any development needs to be 'compatible' with the development of the petrochemical industry.[30]

> "It was basically the chemical industry who submitted this as suggestions to the Scottish office who took it on board and basically the Scottish Executive has decided this is gonna be a smelly old chemical town and nothing else that is allowed unless it's compatible with these. Now that's great for the Scottish economy but it just screws up the life of the people in Grangemouth and it means that the diversity is denied them so that's your

> kind of that's relationship the people know BP has." (Alistair, local politician)

As mentioned above, when people speak about technological development and how it affected Grangemouth, they often mention technological change, globalisation, and capitalist pressure all in one breath. At least in a traditional worker town in the central belt in Scotland the perceived conflicts between labour and capital do not seem to be overcome.

> "Do you understand what it's [BP and its decline] done to the hearts, minds and souls of the people of Grangemouth although they are very uptight about all this environmental problems and noise and that they still don't want to see their town a ghost town. Now I hate to repeat myself but because we have to suffer indignity of having these big multinationals on our doorstep what the people of Grangemouth and what I feel is we brought this in. I feel like it was one of the like one of the old John Wayne movies you remember the Indian wagons used to go in a circle but then you chase around about them. Well Grangemouth is like that we're surrounded but it's not Indians it's the multinationals." (Stuart, local politician)

It is the distributive bargain about a social contract that has altered due to technological change between the companies and the residents. The residents perceive themselves to be the losers.[31]

> "What's Grangemouth, a dump. Because nothing can change it. We've been stuck with a petrochemical complex and there is no room for diversification." (Harry, resident)

> "Grangemouth used to be a boom town and, I am not going to say it's a bum, but it is getting close." (Charles, resident)

D. Environmental Risks, Technology and Trade-offs

Beck argues that the way of rational calculus of risks – which, for example, transfers them into monetary figures used by insurance companies –has made the 'incalculable calculable' and has dehumanised our way of dealing with those risks.[32] But this kind of calculus – without using exact figures – is applied regularly. After a public meeting against the mentioned chemical storage facility, one member of the community explained that he would not mind having this facility here so much if the company were willing to plough something back into the community. His suggestion was that they could finance a tennis court or something similar. An analogous argument was made after a Liaison Group meeting where the company revealed that they wanted to lease some grounds out for a chemical recycling plant. The man argued that he obviously did not like those developments, but he kept his mouth shut because places like Grangemouth don't seem to be able to attract many things other than chemicals and the community definitely needs the jobs. Goldman shows quite clearly in his article how siting issues are usually easier dealt with – from the point of view of the company – in places where there is a huge need for jobs.[33] All this demonstrates to what extent the argumentation about risk and wealth is interwoven and it can't be seen as a clear move towards the predomination of conflicts about risk distributions on their own, but it obviously depends on the specific situation of the community.[34] Grangemouth seems to be especially interesting, because in this case the trade-off between wealth and risk that is usually assumed is not given. Instead, increased environmental risks from petrochemicals mean less wealth for the community. This equation seems to be perceived differently when it comes to other modern technological risks like biotechnology where the potential 'contract' is expected to be better. It is a difficult process of bargaining, bound to the specific local situation.

> "Well you have been to a few meetings that I have attended in the last week and you will know that I believe that people need employment, quality employment, it is a *fine line* between environmental quality and industry, there is always going to be a tension there, an interface. People need the employment to live and have quality of life and I believe people should work. It is finding the right balance and it is finding the companies who have a responsibility to that balance and it is also having the strength as a local authority to make sure these companies don't take the

> easy route but take the best route, which suits both their employees and the community in which they operate in." (Edward, local politician)

It is a difficult bargain and hard balance between old and new environmental risks and wealth creation for the economy. I got the following response from an important local figure who, on the one hand, is not afraid of criticising the petrochemical industry, but on the other hand, clearly supports certain developments. His response shows that the issue is about a balance and that the change in perception associated with the petrochemical industry has little to do with a general phobia against modern technological risks:

> "The examples I publicly supported were innovations like the development of Amistar (now the world leading bio-degradable fungicide) or the deal with a Japanese partner in solvent production for colour printer dyes at Syngenta, or the new DNA-based cancer drug production at Avecia, etc. etc.
>
> I continue to see benefits that can flow from similar developments and the concept of a chemical growth centre, but I concede the lack of direct benefit to the local non-shareholding stakeholders has reduced the potential for local community approval for these strategies."

8. Conclusions

> "So all I am going to say is this, I will do everything in my power, I am born and bred in Grangemouth, I am a Portonian, my sons and daughters, my grandchildren are all born and bred in Grangemouth and I hope that my great grandchildren are born in Grangemouth and I want them to have an environment and a town that they can be proud of because I was proud of my town at one time, I am not proud of it now, the big industries have taken over my town and I will certainly oppose it, I will weigh up the pros and cons of the unemployment against what they are doing to the town, no they are not comparable now, I say as far as I am concerned they should move them all out of here, we were all here before BP, the people." (Gordon, local politician)

This quote of a local politician of Grangemouth summarizes a main theme to this community situation. The people of Grangemouth used to have or still have a huge pride in their community, despite the environmental risks associated with the technology that put Grangemouth on the map. In former times, the people derived benefits in exchange for being exposed to those risks, in the form of jobs and amenities. These benefits have diminished considerably. The case of Grangemouth clearly shows how the perception of technological risk is embedded in an overall context. It is not adequate to look at environmental risks related to the particular industry in isolation. As the benefits have reduced, the people of Grangemouth have become more aware and tend to oppose the environmental risks that come about as a result of the industry. This does not seem to be generalised to all technological and environmental risks, but as long as a positive contribution to the community's economy can be seen, the people do not appear risk averse, but open to new technologies as another chance.

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Notes

1. Purposefully, to reach a double de-familiarisation, a British researcher was sent to Germany and a German – me – was sent to do the Scottish study. My ethnographic study consisted of 84 schedule based interviews, participant observations of community meetings from September 2001 to June 2003, document analysis of newspapers, industry and state agency publications and many informal talks with community members. The entire data was analysed with the help of Nud*ist. See Bell and Schlüter, 2003 for more details.
2. Hendrie, 1996, 67.
3. The used names are fictive.

4. Hendrie, 1996, 81. A good presentation of Grangemouth's industrial history can be found in Porteous, 1994, 123-175.
5. Hendrie, 2002, 8.
6. See Muttitt and James, 2002, 138 for the huge importance of the oil and of Grangemouth for the Scottish Economy.
7. Speech by John Browne, Group Chief Executive, BP Hosted by Stanford Graduate School of Business, March 11 2002.
8. Experts tend to use the word 'risk' more, while lay people tend to speak with more tangible terms like 'safety' and 'hazards'. But obviously a communication between experts and laypersons takes place, and they adopt each other's language. It seems to become more and more in fashion, that not only the experts make their 'risk assessment' here and there, but also laypersons in the communities starts to use the word more and more often.
9. I am well aware of the possible trap of using computer aided qualitative data analysis to try to quantify qualitative data (Barry, 1998, 2.1), but nevertheless it can be seen as a certain indicator that the 'safety' of the plant is a far greater concern than the environment or the pollution when you consider the amount of text units coded under the corresponding nodes, when the people were asked about the concerns in relation to Grangemouth. Just looking to the interviews 2927 text units were coded in relation to safety issues, only 1629 text units were coded at either the node environment or pollution.
10. Burningham and Thush, 2001.
11. See Muttit and James 2002, 141 for an incomplete but nevertheless impressive collection of incidents.
12. The Scotsman, 19.1.02.
13. Falkirk Herald (in the following FH), 15.6.00. In Ludwigshafen it still does not seem to be possible to criticise BASF publicly as a politician, if you want to have a future within the town, no matter where you stand on the political spectrum. We made similar experiences in Teeside in a previous study (Phillimore and Moffatt, 1999).
14. Grangemouth Advertiser (in the following GA), 1.5.02, 1.
15. Quoted from notes made at a public meeting against Simon Storage, said by a woman introducing herself as "just an ordinary housewife" (see GA, 6.2.02, 5).
16. See Schlüter et al., 2002 for an analysis of the differences between insider and outsider companies.
17. FH, 28.3.02.
18. Quoted from fieldnotes.
19. Douglas and Wildavsky, 1982, 10.
20. Baxter, et al., 1999; Irwin, et al., 1999.

21. Macgill, 1989, 56.
22. Beck, 1986, 26.
23. Sunday Herald, 25.05.03, 'Grangemouth boss puts "greed before safety"'.
24. FH, 20.12.02.
25. GA, 17.4.02, 1.
26. GA, 25.9.02, 5.
27. See Beck, 1986, 48ff; Beck, 1992, 109.
28. Baxter et al., 1999.
29. Beck, 1986, 121.
30. GA, 7.11.01, 1.
31. See Schlüter et al., 2002 for an extended debate about the perceived deterioration of the 'social contract' and the feeling of being the losers.
32. Beck, 1992, 100.
33. Goldman, 2000, 546.
34. Marshall, 1999.

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GM Scientists and the Politics of the Risk Society

Peter T. Robbins, Elisa Pieri and Guy Cook

1. Introduction

Expert knowledge is centrally important in modern industrialised societies. Nowhere is this more evident than in science and technology. The technological products of modernity have produced innumerable benefits as well as unforeseen risks. People are living longer, healthier lives, but there is also a pervasive sense of threat. In the United Kingdom, this dynamic is apparent in food safety. Since the 1980s, there have been a number of 'food scares' including those linked to salmonella, listeria, *E Coli*, and 'mad cow disease'. In recent years, anxiety has centred on genetically modified (GM) foods and crops.[1] Government responses have generally focused on food quality, safety and hygiene[2] with the expressed aim of restoring public confidence.[3] Studies have suggested, however, that in the wake of the 'mad cow' and other crises, publics[4] are increasingly unconvinced by such governmental assurances.[5] Moreover, with GM technology, the increasingly heated debate over food has addressed scientific concerns with safety and calculation of risk, in light of contextual issues including ethics, politics, and economic power. Correspondingly, the language and rhetoric of the debate has increasingly drawn upon styles and techniques beyond those of the factual report and evaluation of evidence.

At least three relevant perspectives have emerged in the continuing public debate: (1) Government officials and GM scientists argue that GM crop technology is based on 'sound science' and consequently safe for both human health and the environment. (2) Environmental pressure groups and some members of the public contest these scientific judgements, raise ethical concerns about the relation between human activity and nature, and express political concerns about commercially-motivated research and government decision making. And (3) meanwhile, the media characterise both scientific reassurances and public anxiety in extreme terms.

2. The Great GM Food Debate

In early 1999, a period of intense media interest in GM took place, which came to be known as 'The Great GM Food Debate'. It was sparked by a letter in *The Guardian* signed by 22 scientists in support of Arpad Pusztai, a researcher who had found that rats developed cell damage in their stomachs, immune system defects and stunted growth

after having eaten GM potatoes for a time period corresponding to ten years of human life.[6] In February, *The Guardian* ran a series entitled "What's Wrong with our Food?" and phrases such as "Frankenstein Foods" and "Mutant Crops" became commonplace in describing GM food products.[7] Some of the factors contributing to the heated nature of the exchanges included:

- the erosion of public confidence in the British food industry following the crisis over 'mad cow disease' in 1996,
- the importation of unsegregated soya and maize in 1999, and
- the establishment of a coalition of GM critics including Friends of the Earth, the Soil Association, the Vegetarian Society, and public figures such as the Prince of Wales.[8]

The debate remained in the news in subsequent years following a successful campaign spearheaded by the group Five Year Freeze advocating a moratorium on commercialisation of GM crops and further safety testing.

3. University GM Crop Scientists

It was in the context of the ongoing dispute over GM technology that we set out to investigate the debate within one representative social institution: the university. The project aimed to uncover how GM crop scientists at a British university[9] presented their research to non-specialists, and how their linguistic and rhetorical choice varied with the purpose of the communication and with their perceptions of audience knowledge and views, and how these choices persuaded or antagonised receivers. The research took place between November 2001 and November 2002. In it, we completed nineteen in-depth interviews with scientists, thirteen with non-experts, and seven with outside commentators.

The study relates ways of conceptualising risk to the different strategies used to represent it. Risk analysis in the social sciences has long viewed risk perception as a subjective and social process.[10] It argues that risks are socially constructed; their collective meanings are shaped by the various storylines disseminated by competing institutional actors,[11] and food scares have been specifically invoked as examples of this process.[12] People's responses to the risk statements of scientists and government officials are seen as reflexive and embedded in social practices, for

example lifestyle choices that preclude eating certain types of food.[13] This highlights the difference between scientific calculations of risk in objective terms as probabilities, and actual human perception of risk as a factor in daily life.

4. Framework and Methodology

The research strategy combined a sociological approach to the content and context of the scientific arguments, with a discourse and linguistic analysis of the wording. On the sociological side, the method employed provides for the examination of discourse using frame analysis.[14] This combines an analysis of the semantics of texts with an analysis of the contextual factors, such as the discursive strategies of scientists. The duality of this type of discourse analysis allows the research to relate oral and textual representation of social reality to the social processes generating them.[15] This is enhanced by the use of rhetorical analysis, which has a long tradition of examining persuasion in scientific discourses, including specialist and non-specialist genres.[16] The transcripts of interviews were analysed using a version of the constant comparative method.[17] In this approach, coding paradigms developed before data collection begins are enhanced or rejected through a process of comparing analytical 'dimensions' that emerge through the process of integrated data collection and analysis. This forms the basis for the outcome of the research, which is an empirically grounded theory.[18]

On the linguistics side, the project draws upon three approaches, applied linguistics discourse analysis,[19] critical discourse analysis,[20] and corpus analysis of texts.[21] The central tenet of applied linguistics discourse analysis and critical discourse analysis is that the coherence and meaning of a text cannot be analysed or accounted for separately from the situational and cultural context of its production and reading and its paralinguistic features. Our aim was, in using techniques developed in corpus analysis of text, to relate linguistic choices in our data to these factors. These linguistic based approaches, therefore, fit well with, and indeed already make use of, the sociological methodology outlined above. From critical discourse analysis, we borrowed techniques for relating textual choice to overt ideology, using our sociological data to assess the effects of such choices.

5. The Politics of the Risk Society

Ulrich Beck's theory of the risk society informs our analysis of the ways in which GM as a controversial technology comes to be

contested by experts and non-experts in the public sphere. Beck's thesis is that life in western, industrialised societies has taken a radical shift since the 1980s, which has profoundly altered the ways in which people relate to one another. The shift is the constant threat of environmental catastrophes and health problems that ironically arise out of technological progress, such as global warming, the thinning of the ozone layer and genetically modified foods.[22]

An important feature of the risk society is the way in which the past monopoly of the sciences on rationality has been broken. Paradoxically, science becomes "more and more necessary, but at the same time less and less sufficient for the socially binding definition of truth".[23] Beck contrasts the rigid "scientific rationality", which is rooted in a critique of backwardness with a new "social rationality", which is rooted in a critique of progress. Under pressure from an increasingly edgy public, new forms of "alternative" and "advocacy" science come into being and force an internal critique. This "scientisation of protest against science" produces a fresh variety of new public oriented scientific experts who pioneer new fields of activity and application, such as conservation biology.[24]

In similar fashion, monopolies on political action are said to be coming apart, thus opening up political decision-making to the process of collective action. One example of this is the entry of the Greens into parliamentary politics in Germany in the late 1980s. The dynamic of reflexive modernization leads to greater individualisation. Unbound from the structures of traditional, pre-modern societies, the new urban citizens of the industrial revolution were supposed to reach new levels of creativity and self-actualisation. However, this did not happen, largely because a new constraint, the culture of scientism, invaded every part of the lives of its citizens, from risk construction to sexual behaviour. Now, Beck argues, there is a chance for the individual to break free once again and choose lifestyles, subcultures, social ties and identities. Yet, ironically, just as this individualised private existence finally becomes possible, people are confronted with risk conflicts, which by their origin and design resist individual treatment.[25] Examples of this are the genetic manipulation of plants and animals, the greenhouse effect and the thinning of the ozone layer. Thus, "reflexive scientisation" in which scientific decision-making, especially that related to risk, is opened up to social rationality becomes important to reclaim individual autonomy. According to Beck,

> Only when medicine opposes medicine, nuclear physics opposes nuclear physics, human genetics opposes human genetics, or information technology opposes

> information technology can the future that is being brewed up in the test-tube become intelligible and evaluable for the outside world. Enabling self-criticism in all its forms is not some sort of danger but probably the *only way* that the mistakes that would sooner or later destroy our world be detected in advance.[26]

As Lidskog points out in his review of *Risk Society*,[27] Beck contradicts himself by arguing that the planet is in increasing peril due to an escalation of objectively certifiable global risks, and at the same time, insisting that risks are entirely socially constructed and therefore do not exist beyond our perception of them. This reflects a longstanding tension in environmental sociology between the environmental activist and the sociological analyst.[28] Beck also tends to overemphasise the need for alternative forms of scientific knowledge, however we agree that on its own, science is an insecure base upon which to explain how risks can be understood and confronted.[29] In this analysis, the main points we draw from Beck are the conflicts that occur when scientific rationality is opened up to social rationality, and the ways in which this has the potential to engender new forms of democratic decision making.

6. Corporate Drivers and Biotechnology

An additional factor to consider, which Beck does not examine in any great detail, is the role that commercial drivers play in mediating and contesting biotechnological risks.[30] Of the six major companies that now dominate the biotechnology sector, three are United States (US) owned: Monsanto, DuPont and Dow, and three are European: Bayer, BASF (German) and Syngenta (Swiss). These companies specialise either entirely in agricultural biotechnology, pesticides and seeds (Monsanto and Syngenta), or have developed specialist businesses to cover these areas (Dow AgroSciences, DuPont Agriculture and Nutrition, BASF Plant Science, Bayer Crop Science). Monsanto is the world leader in GM crop sales. In 1998, it had 88 per cent of the total market. The companies have varied histories, DuPont, Dow, BASF and Bayer are traditional, well established chemical companies, with long involvement in agrochemicals, while Monsanto had focused on discovery of herbicides, but became a leader in GM technology and grew by acquisitions. There has been a concentration of power in US agriculture concomitant with the introduction of GM. In the first five years that GM was commercially available, during the mid to late 1990s, suppliers of inputs, and numbers of seed companies went from over 400 to just five major players.[31]

In the United States, more than 70 per cent of processed food contains genetically modified ingredients. Around 80 per cent of soy and one-third of maize became GM within five years of commercialisation. In an average US supermarket, 2000 products contain maize and soy, thus most of these contain GM ingredients.[32]

In the United Kingdom, the biotechnology sector has been in decline for the last twenty years. Since 1980, the number of research and development posts in the agrochemical and biotechnology sector has decreased by over sixty per cent. The largest annual decrease was between 1999 and 2000, in the period following the Great GM Food Debate. No agrochemical company has its headquarters in the United Kingdom (UK), and there is only one major commercial centre, Syngenta in Berkshire. There has been a moratorium on commercial production of GM crops in the United Kingdom since 1999.[33] A national debate was held between June 2002 and July 2003 to aid the UK government in making a decision on commercialisation. The debate was comprised of three strands, a scientific review, an economic review and a public consultation. In early 2003, the UK Government decided to process nineteen applications for growing and importing GM crops and forward them to relevant member states and eventually the European Commission for authorisation. Critics claimed this action effectively by-passed the national debate. Margaret Beckett, the Environment Secretary asserted that many of the applications were "not new" and "already in the pipeline".[34] Sue Mayer of Genewatch UK argued "It is premature not to say outrageous, to carry on the licensing of GM crops before either the scientific evidence has been gathered or the public consulted. It makes the whole exercise seem pointless". Other members of the steering committee of the debate echoed this sentiment.[35] The government response was that it had not taken any decision about commercialisation, and that in any event, it would not know whether the applications that were submitted were successful until after the public debate had concluded. This may suggest that the government was confident that the conclusions from the debate would advocate commercialisation.

7. Public Understanding of Science

Many scientists believe that public concerns over GM food could be addressed if scientists engaged more directly with laypeople, such as through a national debate. Within the last fifteen years, scientists in the US and UK have been required by funding bodies to deal with non-expert members of the public. Scientists in the recent past had looked at the popularisation of science as something that could damage their career,

which is consistent with a culture that sees the hallmark of good science as that which is unintelligible to all but a small group of elites.

Underpinning much of the public understanding of science movement is the idea that greater public knowledge of science will lead to greater public support of the scientific endeavour as well as scientific and technological achievements. A corollary of this view is the 'deficit model' of the public understanding of science, which sees the public as blank slates or empty vessels, laypeople whose minds are in need of scientific information to be replete.[36] For example, EuroBarometer reports, which are based on the deficit model, define knowledge purely in terms of GM technicalities, and correlate lack of knowledge with negative attitudes to GMOs.[37] Other research suggests, however, that greater knowledge does not necessarily lead to greater acceptance of controversial technologies. The 1996 British Social Attitudes Survey found that, while knowledge of science had increased significantly since 1988, overall attitudes toward science had hardly changed at all.

There is some evidence that people who are more knowledgeable about science do have more positive attitudes towards it. However, there is also much empirical support for the view that greater understanding of technologies and their social implications can lead to criticism and hostility. This has been the case with nuclear energy and its associations with planned or accidental mass destruction, as well as new advances in fertility and their ethical implications. It has also been the case with genetic modification. Notably, Bucchi and Neresini[38] found that increased knowledge of techniques did not bring about acceptance of genetically modified organisms. Environmentalists often make use of science and are in conflict with the scientific establishment, which is commensurate with Beck's observations about the "scientisation of protest against science".

According to the deficit model, the scientific community is the source – and by and large the censor – of the information that is transmitted in a one-way stream to the public. The contextual approach on the other hand tries to take into account the particular circumstances of the recipients, as well as the purveyors, of the scientific information.

Our research suggests that GM scientists view lay members of the public through the lens of the deficit model, while members of the public take a more contextual approach. In the former view, scientific information is seen as distinct from politics, economics, history, and ethics. In the latter, scientists' statements are cross checked against issues such as the safety history of the British food industry, people who will benefit from GM food technology, and those who are funding the science.[39] Taken together, they become an example of the struggle Beck identified between scientific and social rationality.

8. Scientists Frame Publics

We found that many of the GM scientists interviewed framed non-experts, normally referred to as "the public", in four ways, as ignorant, irrational, gullible and intellectually vacuous.[40] While all scientists did not hold these views, they were certainly the main ways in which non-experts were portrayed. We argue that this is significant for understanding the wider GM debate, since the framings allow scientists to resist lay participation in debates and decision-making on science and technology, and to propound the view that GM can only be viewed through the scientific perspective.

Scientists frequently characterise the public as uniformly ignorant, of GM science rather than other relevant dimensions of the debate, and attribute opposition to GM to this ignorance. Their views suggest that further scientific education would mollify or eradicate opposition to GM:

> "There are relatively few people that are absolutely against [GM], no matter what. Those that are tend to be less well informed, in general, than those that have taken a more measured view." (Paul)

A key theme that emerges in scientists' narratives of the public is a dichotomy that opposes rational scientific knowledge with emotional public responses. This division is articulated using words and phrases such as "blind", "blindly", "religiously hostile", "real risks (versus) phantoms", "gut feelings", "inchoate feeling of something wrong". Decisions about the introduction of GM technology are perceived as almost entirely safety oriented, based on a rational choice model.[41] In other words, if people have enough information, they can make a 'rational choice' for GM. There is an almost exclusive focus on a cost benefit analysis based on assessable safety issues relating to health and the environment. There is no reference to unforeseen risks, bounded rationality and the need to make the best judgement in situations of imperfect knowledge,[42] although this has recently featured prominently in expressions of doubt about GM technology.[43]

> "So the more that you know, and the more information you have in particular areas, then the more rational and more quantifiable the risk becomes…so that people become more able to be rational in the areas that they are worried about, and become more relaxed in the areas

> that are really, frankly, nothing to worry about." (Paul)

The view that laypeople are intellectually weak is suggested by discussions of whether they can handle the complexity of the issues at stake.

> "You can talk in general terms about it and about the ethical implications and about whether…for instance a particular GM crop will be useful in terms of food production on a world scale. Those kinds of things you can perfectly talk to people about at length. They're perfectly capable of contributing usefully to that. But I think issues for instance about gene flow out of transgenic crops into the environment, I mean that's… quite…complicated." (John)

Scientists' view that non-experts are intellectually weak is often parodied in anecdotes relating a farcical encounter with a particularly uninformed member of the public:

> "I had a lady from a magazine ring me up about genetic manipulation and [she] said their readers were worried about this fact that they were eating DNA, and I said 'Well look, you know, OK, but we're eating DNA all the time you know'. [And she said] 'Are we? Really? We're eating DNA?' And, I mean – I can understand – I'm not criticising her at all or belittling her, but she had no idea that everything was full of DNA." (Simon)

Scientists also discredit non-experts' sources of information, and claim that people derive their opinions on GM from tabloid newspapers and other "sensationalist" press. The representation of members of the public as intellectually weak is reinforced through the idea that they are gullible and vulnerable to scaremongering by the press and NGOs:

> "A lot of this has been driven by the green pressure groups and I think they have been playing on fears of the unknown. I think that a lot of the rather sensationalist press has got a lot to do with the very anti feelings about GM in this country at the moment, because scare stories sell papers, good news doesn't." (Brian)

Discrediting publics in these ways makes it possible for many

GM scientists to ignore their concerns, or to engage with them only in a one-way process of information transfer. It also allows scientists to characterise those lacking in scientific knowledge, or who have doubts that surpass scientistic constructs, as inappropriate participants in decision-making processes about the technology.

9. Lay Publics and Agency

Many laypeople also feel a lack of agency, sensing that decisions about the technology have already been made and are beyond their control. Their views about the GM debate, again not universal, but dominant in our dataset, are focused upon actors in the debate and their trustworthiness, which is linked with the specific information they purvey. Assurances of safety, or cautions about danger, are cross checked against knowledge of those who fund the scientific research, and those who champion the scientific findings. Public views constellate around key institutional players, including the government, corporations, and NGOs.

Regarding trust, several themes emerged. Non-experts felt that an impartial group was needed to mediate between dominant institutions, scientists and the public. Driven by the memory of past food crises, government and corporations were seen as untrustworthy as well as biased sources of information about GM. This sense of mistrust was not always reduced by legislative controls:

> "Maybe the Government or somebody could give out booklets on what GM food actually is. But they probably can't do that…But yea, just – maybe not the Government – somebody – a completely non-biased group… [Interviewer: 'Does the assurance that work is conducted in accordance with the relevant legislation make you feel safe?'] No, not at all. Because, I've sort of been brought up not to trust the Government…and you imagine it's just…Tony Blair and the Americans… making the legislation." (Mick)

> "I think it's very difficult if you've got businesses sponsoring research that deliberately aim to get a specific result out of that research. I think there are some ethical issues about big companies like Monsanto, or whatever, sponsoring research on genetically modified foods…and…from a personal point of view, if I was to look at any research, I would always find out who paid

for it." (Rachel)

Some believed that research funded by corporations and disseminated by them was acceptable, as long as it was clear who was providing the information, so that they could be held accountable:

> "I personally would rather [information] come from the company. If, touch wood, something does go wrong – you hope it doesn't go wrong – you can fall back and you can say 'right, if so and so said that a food blah, blah, blah.' At least you can go to the company, and if you have to go down the lines of going to court, you can go down there and take them to court." (Tom)

Laypeople's perceptions were that an independent authority, outside politico-economic interests, was needed to make GM safety assurances. NGOs were seen as having the potential to fill that role because the need for profit did not influence them as much:

> "I suspect it comes down to providing understandable science tests that are done in this immaculate vision of an environment where no damage can be done. I think having the Monsantos of this world beating the drum is total backfire land. You need to find that independent and believable authority – and it's not our Government either. It may be Friends of the Earth or some organisation that's different … So your method of testing and your science has got to be totally clear and transparent and above board and your arbiters and testers have got to be totally believable." (Ian)

> "With NGOs, I imagine that the big ones have PR people working for them. But again, there aren't quite the same commercial concerns there, so that I would expect them to put out the information in a clear way. I would expect it not to have been spun for commercial gain." (Elizabeth)

The non-experts were not necessarily anti-GM, but most expressed concerns that the process by which GM was entering the food chain in the UK was already a *fait accompli*, and essentially undemocratic:

> "So I can see [GM] coming. I just would be desperate that it happens in a way that we all understand what we're doing, and are at ease with what's going on, and welcome it – rather than have it forced on us." (Ian)

What is clear from views of non-experts is that there is a sense of the failure of the political process to address adequately and transparently all of the contextual factors surrounding GM, and which inform the scientific question of whether it is safe. Among the scientists interviewed, there is a vague awareness that there are ethical and social objections to GM technology, but these are often portrayed as being religious or irrational in nature.[44] In private or in informal conversation, some scientists acknowledged other dimensions to the technology, but expressed an inability to address these within the realms of science. Those who say they can be addressed, if obliquely, through studies of GM safety, for example, are well aware that there are limited resources to pursue this kind of research.

10. Ways Forward: Democratising Science and Technology

Contextual factors relating to new technologies in society do not have to be left to experts; they can be addressed through a deliberative democratic process that draws legitimacy from free and open debate within the public sphere.[45] There are a number of possible ways forward. Many have called on governments to re-examine decision making on controversial technology, and consider whether there should be "a broad cultural change about relationships between technology and society". This would build democratic participation based upon a relationship between experts and non-experts, rather than an approach rooted in the top down transmission of information.[46]

There is a wide range of examples where relationships between science, technology and society have been successfully democratised. Citizens' juries of laypeople have been used fruitfully in Cambridge, Massachusetts to make decisions about new gene splicing laboratories at Harvard University. The Danish Board of Technology's consensus conferences are driven by interested lay citizens making use of scientific evidence to compile a final report, which is then cross-checked by expert panels.[47] Similarly, the GM public debate in Britain in 2002-2003 was a first step toward democratising the lay/expert divide, but the way it unfolded suggests there is still much work to be done.

11. Conclusion

The GM debate is a paradigmatic example of the struggles between scientific and social rationality that occur in societies defined by risk. Trust in institutions that traditionally ensured safety has deteriorated, and there is the sense that democratic decision making occurs only in name. Those who hold power, government officials, scientists and corporate executives, portray themselves as embattled and under siege. Powerful actors often set the rules, directly and indirectly, by which others participate. At the same time, there is a contest over meaning that occurs within the public sphere between those for and against that provides tremendous prospects for democratic decision making. New science and technologies offer vast opportunities to high modern societies, and to a certain extent define them. The answer is not to return to an idyllic past or retreat into Ludditism. Nor is it possible to leave important decisions to 'experts'. The solution is to transform participatory politics, and to encourage new ways of debating, contesting, and shaping our common future.

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Notes

1. Wynne, 2002a.
2. UK Government, 1990; 1998.
3. Shaw, 1999.
4. The use of *publics* in the plural denotes our position that the lay public is not a homogeneous and clearly defined community (Mayer, 2002; cf. Mills, 1956, 298).
5. Grove-White et al., 1997.
6. Ewen and Pusztai, 1999.
7. See the *Daily Mail* 28 January 1999 and the *Express* 18 February 1999.
8. Durant and Lindsey, 2000.
9. The name of the university and those of the scientists have been masked to protect their confidentiality.
10. Douglas and Wildavsky, 1982, 6; see also the related literature on the psychology of risk, e.g. Frewer et al., 1998 and Slovic, 2001.

11. Gabe, 1995.
12. Beck, 1992; 1995.
13. Beck et al., 1994; Macnaghten and Urry, 1998.
14. Gamson and Modigliani, 1989.
15. Eder, 1996.
16. Fahnestock, 1986.
17. Glaser and Strauss, 1967; Strauss and Corbin, 1990.
18. Kelle, 2000.
19. E.g. Brown and Yule, 1983.
20. E.g. Fairclough, 1992.
21. Stubbs, 1996.
22. Beck, 1992.
23. Beck, 1992, 156.
24. Beck, 1992, 160-163
25. Goldblatt, 1996.
26. Emphasis in original, Beck, 1992, 234.
27. Lidskog, 1993.
28. Hannigan, 1995.
29. Cf. Macnaghten and Urry, 1998.
30. See Robbins (2001) where this is examined in greater detail.
31. Prime Minister's Strategy Unit, 2003.
32. Hollingham, 2003.
33. Prime Minister's Strategy Unit, 2002.
34. The UK government confirmed that their actions conformed to EC Directive 2001/18, which introduces new requirements including a more rigorous risk assessment, post-market monitoring, mandatory public consultation and mandatory traceability and marketing (Secretary of State for Environment, Food and Rural Affairs, 2003).
35. Brown, 2003.
36. Gregory and Miller, 1998, 89-90.
37. BEPCAG, 1997; INRA, 2002.
38. Bucchi and Neresini, 2002.
39. Wynne, 2002b.
40. Cook and Pieri, 2002; Cook, Robbins and Pieri, 2003; Cook, Pieri and Robbins, forthcoming.
41. Coleman and Fararo, 1992.
42. Simon, 1957.
43. Scientists often see members of the public as demanding inappropriate assurances of 'zero risk'. Research suggests that people are willing to accept risks, as long as assessments are expressed transparently and accurately (Wynne, 2002a, 466).
44. Cf. Deane-Drummond et al., 2001.

45. Habermas, 1996.
46. Marris et al., 2001.
47. Kleinman, 2000; Gregory and Miller, 1998.

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Part II

Taking Responsibility

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The Power of Technocracy: A Critical Analysis of the Global Environmental Governance of the Toxic Waste Trade

Lucy H. Ford

1. Introduction

In our present time, many problems are perceived to be 'global', for example environmental problems such as toxic waste, climate change or loss of biodiversity. They are considered 'global' because they are seen to be affecting more than one country and potentially the whole globe.[1] What is 'global' about these problems, then, is their *effects*. The emphasis on *effects* detracts from an analysis of the *causes* of environmental destruction across the globe. In particular, there is a blind spot when it comes to identifying the economic, political, social and cultural causes of environmental destruction. The construction of environmental degradation as 'global' and as 'effect-oriented' suits technocratic[2] responses well, enables environmental degradation to be tackled without rocking the boat, without shifting fundamental patterns of production and consumption, without changing certain lifestyles.

The case of the toxic waste trade illustrates an example of centralised technocratic 'end of pipe' solutions to problems. Rather, problems such as the production of toxic waste ought to be dealt with at source, with environmentally and people friendly technology alongside changes in production processes and consumption patterns.

2. The Toxic Waste Trade

Toxic waste is a growing environmental problem. Increasing volumes of toxic waste and the ensuing toxic waste trade are an inherent if contradictory feature of the present global political economy, reflecting patterns of production and consumption. In particular, the toxic waste trade has highlighted the unequal power relations between developed and developing countries as many of the scandalous incidents of waste trading that have come to light have been between OECD and non-OECD countries.[3]

The mainstream approach to dealing with this problem has been one of technocratic global environmental governance, culminating in the 1989 establishment of the Basel Convention. Crucially though, the name of the treaty reveals its true nature. It is the Basel Convention on the *Control* of Transboundary Movements of Hazardous Wastes and their Disposal.[4] As such its emphasis is on the management of the waste trade,

and 'end of pipe' approach, although the Basel Convention does contain two objectives which encourage the disposal of hazardous wastes to take place as close as possible to the source of generation as well as the general minimisation of hazardous wastes.[5]

The Basel Convention has spent a lot of energy on negotiating a ban on the trade between OECD and non-OECD countries, an agreement reached in 1995. However, for it to enter into force it requires 62 ratifications, and to date can only count 35.[6] While the ban presents a small victory for environmental justice it is in potential conflict with the WTO and has met with disagreement from industry, who are constantly attempting to undermine it.[7]

Further, with the development of a ban on waste, 90% of all hazardous waste export schemes now involve a claim of "recycling" or "further use",[8] a recycling loophole which the Basel Convention attempted to tackle with a call to phase out the dumping and recycling of hazardous waste in poor countries by the end of 1997.[9] This, however, is likely to lead to an increase in transfers of dirty technology and the movement of entire dirty industries to non-OECD countries. Already some evidence suggests that TNCs in hazardous industries (for example pesticides, asbestos, benzidine dyes, vinyl chloride and lead smelting) are taking advantage of less stringent environmental regulations outside the OECD.[10]

One of the ways the Basel Convention has attempted to further its mandate is through the establishment of Regional Centres for Waste Management Training and Technology Transfer in developing countries as well as countries in Central and Eastern Europe.[11] While this may enhance developing countries' ability to manage and dispose of their waste more efficiently, it remains as yet unclear what global role improved facilities in developing countries will play. In the context of the global political economy it may increase the trade in hazardous wastes for recycling and disposal to developing countries and deter the need in the developed and developing world to deal with hazardous waste at source or even reduce production of hazardous waste in the first place.

Furthermore, the transfer of technology is itself contested and reflects pre-existing power relations within the global political economy. The transfer of technology from developed to developing countries has often been perceived as an important part of the development process. In particular in relation to sustainable development the transfer of environmentally sound technology is seen as a solution to environmental degradation.

Similarly, the Basel Convention's regional centres for training and technology transfer are a response to the recognition that waste management and waste disposal technology in developing countries is

inadequate. The solution is perceived to be a transfer of technical knowledge/know-how from North to South. However, the types, quantities and quality of technology transfer are determined very much by the financial status of these countries, as evidenced in the following passage:

> The infrastructure for the healthy management of all types of waste is non-existent. There aren't even laboratories to analyse the composition of waste flows and to evaluate their characteristics. Given the economic situation, the resources that the State and local industry can give to waste management are limited. As a consequence, any technological solution must be as *simple and least costly as possible*. Preference should be given to the development of local solutions. This would permit the limitation of the amount of investments, would create employment and would reduce maintenance costs. In the case of technology transfer from the North, it will have to be taken into account, that the needs of the sub-region are not the same as those of developed countries. As a consequence, all technology transferred will have to be adapted to the realities of the sub-region. Further, given the lack of technical and financial means, one *should avoid demanding too sophisticated a technology* which would necessitate high level maintenance and costly spare parts whose price would put into question the survival of companies and would risk causing unemployment.[12]

There is a paradox here. On the one hand, the setting up of regional centres invokes ideas of localisation and local needs as prominent in the discourse of sustainable development and Agenda 21, on the other hand it is acknowledged that the South cannot afford the type of technology which is needed to ensure dealing with waste in a professional and safe manner. The fact that the South cannot afford the best and is reduced to taking the second best or even second hand technology from the North, means the South's waste management will be inadequate, but further ensures that the South will always be one step behind the North in its development. Technology transfer arises out of an unequal starting point, but it also maintains this unequal standing.

Furthermore, it does not guarantee to be a solution to the problem of waste management. Environmentally sound management technology is expensive and even the latest technology for recycling hazardous wastes is

not guaranteed to be free of risk, hazard, exposure and pollution. Environmentally sound management (ESM) solutions still entail the use of incinerators, landfills or occupational hazard according to Jim Puckett of the Basel Action Network (BAN). He has further argued:

> The so-called environmentally sound management 'solution' sounds good but due to the fact that risk mitigation and liability for risk are far more expensive in the North, combined with labour being far cheaper in the South, there is a strong likelihood that polluting industries, including the processing and recycling of wastes, will all end up being carried out in the South. Even with the best available technologies employed, the ESM 'solution' thus serves as a convenient excuse for the rich North to effectively cleanse its hand while wringing out industrial dirt on the poor. This is a direct contradiction to the principle of environmental justice as the poor will certainly receive a disproportionate burden of global environmental risk, and at the same time works as an economic disincentive to actually solve the risk and pollution problems upstream through toxics elimination or green design.[13]

The Basel regime's response to the toxic waste trade is exemplary of technocratic global environmental governance. It is a problem-solving approach which takes the pre-existing, unequal power structures in the global political economy for granted and attempts to solve deeply complex, systemic problems with technofixes.

Having said this, despite the fact that the Basel Convention favours technocratic solutions is also has the potential to become a framework for more sustainable solutions. This can be seen as a 'fight over the interpretation of the convention' between a technocratic problem-solving approach and an environmental justice approach.

3. Competing Approaches to 'Global' Environmental Challenges

Within mainstream IR theory and practice,[14] global governance[15] is widely regarded as the solution to problems perceived to be global, such as environmental degradation.[16] Over the past three decades we have seen a mushrooming of multilateral environmental agreements (MEAs) and soft international law in attempts to manage global environmental degradation and promote sustainable development.

In line with a critical perspective, however, global governance is seen as embedded in the neo-liberal global political economy, which is hegemonic in the neo-Gramscian sense that dominant power relations are maintained not merely by coercion, as traditional realist approaches in IR would have it, but by consent as well.[17] In this view, hegemony is maintained through orthodox discourse such as that of global environmental governance, which is not separate from social practices, but rather embedded in them.

A critical approach distinguishes critical theory from problem-solving theory, where the latter takes for granted the framework of existing power relations and institutions and is concerned with the smooth functioning of the system. By contrast, critical theory calls the very framework into question and seeks to analyse how it is maintained and potentially changed.[18]

A critical approach locates the technocratic approach to environmental governance within a problem-solving framework, which is reproductive of neo-liberal global hegemony. In line with a critical approach, this chapter further rejects the mainstream conceptualisation of global as a spatial category and views it rather as a causal category, thus avoiding the conflation of global with transnational or international. In this view, global environmental degradation is global because it is caused by social, economic and political structures that are global in the sense that they are tied up with global hegemony.[19] The emphasis here is on the cause, not the effect.

The next two sections will give a closer description of technocratic global environmental governance and an environmental justice alternative to this approach.

4. Technocratic Global Environmental Governance

Within mainstream IR the response to environmental degradation has been of an institutional, technocratic nature, focusing on international co-operation and the ordering and management of the inter-state system. Within this discourse environmental problems are conceptualised as highly complex and scientific, capable only of resolution through the building of global environmental technocracies,[20] as seen in the growing literature on international regime theory.[21] This literature, rather than focusing on solving environmental problems is more concerned with institutional effectiveness, emphasising the rules and decision-making procedures and measuring compliance with the regime rather than environmental effectiveness.[22] International regimes are quintessentially about managing environmental problems through states, inter-state institutions and certain privileged non-state actors who contribute scientific and technical experts to the epistemic communities that form around particular issue areas.[23] Rarely do they involve environmental justice movements or citizens directly affected by the environmental problems at hand.

More recently, a discourse of global governance has emerged, which bears much resemblance to the international regimes approach of the 1970s and 1980s. It is still about management and order. In 1995, for example, the United Nations' Commission on Global Governance (CGG) maintained that "[t]he development of global governance is part of the evolution of human efforts to organise life on the planet, and that process will always be ongoing."[24] This sentiment exemplifies an orthodox discourse, which portrays global governance as a natural quest for planetary order. Within this discourse, there is a consensus that *global* environmental co-operation and management is crucial to dealing with *global* environmental degradation, in line with the dominant spatial understanding of global.

The discourse of global environmental governance, however, does not appear to differ much from the old tales and practices of international regimes. Both approaches can be seen as processes of institutionalisation that stabilise and perpetuate a particular order.[25] In a critical vein, Richard Ashley argues that governance as such is about the imposition of international "purpose", which centres on the "production and objectification of enduring structures that ... lend to global life an effect of continuity, of a direction, and of a unified collective end beyond political questioning."[26]

This is the measure of success in the technocrat's mind. What Ashley calls a "discourse of continuity" constitutes both a temporal and

spatial enclosure and foreclosure of the possibility of change. The boundaries and limitations of the discourse are never questioned and the narrow scope of a problem-solving approach precludes an understanding of environmental degradation as embedded in the wider global political economy. In concrete terms this can be seen in the relatively weak outcomes of the last thirty years of 'soft' environmental negotiating. For example the shallow outcomes of the 1992 UN Conference on Environment and Development (UNCED), the focus on voluntary arrangements such as the Global Compact rather than legally binding measures to enforce corporate accountability, and most recently the widely perceived failure of the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg to fulfil its mandate and to tackle even a minority of the most pressing issues the world now faces. The World Bank's multi-billion dollar Global Environmental Facility (GEF), set up in 1991 to finance the protection of the global environment, cannot yet boast having made any substantial inroads into preventing or reversing global environmental change.[27] As shown above, the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal has itself quite a few success stories to tell in the progress and evolution of its particular legal regime. However, the transfer of hazards across the globe continues a pace.

5. Challenging Technocratic Global Environmental Governance: Environmental Justice and Global Citizenship

Thus far, I have attempted to locate technocratic global environmental governance within a problem-solving approach, which is more concerned with institutional effectiveness and the smooth functioning of neo-liberal global hegemony rather than getting to the core of environmental degradation. However, I have only tentatively made the case that the neo-liberal global order is itself incapable of protecting the environment. While such an analysis would be beyond the remit of this chapter, it suffices to say that evidence seems to suggest that in the same period that neo-liberalism has emerged as the dominant politico-economic order – usually dated from the late 1970s onwards – environmental degradation has intensified. There has been an increasing privatisation and commodification of nature and environmental solutions, and we have further seen the increased power of corporations who refuse to take their environmental responsibilities seriously, as witnessed most recently in the failure at the Johannesburg Summit to get binding measures on corporate accountability.

In this same period, above all however, we have seen the growth of environmental justice movements that are highlighting the shortcomings of technocratic global environmental governance and calling for a radical overhaul of business as usual in a quest for truly sustainable and just solutions to interconnected political, economic, social and ecological problems.[28] These movements are reacting to what they perceive to be a global democratic deficit and are demonstrating a kind of global citizenship whereby their feelings about responsibility and justice are not territorially limited by national boundaries.[29]

In this quest they may easily call on the very same documents that are supposed to be guiding the orthodox approach to sustainable development. The pioneering document, the Brundtland Report *Our Common Future* of 1987, for example, explicitly identifies within its passages on sustainable development the importance of meeting the essential needs of the world's population, in particular the world's poor. It further suggests a notion of limits that may need to be imposed in order to avoid curtailing the ability of future generations to meet their essential needs.[30] However, these two key aspects of 'sustainable development' are rarely included in the famous extract from the Brundtland report which declares that "[s]ustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[31] For example, the business sector has been keen to take up the concept of sustainable development, even portraying business as the vanguard for implementing it, yet curiously a slippage tends to occur whereby sustainable development becomes sustainable growth.[32] Those essential two elements of sustainable development that the environmental justice movements are promoting are radical challenges to business as usual. If these elements were taken seriously there would need to be fundamental shifts in economic, political and socio-cultural patterns of production and consumption across the globe – shifts that are not in the immediate interests of the dominant government and business elites, shifts that are easily side-stepped through simpler, more convenient technocratic solutions.

It is this evasion that environmental justice movements are attempting to highlight. In the example of toxic waste alone countless social movements, from grassroots community groups to NGOs such as BAN or Greenpeace, are campaigning to expose the damaging nature of toxic waste. Groups challenging the dumping of waste are often challenging the production processes directly. Issues of democracy and accountability come to the forefront during their struggles, as they find they are fighting against bureaucratic hierarchies whose economic interests tend to side with industry.[33] However, they are also challenging

the technocratic approach and dominant forms of knowledge, as they come up against a scientific elite who are defending a particular discourse and rationality that may discredit any tacit and lay understandings of the environmental and health consequences.[34] Furthermore, the movements challenging the toxic waste trade point out the issue of injustice between countries and communities across the globe and are part of a growing, diverse constellation of global counter-hegemonic movements.[35]

The case of toxic waste clearly illustrates attempts to disrupt dominant technical-rational enclosures. The struggle against toxic waste is a struggle against expert knowledge, especially scientific knowledge. Science is not a neutral tool but needs to be understood as capable of being turned to the use of states to justify inaction in the face of "scientific uncertainty"[36] or for the protection of corporate interests.

At the more institutionalised end, the environmental justice movement is attempting to challenge global environmental governance from within. For example, NGOs regularly observe the Basel Convention meetings. The back row is always taken up by a variety of members of global civil society such as Greenpeace or BAN. The Basel Convention may be an exceptional case, in that over the years NGOs such as Greenpeace have been instrumental in collecting data about the toxic waste trade, and have been at the forefront together with the developing countries of campaigning for a ban on the trade in waste from North to South. In this sense the overall shaping of the Basel Convention has been directly influenced by a major environmental NGO.[37] However, at the Conferences of Parties and technical working group meetings, the agenda is already set by the Secretariat and the member states. The Basel Convention, as such, remains an inter-state institution. NGOs that enter the governance realm run the risk of co-optation while real decision-making power remains with member states, and further up the ladder with organisations such as the WTO, World Bank, or the GEF which pay more attention to the voices of business and industry rather the environmental justice movements.[38]

In the spirit of this growing collective consciousness the environmental justice movements may need to adopt a symbiotic strategy of pragmatic engagement as well as resistance. An example could be seen in the case of the campaign against toxic waste. During the negotiations of the Basel Convention and in later negotiations, NGOs played an important role. In particular alliances were formed between NGOs and delegates from the Group of 77 developing countries in attempts to push for a ban on the waste trade between developed and developing countries.[39] The International Toxic Waste Action Network and later BAN are examples of networks of transnational movements campaigning against the toxic waste

trade. BAN actively promotes implementation of the Basel Convention and the ban on national levels but also maintains links with grassroots movements across the globe. Members of BAN as well as Greenpeace attend the COPs on a regular basis, thus taking on a dual role, engaging with the international policy process as well as resisting on the ground.[40] Environmental justice movements across the globe are thus living examples of groups that seek to challenge the problem-solving approach to global environmental governance.

6. Conclusion

Using the trade in toxic waste as an exemplary case this chapter has presented the 'fight over the interpretation of the Basel Convention' between a technocratic problem-solving approach and an environmental justice approach. The Basel Convention does not aim to prevent – only to control – trade in toxic waste, but might still be used as a tool by NGOs who work for more environmentally and people friendly solutions. Among the forces that seem to work against such truly sustainable solutions are the technocratic worldview and the neo-liberal politico-economic world order. Technocratic global environmental governance fails to examine the power relations and wider social, economic and political structures that reproduce environmental destruction. Environmental justice movements are, however, challenging the technocratic approach to global environmental governance, highlighting the shortcomings of technocratic fixes and top-down governance and calling for a broader perspective of environmental justice instead, favouring democracy over technocracy. With increasing public awareness there are some chances that NGOs and others might gradually push the use of the Basel Convention in a more responsible direction. And a strong global public voice might even make it economically hazardous for industries to be singled out as 'villains' on the toxic waste scene. The neo-liberal capitalist politico-economic world order still remains the most powerful obstacle to a truly democratic, sustainable world, however, a growing environmental justice movement is challenging orthodoxy and presenting alternative ways forward.

Notes

1. For example Porter and Welsh Brown, 1991.
2. 'Technocratic' is understood as a combination of bureaucratic, institutional managerialism that relies on technical and scientific expertise. See for example Sachs, 1993. It privileges scientific and technical power/knowledge and constitutes what may be called a 'discourse of technical-rational knowledge' (Maclean, 1999, 4).
3. See for example Roelants du Vivier, 1990; Kebe, 1990; Clapp, 1994.
4. Hereafter referred to as the Basel Convention.
5. SBC, 1994, 8.
6. BAN, 2003.
7. Housman et al. (eds.), 1997, 146; Krueger, 1999, 126.
8. Puckett, 1994, 56.
9. UNEP, 1995, 16.
10. Clapp, 1994.
11. SBC, 1994, 21.
12. SBC, 1997, 8-9, emphasis added.
13. Correspondence with Jim Puckett of BAN, 11 February 2003.
14. International Relations (IR) refers generally to the academic discipline, which studies the theories and practices of international relations. The essence of a critical approach is to take theory and practice not as separate entities but to see them as intricately intertwined. Thus IR will hereafter refer to the academic discipline of International Relations but is not separate from the practices of international relations/world politics.
15. Global governance, as defined in mainstream IR, entails 'efforts to bring more orderly and reliable responses to social and political issues that go beyond the capacities of states to address individually', Weiss and Gordenker (eds.), 1996, 17; or as seen in the quote in Section 4 in this chapter, CGG, 1995.
16. For example Haas, Keohane and Levy (eds.), 1997; CGG, 1995; Lipschutz with Mayer, 1996; Young (ed.), 1997.
17. Cox, 1981, 137.
18. Ibid., 128-129.
19. Saurin, 1993.
20. See for example Greene, 1996.
21. For example Krasner (ed.), 1983; Young, 1989.
22. For example Kütting, 1997; Paterson, 2001.
23. Haas et al., 1993.
24. CGG, 1995, xvi.
25. Cox, 1981, 136.
26. Ashley, 1993, 254.

27. Young, 2002, 4.
28. There is no space in this chapter to elaborate on the nature and diversity of such movements. For further elaboration see Ford, 2003.
29. The concept of global citizenship is contested and fraught with difficulties which cannot be dealt with in the space of this chapter, but see for example Dower and Williams (eds.), 2002.
30. WCED, 1987; see also Meadows et.al., 1972 and 1992.
31. WCED, 1987, 43.
32. WBCSD, 1996.
33. Gibbs and CCHW, 1995.
34. Krauss, 1993; Brown and Masterson-Allen, 1994; Brown and Ferguson, 1995.
35. Puckett, 1999; Hallowes, 1993.
36. Saurin, 1996, 82.
37. Clapp, 1994, 510.
38. Chatterjee and Finger, 1994, 151ff; Ford, 1999, 70.
39. Clapp, 1994, 510.
40. Puckett, 1999, 31.

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Tradable Fuel Permits: Towards a Sustainable Road Transport System

Evy Crals, Mark Keppens and Lode Vereeck

1. Introduction

In our modern world, sustainable development has become an issue of worldwide concern. The EU, for instance, has stated that sustainable development must be the central goal in all policies.[1] The standard definition of sustainable development is: 'meeting the needs of the present without compromising the ability of future generations to meet their own needs'.[2] It is a strategy that requires the integration of economic growth, social equity and environmental management. This idea of sustainable development was spurred by a gradual change due to unsustainable economic policy. Meteorological observations show that since 1900 the European average annual temperature has increased with 0,3 to 0,6°C. Furthermore, climate models predict a further increase of approximately 2°C in 2100 compared to the 1990 level. The greenhouse effect will cause the Arctic ice to melt, increasing sea and ocean levels by 1-2m, thus flooding many parts of the world like Bangladesh and the Netherlands. To make sure that the further increases in temperatures are limited to maximum 0,1°C each decennium, the industrial countries have to limit their greenhouse gas emissions (carbon dioxide (CO_2), methane, …) by the year 2010 with at least 30-55% with regard to the level of 1990.[3]

These reductions are much higher than agreed in the Kyoto Protocol.[4] It is unlikely that the E.U. will achieve these CO_2-reductions since the most recent 'business as usual' scenario of the European Commission (made before Kyoto) indicates an increase in CO_2 emissions of about 8%, with the largest increase in the transport sector (39%).[5] Since these trends are not sustainable, the necessity of a sustainable transport network is obvious. The Organisation for Economic Co-operation and Development (OECD) forecasts that traffic growth (in vehicle kilometres travelled) is such that the current strategies will be inadequate to reduce the overall emissions over the coming 30 or 40 years.[6] Reducing overall emissions will only be possible by combining technical solutions for reducing emissions (for instance the usage of Intelligent Transport Systems[7]), enhancing the energy efficiency of engines and slow down the growth of vehicle kilometres travelled.

Automotive road transport creates many external effects such as congestion, pollution, climate change, noise and stress which, by definition, are not taken into account by drivers and thus are not or

inadequately reflected in market prices. The market system needs a correction here. There are many devices for internalization. The best-known are probably (Pigouvian) taxes and regulation.[8] Within the wide range of policy instruments to reduce emissions, transferable permits are currently gaining interest. They have been analysed largely (and positively) in the literature from a general and theoretical perspective.[9] Tradable permits seem to be an effective instrument for the emission reduction of larger point sources[10] and for air and water pollution (for instance the U.S. Acid Rain Program), while taxes can be used to reduce the emission of smaller or non-point sources.[11] Little has been written about the practical implementation of tradable permits in specific industries such as transport. Nevertheless, this industry is the major source of air pollution as well as greenhouse gases as said before. Therefore, a tradable transport permit system genuinely merits further research.

This chapter is structured as follows: the first section gives a definition of tradable permits. In the second section the different design elements of a tradable fuel permit (TFP) system are described while the system is evaluated in the last section.

2. Definition of Tradable Permits

At this moment, transport and environmental economists are developing more sustainable transport systems. Their focus is mainly on pricing mechanisms: road and congestion pricing, variable taxation and other taxes. For instance, governments can levy a 'carbon' tax as a mean of reducing emissions by making fuel more expensive. There are several potential problems associated with taxes on fuel that can be identified. First of all, since the price inelasticity of the demand for fuel is high, the likely reduction will be rather low. Van Mierlo estimates the price elasticity of the demand for fuel in relation to the number of drives around -0,3.[12] This elasticity is even smaller when looking at drives for professional purposes. These estimates show clearly that the price inelasticity of the demand for fuel is high, therefore, there is no certainty about the environmental outcome. Secondly, it may be very difficult to determine an appropriate level of taxes. Moreover, finding the level by a process of trial and error is not a solution. The wrong initial level might lead to a situation where producers are locked into inappropriate technologies. Finally, there is a need for administrative intervention to respond to exogenous changes. The tax system will not respond automatically to those changes.

Tradable permits have the potential to achieve identical goals but at a lower economic cost then conventional 'command-and-control'[13]

regulation. They allow participants flexibility in the way in which reduction in energy use is achieved, enabling them to select the most cost-effective approach. Participants able to reduce their usage relatively cheaply will do so, rather than purchasing permits. Those who face higher abatement costs will tend to purchase permits to satisfy requirements. In this way, reductions are made by those who can do so at least costs (being compensated by those that face higher costs).[14] In addition, they provide a continuing incentive for actors to search for innovative approaches for further permit reductions in the future.

Tradable permits entitle the permit holder to a certain amount of usage, for example a certain amount of vehicle kilometres. By issuing only a limited number of permits, governments are able to keep the usage at or below a specified level. Permits can be bought and sold, but governments will limit the number of permits to less than the current level of usage (otherwise there would be no need to have permits). Permits will therefore command a price like any other commodity. Under the cap, actors need to reduce their current levels of usage, or obtain sufficient permits from others.

In this chapter, we look into the possibilities of designing a tradable permit system in the transport sector. This is a part of a research project that will describe different types of tradable mobility permits and assess their feasibility, effectiveness and legitimacy. First of all, a selection and evaluation is made of alternative tradable mobility rights systems. Obviously, attention is paid to a similar system that is already in use, the so-called emission rights. Crucial to the project is the design of a practically implementable system that holds all qualities from the theoretical model. In this chapter, this theoretical model of a tradable fuel permit system in the transport sector is elaborated. This trading system should be designed according to the following general principles:[15]

- Effectiveness, which requires a successful evaluation, monitoring and verification;
- Economic efficiency, which refers to the realization of the policy against minimum transaction costs;
- Equity, which means that no interest groups should gain an unfair advantage;
- Social and political acceptability, which is an indispensable condition for practical implementation.

3. *Design Implications of the Tradable Fuel Permit System*

In this section we describe the different design elements of a tradable fuel permit (TFP) system. The choice of these elements is based upon the already existing cap-and-trade programs, such as the U.S. Acid Rain Program and the California RECLAIM[16] program. These programs have proven that emissions trading have considerable potential in practice, as well as in theory. Also the design of the emission trading under the Kyoto Protocol is taken into account. Table 1 summarises the characteristics of the TFP system.

Table 1: Design Elements of the TFP System

Cap and Trade	Overall cap or emissions level required by the programme.
Allocation Aspects	Allocation type (grandfathering, auctioning, free or updating).
Geographical Distribution	Scale of implementation (E.U., country, state, lane,…).
Target Group	Type of actors covered by the trading programme to which allowances are allocated.
Transaction Costs	The costs of establishing the TFP system and the costs of transaction.
Technology	Technology required implementing the TFP system.
Implementation Path	Timetable of actual introduction of the system.
Monitoring and Enforcement	Level of monitoring (upstream, downstream). Level of penalties with non-compliance of the system.

A. Cap and Trade

A cap-and-trade program sets an upper limit and trades allowances, which are allocated among all actors.[17] A cap-and-trade system gives the most certainty about reaching the reduction set forward.

To obtain sustainable mobility growth, non-fuel consuming transport modes are to be encouraged. For that reason, these modes are excluded from the TFP system. The cap of the system is set on the total vehicle kilometres of the reference year. The allocation to each Member State will occur based on the average energy efficiency of fuel, divided in gas, diesel and LPG. This average may vary because of the discrepancies in used technology between the Member States.

To set the cap, a reference year from which to draw the data needs to be determined. A compromise is struck between a reference year

in the distant past and a recent reference year. A reference year in the distant past has the advantage that environmental efforts made earlier will be rewarded. A disadvantage is the lack of correct information. When a recent reference year is chosen the database will be more reliable but earlier efforts are not rewarded.

The duration of the permit's validity is important because it determines the efficiency gains of trade. The tradability of a right becomes more difficult when the permit duration is shorter. A short permit's duration augments the transaction costs that the government and the market players have to make, because these are related to the frequency of the allocation of the TFPs. There are also some arguments against a long validity period of time. The uncertainty about the price development can influence the revenues of the rights negatively. A future market for TFPs will not function well if the policy lines of the government, who determine the rules, are not known. The determination of periodic policy lines for a longer period of time reduces the margin of the government on the market. Another disadvantage of a long validity period of time is the difficulty of the government to adjust the policy on a regular basis.

The permit duration of the TFP is set on one year. Imposing a time limit on the use of TFPs offers a convenient administrative mechanism for monitoring and controlling on an annual basis. TFPs issued at the beginning of a year would simply expire at the end of the year, and new ones would be issued for the next period. Banking[18] and borrowing[19] is not allowed. Banking could have as a consequence that the tradability after some time would show a cyclical pattern. Although banking is relatively uncontroversial, borrowing is much more controversial. Borrowing of allowances effectively enables companies to postpone emissions reductions until some future date. This is undesirable with respect to the environmental impact of the scheme, and the credibility of the scheme. Opponents fear that borrowing makes it more difficult to check whether emission sources are in compliance with their emission limits. Borrowing could conceivably even discourage trading among individual actors, thus reducing market liquidity or undermining the incentive to search for cleaner technologies. TFPs can be traded on a specific auction, where the laws of demand and supply apply.[20]

B. Allocation Aspects

The initial allocation of permits is one of the most complex elements of the TFP system design. In the literature, four allocation schemes are described, which are briefly discussed in the next paragraphs.

Free distribution of the permits

First of all, the initial allowances can be distributed for free to the various actors, whereby the total number of allowances equals the overall cap.

The most important benefit of this scheme is that the social and political acceptance is readily high. Distributing permits for free to individuals lower the overall cost burden of the cap-and-trade program. Disadvantage of the scheme is that it will not raise any direct revenues for the government.

The administrative costs of this scheme are likely to be low. Once the cap is set, the permits can be distributed among the population without taking into account past or future usage. This way of allocating has some distributional impacts. People who don't need their annual permits can sell them to others who do at a market price.

Grandfathering

Secondly, the rights can also be distributed among the population on the basis of historical indicators, the so-called 'grandfathering' principle. The total cap can vary over time, but since future allocations depend entirely upon historical data, the share that each participant receives is fixed. This means that a participant, namely a firm or an individual, has no incentive to change its behaviour.

A first benefit of this scheme is that the average costs to the population will not increase. Allocating rights to historic users causes the least disruption from historic patterns and it involves a small financial burden on users. Further, this scheme makes it fairly easy to estimate the economic effects of the TFP system.[21] Thirdly, the public acceptance will increase because they will receive a certain number of rights for free.

However, there are also some disadvantages of this scheme. Since the distribution of the rights is based on a reference year, well-defined criteria need to be determined. The choice of the reference year will be based upon the actual level of technology in the Member States. It seems realistic that there will be different reference years for different Member States.[22] Secondly, grandfathering does not take into account new

market entrants. To this end, the government could reserve a number of allowances for new entrants, or new entrants may have to buy permits from the market. A set-aside allocation for free to new entrants would be more favourable, as new entrants would otherwise incur direct additional costs to enter the market. Finally, on a short term, grandfathering can augment the pollution because individuals are aware of the fact that current usage leads to a higher level of future permits. This problem can be avoided by basing the initial distribution on a 'command-and-control' regulated usage and not on real usage.

The primary administrative cost associated with grandfathering is the cost of collecting the data which are used as the basis of the allocation. The greater the number of actors included in the system, the larger is the data needs, which means higher administrative costs.

Auctioning

Thirdly, the rights can be auctioned. Under auctioning, all actors are treated equally in the sense that they must acquire allowances regardless of whether they are new, or pre-existing actors. New entrants that need allowances can buy these from other actors via the market. An auction gives a reference price for the TFP and it creates revenue for the government, which can be used to offset existing taxes that carry high economic costs. So, auctions can be relatively favourable for consumers and taxpayers, assuming the revenues are used to reduce taxes.[23]

Auctioning has also some disadvantages. It generally imposes greater costs on actors because they must buy a permit for all fuel used, which is not the case for grandfathering where permits are distributed for free and only additional consumption requires the purchase of permits.[24] Therefore, auctioning is assumed to have a lower public acceptance.

There are two major sources of administrative costs under an auction: auction design and the actual oversight of the auction. Most of the auction design costs occur only once, namely when the system is established. In addition to the initial design of the auction, it has to be periodically or annually administered. An auction thus involves some ongoing administrative costs.

Updating

Finally, we discuss the 'updating' scheme, which involves allocating permits to actors based upon information updated over time. For example, allocations in 2005 might be based upon activity in 2004, allocations in 2006 based upon 2005 activity, and so on. This is in contrast to the grandfathering approach in which a participant receives his allocation regardless of current or future activities. But as with grandfathering, the permits are distributed free of charge and each participant's allocation is updated on the basis of his activity level. If a participant has a higher usage than others, his allocation will be higher in the next commitment period; symmetrically, a source with lower use will receive a lower allocation the next period.

The main disadvantage of the system is that it loses the key element of permit trading: because some participants receive a greater share of the total amount of permits if they use more. Therefore, each participant would tend to increase its usage level.

Administrative costs under updating are likely to be substantially high because of the ongoing need to collect the relevant data.[25]

Determination of initial allocation mode

These methods can also be used in combination with each other, by which a portion of the rights are distributed for free and the rest will be allocated via auctioning.

For reasons of social justice, the TFPs should be distributed for free. Not everybody will receive the same number of permits but different age categories will be distinguished: between 0 and 18 years (youngsters), between 18 and 65 years (active) and above 65 years (retired). This will be discussed in greater detail within the 'target group' paragraph. Organising the system this way does not necessarily imply a tax and gives a certain amount of freedom to individuals.

At the beginning of the calendar year, the TFP will be distributed. Individuals, who do not use all their annual rights, can sell them partly or entirely to others who need more at the daily market price. These prices are established by the traditional stock market exchange principles. Financial institutions act as an intermediate player between buyers and sellers. By using these existing institutions, transaction costs and other operational costs are minimized.

In addition to the choice of the initial distributional mode, the allocation mechanism must also specify the year or years from which to draw the data. There are several concerns with the choice of the reference

year. The most important one concerns the possibility that an unrepresentative year is chosen. If a single year is used, there is a greater risk that the allocation will be based on unusual circumstances for some people – for example many people were commuting that year because of various reasons. Data analysis from multiple years enhances the ability to determine whether the allocation reflects a typical operation.

C. Geographical Distribution

The geographical size of the TFP system determines where the system will be implemented. Different (geographical) scale sizes can be distinguished, namely the TFP system can be implemented on a European, interregional, regional or intraregional scale.

A greater geographical area implies more market players and therefore more tradability of the rights. A small geographical area can imply that there are not so many market players, which means limited efficiency gains. A well-defined area, surrounded by geographical borders (sea, mountains) or checkpoints will make it more difficult for actors to operate in an area where the system is not in operation.[26]

The geographical scope of the program is determined by the addressed problem, in particular the problem of sustainable growth in the transport sector. We choose for an implementation on a European scale because of the greater number of market players and to vindicate the free movement of goods and persons in the E.U. Moreover, the European Commission aims at an integrated approach of the mobility problems in all the Member States.

D. Target Group

The system can be directed to different target groups, namely companies, individuals, schools, municipalities, fuel wholesalers or producers. An example of tradable emission rights on the level of companies is the Acid Rain Program in the United States. Here, SO_2 emission rights are allocated to companies in specific sectors (electricity units) and they can trade them among themselves.[27] The Kyoto Protocol foresees international emission trading (IET) between countries to be introduced in 2008 as one of the 'flexible mechanisms' of the program. At present, there are no examples of allocation of permits to individuals. This is attractive, though, because it would provide a direct incentive to reduce fuel consumption not only through choice of vehicle, patterns of travel behaviour and residential location, but also through driving behaviour such as reduced speed.

In this proposal, the target group is the individual European fuel user. The allocation to individuals can occur based on different criteria such as age, location, income, economic activity, family composition, etc. They are summarized below:

- Age: It is possible to divide the TFP among all citizens older than 16 or 18 years old. The allocation can also occur based on the need for movement by age category. Three age categories – from 0 to 18 years (youngsters), from 18 to 65 years (active) and above 65 years (retired) – can be allocated a different amount of TFP.
- Location: When the TFP system is used to induce more people to live in the city, a different amount of TFP can be allocated amongst the population in urban areas and in rural areas. If the citizens from the rural areas receive less TFP, they are stimulated to move to an urban area or to an area closer to their work. This will reduce their annual kilometres.
- Income: TFP redistributes income from polluters to non-polluters and creates some form of basic income.
- Economic activity: A possible allocation can be: active population, non-active population and retired population.
- Family composition: A distinction can be made between singles, families without children, families with one child, etc. By distinguishing the number of children per family, the TFP system takes into account the displacements for those children too young to have TFPs due to their age.

In this chapter we opt for an allocation based on age, with a division in three age categories. This allocation offers the possibility to differentiate. We can assume that a person who is 5 years old has less need for mobility than someone who has to go to work every day. But this depends on a lot of criteria, for instance the distance to the day care or school.

E. Transaction Costs

In general, transaction costs are ubiquitous in market economies and can arise from the transfer of any property right because the different parties have to exchange information.[28] Transaction costs play a key role in the success of a permit trading system. In the past, only emissions trading programs with low transaction costs have succeeded in substantially lowering the cost of compliance, including the allowance programs such as the Acid Rain Program and the RECLAIM program.

Transaction costs have several components, including search and information costs, bargaining and decision costs and costs created by monitoring and enforcement. The first cost, concerning search and information, may be the most obvious. Brokers step in, provide information and search for potential trading partners, and thus reduce information costs. In the TFP system, financial institutions will provide this information. The second cost, concerning bargaining and decision, is potentially as important as the first one. They are real resource costs to anyone entering into negotiations, including time and/or fees to brokers, legal and insurance services. The third component, concerning monitoring and enforcement can also be significant. These latter costs are typically carried by the responsible governmental authority and not by the trading partners. Therefore they do not fall under the transaction costs incurred by individuals.

Cap-and-trade programs have generally low transaction costs and low risk. Individuals can simply transfer permits by using financial institutions, or via the Internet, as previously stated, with no regulatory interventions. In addition to transaction costs borne by the actors involved in trading, transaction costs are also borne by the regulatory authority to validate and administer the trading system (the third component of transaction costs). These costs also appear to be low under the existent systems such as the Acid Rain Program, EPA has estimated that total costs to the Government for administrating the Acid Rain Program is $ 1.50 per ton abated.[29]

F. Technology

Existing technologies can be used for the implementation of a TFP system. The system of depreciation and recharging of permits should ensure that privacy is not invaded, that it is interoperable between Member States and that all users are treated in a non-discriminatory way. Furthermore it should be a cost-effective (low maintenance and transaction

costs), easy to use, fraud-resistant, safe, physically accessible and reliable system.

The technology which seems most optimal for TFP use is an electronic card that discharges TFPs when refuelling. Terminals will be situated at gas stations. Crucial is that it will be impossible to refuel without using this discharge card. Public transport operators can integrate the TFP into the ticket price or passengers can transfer the rights by discharging their card when buying a ticket. Recharging the card can take place at bank terminals at sales offices and via an individual Internet account number. Due to the already widespread use in the E.U. of chip cards, operational costs will be minimal.

G. Implementation Path

To establish this system, a European institution will be founded. This institution has three important authorities. Firstly, this institution will allocate the TFPs among the Member States. This will be done based on the cap chosen, the reference year and the average energy efficiency of engines. The different Member States then distribute these rights among the local governments. Secondly, it will define the annual cap for each Member State. Thirdly, the institution will control the Member States on the correct compliance of the TFP system. These monitoring and enforcement issues will be further discussed in the next paragraph.

Along with the political acceptance on a European level, the administrative costs and the social acceptance are of decisive importance. The introduction of the TFP system will require a lot of political courage. The costs of the administrative preparation, the political conclusion formulation and lobbying are very difficult to estimate. After the first agreement between the Member States, the necessary legislation also has to be developed. As an indication for the actual introduction of the system, a period of 5 to 10 years can be expected.

TFP is a far-reaching system. Therefore, a pilot project will have to be set up before the system can be introduced on a wider scale. This pilot project of 2 or 3 years will test the effectiveness and will give an estimation of the expected administrative costs.

H. Monitoring and Enforcement

The monitoring and enforcement of the TFP system is of utmost importance to obtain maximum effectiveness towards the attainment of its economic, social and environmental objectives. In an upstream design, the monitoring is organised at the level of the producers and importers of fuel

while in a downstream design, the monitoring is focused on the end-users of fuel.[30]

There are significant differences between the number and type of market actors who have to be monitored under an upstream and a downstream design. An upstream design will have far fewer and much bigger actors than a downstream design. In terms of the impact on administrative efficiency, fewer actors in an upstream monitoring design will be easier to manage while a downstream monitoring has the potential to become impractical, with potentially a large number of actors, leading to high administration costs. The result is an implicit trade-off between administrative efficiency (the number of actors to be monitored) and economic efficiency (the more actors, the more cost savings the system brings).[31]

The monitoring in the TFP system should be organised upstream, at the level of the different fuel producers and importers. For their fuel sold, they have to present a proportional amount of TFPs. Even the most punctiliously designed system can flounder if the enforcement effort is deficient. Ineffective enforcement could undermine the quest for a more sustainable road transport system. Beside the size, motivation and competence of the enforcement staff the nature of the program is a key factor for an effective enforcement program. Some programs are inherently easier to enforce. A successful enforcement program requires a carefully constructed set of sanctions for non-compliance. Penalties should be commensurate with the danger posed by non-compliance, based on the classical economic approach of crime and punishment.[32]

Under the U.S. Acid Rain Program, the enforcement process involves four steps: (1) detecting the violation, (2) notifying the actor, (3) negotiating a compliance schedule and (4) applying sanctions for non-compliance when appropriate.[33] This process can also be used in the development of the TFP system. As discussed above, the European institution has the authority to monitor the Member States on the correct compliance of the system. Though the Member States have primary responsibility on the correct compliance of the system, the European institution has the authority to act against offenders.

Under the TFP system, the main enforcement issue is the avoidance behaviour. Although the system will be introduced on a European scale, the problem remains of people who cross the border to refuel. Because it can be expected that all the incoming traffic will have a full gasoline tank, the problem can be solved by forcing all the outgoing transport to refuel before they cross the border.

4. Evaluation of the TFP system

There are many different reasons why permit systems, such as the TFP system, are particularly promising for regulating the transport market in a way that meets economic, ecological and social demands.

The permit system is, by nature, highly effective in realising a fixed objective since it is possible to set precise and measurable targets. Once the cap is set, supply is limited and this limit is absolute (disregarding fraud, of course). It follows that the quantitative objective will always be realised. In a system of fuel taxes or road pricing, however, the amount of vehicles kilometres is determined only ex post. Consumption and production may well exceed the optimum amount due to the price-inelasticity of demand.

The price for TFPs is determined by the market, hence truly reflects the participant's (marginal) benefit of consuming fuel. Participants who are capable of reducing their usage relatively cheaply will do so, thus receiving extra revenues of selling or saving additional costs of purchasing permits. Those who face higher abatement costs will purchase extra permits to satisfy their mobility needs. The government can, in case of market distortions, adjust the annual cap by buying back or selling additional permits. The TFP system gives a clear incentive to improve the technology of energy efficiency of engines. These innovations allow further increase of the road transport. Those who use less energy-consuming vehicles can sell their superfluous TFPs.

Since the introduction of Intelligent Transport Systems – which are also used in pricing systems – the technological design of a TFP system is becoming increasingly realistic and cheap.

The system allows a fair redistribution of means since every citizen receives a basic package of TFPs for free. Given the fundamental role that transport plays in exercising the right of free movement the redistributive consequences of TFPs merit close attention. By initially allocating permits for free, additional taxes are avoided. This is likely to promote the political and social legitimacy of the system. Moreover, the government does not have to take deliberate action in redistributing means in society: in the TFP system, there is a transfer of financial benefits from those citizens who pollute most to those who pollute less (the 'polluter pays' principle). By giving the citizens a free basic endowment of TFPs, the government enables each individual to make a certain amount of car kilometres. The initial allocation can also be used to pursue general and specific social goals such as the promotion of socially underserved groups, large families, and so on.

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Notes

1. Europese Commissie, 2001.
2. World Commission on Environment and Development, 1987.
3. European Environment Agency, 1998.
4. Under the Kyoto Protocol, the industrialized countries must reduce their emissions by at least 8% below 1990 levels within the commitment period 2008-2012.
5. European Environment Agency, 1998.
6. OECD Proceedings, 2002.
7. Intelligent Transport Systems involve the application of information, communication and control technologies for the collection, processing, integrations and supply of information to enable authorities and operators to improve the operations of transport systems and to enable individual users of the transport system to make better informed, i.e. more intelligent, transport decisions.
8. Pigou, 1920.
9. For example: Joskow, 1998, 669-685; Ermoliev, 2000, 39-56; Joskow et al., 1998, 37-83.
10. Point sources represent sources which are well-defined, such as a factory smokestack.
11. Non-point sources refer to sources whose emission points are not readily identified, such as fertilizer runoff from farms.
12. Van Mierlo, 2002, 685-724.
13. Command-and-control regulation gives firms little flexibility in achieving environmental goals; for example, norms, standards or technical prescriptions that are imposed on firms.
14. Morgenstern, 2002.
15. OECD, 1998.
16. Regional Clean Air Incentives Market.
17. Tietenberg, 2000, 197-232.
18. Transfer of the rights to the next year.
19. Borrowing TFP of the next year to use this year.
20. OECD, 2002.

21. Sijm et al., 2002.
22. Tietenberg et al., 1999.
23. Cramton et al., 2001, 333-345.
24. Brouwer et. al., 2001.
25. Harrison et al., 2002.
26. Broer et al., 2002.
27. Ellerman et al., 2000.
28. Stavins, 1995, 133-148.
29. Tietenberg et al., 1999.
30. Haites et al., 2001.
31. Harrison et al., 2002.
32. Becker, 1968, 169-217.
33. Tietenberg, 1985.

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The Quest for 'A Beautiful Act': Meeting Human and Ecological Rights in Creating the Sustainable Built Environment

Bob Fowles

1. 'A Sustainable Built Environment' – Achievable?

The last decade has witnessed a fascinating evolution in our understanding of the relationships of the processes and products of the built environment with ideas of sustainability and the goals of sustainable development. Contributions to a greater awareness of the negative impacts of the processes of designing, resourcing, constructing and using buildings have come from diverse sources and indicate an emerging synthesis the outcome of which could, at last, have really positive implications for the health and future of humankind and the planet.

A contribution to this synthesis is partly coming from environmental ethicists who are beginning to apply their thinking to issues related to the built environment. From the reverse direction come architects and other built environment professionals who are beginning to engage with ethics and the moral responsibilities of designers to the broader context of health, equity and social justice. Many of these architects have already developed a new interdisciplinary way of thinking through working, designing and decision-making in multi-disciplinary groups. They will have recognised the benefits to be gained from collaborative procedures for pooling expertise and understandings from different perspectives. Furthermore, many will have incorporated participatory procedures by involving communities, and user and client groups in the design process. Through this, the act of creating the built environment becomes a social process having a complexity of interests within diverse and often opposing sets of values.

> How then should we look at a building, at architecture as a cultural product that needs to be judged as an integrated entity while recognising that it is simultaneously coming from multiple origins and objectives? The key is social practices rather than technological fixes, and we should not divorce environmental sustainability from economic and socio-cultural sustainability – the triple bottom line. It helps if we keep this view of a building as a response to many disparate requirements and origins high in our consciousness, in contrast to the prevalent architectural

> notion of the dominant unitary concept as the generating source of good building.[1]

The authors of this quotation are perhaps at the forefront of articulating this new synthesis. It is they who introduce the notion of *“a beautiful act”*: “we advocate a way of thinking based on performing beautiful acts that arise out of credible reasoned argument, with a recognition of the way our values and our knowledge inform this process.”[2] However, they conclude that,

> Buildings cannot be pure expressions of sustainability because that is never the sole objective, the sole reason for their existence. Indeed a pure expression of sustainability may often be not to build at all. A building is always full of compromises, the result of juggling and trying to make compatible the diverse objectives of its creation.[3]

Yet some recent buildings can be seen to have emerged from a holistic sustainability design brief, which has had the support of the client and has been implemented by a team of sustainability conscious design professionals. Do such buildings qualify as beautiful acts, in the sense that they are the outcome of a critical design process, which has questioned the moral and ethical dimensions of design decisions and has attempted to meet the highest set of human and environmental design principles? To what extent is it possible to achieve a pure expression of sustainability in a building in all the stages from conceptualisation and design, during construction and use, and through maintenance and end-life? What statement of principles or goals provides the target for the beautiful act?

2. The Longer Term Project

This chapter represents the initial phase of a longer-term enquiry. It attempts to place together a conceptual framework that will allow the above questions to be addressed, and which will guide an exploration of the author’s core vision: *in the making of the built environment, human and ecological rights should not be violated*. The research will ultimately aim to make an original contribution to humankind’s understanding of the impact of the built environment process on people and the planet through the novel approach of juxtaposing human and ecological rights with the processes of designing, resourcing, constructing and using buildings.

It is intended to identify built environment related human and ecological rights, i.e. those rights that are touched by activities in the design-build-use life cycle. In parallel with this, buildings, which appear as very good examples of sustainable design, will be sought. To qualify for selection, the buildings will have grown from a sustainability brief and appear to address a holistic sustainability agenda which comprises human, social, ecological, spiritual, energy, environmental, economic, materials and health issues. The expectation is that for each building the client, designers and specialists will all have been sympathetic to the sustainability paradigm. This should ensure best practice examples of sustainable design. By studying these buildings and relating with the set of rights, and identifying those aspects which maximise satisfaction of rights, the project should lead to establishing the highest set of principles together with the means for implementing them. This research will be seeking 'the art of the possible' in contemporary ethical architecture.

In Section 4 the conceptual framework is described. This is the set of ideas and design approaches which I believe are fundamental to designing for sustainability in the built environment, and which will structure the value system for the enquiry. In Section 5 the Earth Charter is used to juxtapose human and ecological rights with the processes of the built environment. In Section 6 relationships with stages of the built-environment process, and potential best-practice holistic sustainable buildings are explored. The chapter ends by focussing on just one right, i.e. *the right to participate in decision-making*, and I examine the fundamental importance of this to achieving sustainability.

3. At the Root of the Conceptual Framework

In *Grow Your Own House* by Dethier, Liese, Otto, Schaur and Steffans there are amazing images of buildings, of many scales and many functions, made almost entirely from bamboo, that raise strong emotions about an autonomous architecture which is the product of local resources, a place specific architecture, renewable, organic, an architecture of ecology, made by those who now work, rest and play within its shelter. When the building is no longer required it can be composted back into the earth. This is undoubtedly a beautiful act: *an architecture of sustainability*. This concept of autonomy relates to a number of the other concepts to be introduced as part of the framework, and will be seen to underlie many of the principles for sustainable design which this research aims to embrace. Relating ideas of ecology with the processes and products of the built environment, which I have been doing for many years in my work as an educator, researcher and practitioner, has confirmed the belief that

humankind is part of nature, and not apart from her. This has to be a fundamental belief to ensuring humankind’s survival, and enjoyment of life, on our planet.

4. The Conceptual Framework

The conceptual framework has five components: Holism; Interconnectedness; Autonomous design; the self and the Self; and Rights.

A. Holism

Often, when sustainable design strategies for buildings are put forward they emphasise energy and resource conservation, and environmental impact. These are aspects that are more easily quantifiable, particularly in terms of economic benefit. However, there is a growing consensus that the human-centred aspects of sustainable design: e.g. issues of health, well-being, comfort and safety, offer even greater economic returns. The Green Building Challenge, a major international research, demonstration and dissemination project, in redefining the agenda for the environmental performance assessment of buildings, is currently debating: “should the assessment be limited to quantifiable performance criteria, or extended to include softer, subjective issues?”[4]

What might an extended sustainability design profile embrace? I have suggested there might be eight issue areas for it to be regarded as holistic and these are summarised below (in no particular order) together with a simple (explanatory) principal aim:

Materials issues – reduce impact during whole life of materials.
Environmental issues – modify climate with least pollution and waste.
Energy issues – heat, ventilate and power by conserving and least consumption, and using renewables.
Ecology issues – integrate with ecosystems, bioregions and nature.
Economic issues – resource the building process locally.
Health issues – contribute to health of people and planet.
Social issues – engage with social process, participation, inclusive design and equality.
Spiritual issues – revere all life and relationships between all forms of life, and sustain culture.

Whilst this list indicates the potential broad agenda of issues, the holistic nature of designing for sustainability will involve balancing priorities and resolving conflicts within the complexity of the overlaps and

relationships of needs and requirements. There are a number of contemporary built environment design philosophies that show how this may be done. For example, *'Baubiologie'* or Building-Biology, as described by John Talbott in *Simply Build Green* is claimed as the science of holistic interactions and relationships between life-forms and the built environment. It is a philosophy of building that takes into account health, the natural environment and human needs for shelter, and has been applied to single buildings and housing clusters. It aims to create a healthy living, working and cultural environment by methods which minimise the impact of a building on the health of people and on the health of the planet. Baubiologie regards the building as an organism with its surface being the third skin of the occupants. For the organism to be healthy the skin should be allowed to function naturally: breathing, absorbing, protecting, insulating, communicating and allowing evaporation. A second design philosophy for the built environment is *'Permaculture'* which extends holistic thinking to the level of neighbourhood and settlement.

> What we have attempted to do in this treatment is to create a tool, an idea for future development in urban and rural areas: not in the nature of a fixed or dogmatic pattern, but as a model which integrates several principles of many disciplines – of ecology, of energy conservation, of landscape design, urban renewal, architecture, agriculture, and the location theories of geography. We took into account problems of un-employment and of early retirement, of urban neurosis, and of the feeling of powerlessness and lack of direction common to many of us in today's world. It is not perfect, nor even a sufficient synthesis, but it is a start.[5]

Here the built environment designer is extending the boundary of concerns and responsibilities beyond the building itself to engage with social and economic issues within the immediate region.

B. Interconnectedness

In 1993 the UIA/AIA World Congress of Architects recognised the significant holistic nature of sustainability thinking in its Declaration of Interdependence for a Sustainable Future by saying that we are ecologically interdependent with the whole natural environment, that we are socially, culturally, and economically interdependent with all of humanity, and that sustainability, in the context of this interdependence,

requires partnership, equity, and balance among all parties. This holistic, or systems approach, with the important ingredient of interconnectedness may be related to the scientist James Lovelock's Gaia hypothesis which states that the evolution of the species of organisms is not independent of the evolution of their material environment. He claims that the species and their environment are tightly coupled and evolve as a single system. Humankind and its physical environment, of which buildings are a significant part, therefore can be viewed as evolving together. There is something rather special about this insight, the sacred value of which finds echoes in the Buddhist concept of Esho Funi, meaning the oneness of self and the environment. Nicharin Dishonin, 13th Century founder of the Soka Gakki branch of Buddhism describes this as: life at each moment encompasses both body and spirit and both self and environment of all sentient beings – plants, sky and earth, on down to the most minute particles of dust. Life at each moment permeates the universe and is revealed in all phenomena.

C. Autonomous Design

The concept of the autonomous house was first proposed by Alexander Pike in Cambridge, UK, in the 1960s. In energy generation and in the handling of waste his building was to be self-sufficient, i.e. renewables and recycling were the principles that would govern the design of the services. These ideas have been around for some time, yet it is in the last two decades or so that they have been applied and monitored in live projects. This approach is essential in reducing CO_2 emissions, other pollutants and waste, and in reducing the use of water, and the use of energy from fossil fuel sources. The ecological dimension is highlighted when the analogy is made with the characteristics and processes of wilderness. For example, Malcolm Wells in his book *Gentle Architecture* asks if building design can be based on 'life principles'. This, he says, is what wild land does: It creates pure air; creates pure water; stores rain water; produces its own food; creates rich soil; uses solar energy; stores solar energy; creates silence; consumes its own wastes; maintains itself; matches nature's pace; provides wildlife habitat; moderates climate and weather; is beautiful; and provides human habitat. Wells maintains that when we build we do the opposite of this: we fail on every point except the last. We always provide human habitat whatever the cost. He concludes there is no reverence for life in the way we build.

An autonomous approach to the making, the using and the disposal of the components of buildings, suggests in sustainability terms that we should minimise the boundary of a building's impact. The full

process before a component is fixed in place can include, extraction (mining), processing and fabrication, often with lengthy transportation in between each stage, often across the globe. Construction waste is also disposed of. In an autonomous approach we would locally resource a building which would then help sustain the local economy. A further dimension of an autonomous approach concerns being sensitive to, and working within, and thereby sustaining a 'local culture'. In addition, every building has its community of people: dwellers, workers, leisure seekers, etc., which it supports and sustains. One can enhance a sense of community not only through the social organisation of space, but more particularly by utilising the knowledge and skills of the building users in participatory design methods. Through participation people become stakeholders thereby creating or strengthening a sense of community, leading to increased social sustainability.

When we apply the principle of autonomy to all scales of the built environment, i.e. the building, the cluster or settlement, the city and the region, we will have reached a significant starting point towards achieving a sustainable future for humankind. Ultimately, of course, the planet itself has its *own* dimension of autonomy the constraints of which we must acknowledge. However, perhaps the first scale at which we should start is with ourselves.

D. The self and The Self

In the past, when limits of environmental sustainability were exceeded, man moved on to new land, or relied on further technological inventiveness to try to mend the unforeseen disasters. Whereas answers obviously do lie in the design of the technology of architecture, there is an emerging recognition that,

> the most important new frontier for redressing environmental crises and healing the Earth community now is the frontier of the mind and spirit, the realm where ethics are shaped and responsibility taken for the state of our world.[6]

To help expand on the concept of self, I am indebted to Warwick Fox from whom I have borrowed the following quotes.[7]

Devall and Sessions provide us with a deep ecology perspective:

> Spiritual growth, or unfolding, begins when we cease to understand or see ourselves as isolated and narrow

> competing egos and begin to identify with other humans, from our family and friends to, eventually, our species. But the deep ecology sense of self requires a further maturity and growth, an identification which goes beyond humanity to include the non-human world.

They refer to ‘self-in-Self’, where ‘Self’ stands for ‘organic wholeness’: “No one is saved until we are all saved.” This relates to the Buddhist ideal of the Bodhisattva: i.e. a person who forgets the egoic self, and realises a more expansive sense of self.

Arne Naess, who is often referred to as the father of Deep Ecology explains the significance of identification with the natural world:

> The ecosophical outlook is developed through an identification so deep that one’s own self is no longer adequately delimited by the personal ego or the organism. One experiences oneself to be a genuine part of life … We are not outside the rest of nature, and therefore cannot do with it as we please, without changing ourselves … We are part of the ecosphere just as intimately as we are part of our own society.

The concept of oneness of our self and our environment is further explained by Neil Evernden:

> It is the notion that the self is not necessarily defined by the body surface that is especially interesting. This means that there is some kind of involvement with the realm beyond the skin, and that the self is more a sense of self-potency throughout a region than purely a physical presence.

He refers to “a gradient of involvement in the world … a field of concern or care.” He continues:

> If we were to regard ourselves as ‘fields of care’ rather than as discrete objects in a neutral environment, our understanding of our relationship to the world might be fundamentally transformed.

Finally, Joanna Macey links the systems approach to what we, as individuals, usually perceive as significant:

> All concepts setting boundaries to what we term the self are arbitrary. In the systems world we are sustained by interweaving currents of matter, energy and information that flow through us interconnecting us with our environment and other beings. Yet we are accustomed to identifying ourselves only with that small arc of the flow-through that is lit, like the narrow beam of a flashlight, by our individual subjective awareness. We don't have to so limit our self perceptions.

The above provides the starting point for an ethical approach to designing for sustainability: the environment is myself extended beyond my skin, so if as a practising architect I injure any part of the environment then I am injuring myself, I must therefore aim to eliminate any injurious act.

E. Rights

Despite the emergence of such well developed and easily applied design philosophies as Baubiologie and Permaculture, described above, the engagement of the mainstream, western, built environment community with issues of sustainability currently remains partial. There is a clear need for a set of principles which challenge complacency and provoke responsible action. Chrisna du Plessis draws from African culture three fundamental principles of sustainability: i.e. *'Stewardship'* – we cannot own nature but only take care of it; *'Social Responsibility'* – the interest of community is paramount; *'Sufficiency'* – taking and doing only what is necessary and not using more than is needed. Du Plessis maintains that underlying all three principles is *'Spirituality'* – to revere all life and relationships between all forms of life.[8] These principles, which underpin most if not all pre-industrial cultures, and are embraced by many religions, can be seen to lie at the heart of an ethical approach to the design of the built environment to ensure that the limits of environmental sustainability are not exceeded. Whilst this particular set of principles are conveniently brief to remember there are others that have been more fully developed to encompass the sets of rights, both human and ecological, that this enquiry seeks to engage with.

A review of rights is bound to start with *The United Nations' Universal Declaration on Human Rights*. The language of the 30 Articles is abstract and seeks to sustain people's rights as individuals from challenges by other people and the state. They aim to protect the single person forgetting the general good of the society and there is nothing that

can be interpreted as referring to ‘a community of building users’ or indeed even a building, with the exception of Article 25 “the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing …”

Our Common Future (The Brundtland Report) is the first global engagement with issues of sustainability. It is human-centred and primarily concerned with human welfare through meeting needs and ensuring quality of life over and above protection of the environment. It does not guarantee the needs or quality of life of animals or other living organisms, except in so much as this would benefit humankind. It does suggest that equality could be used to overcome environmental problems. There are 27 general principles for achieving sustainable development, but these mainly concern conventions on biodiversity, climate change and principles of forest management, although there is recognition that the built environment plays an important influencing role on quality of life.

Bioregional/Ecological Rights: the Ecological Rights Association produced a set of principles initially for submission to the British Columbia Government’s Working Committee on Criteria for the Discharge Emissions which were then developed as a basis for the discussion of bioregionalism. Most, but not all of the principles were derived from 50 years of international treaties and agreements. All 30 principles, which still heavily focus on environmental degradation through pollutants, waste, toxic substances, etc., can nearly all be directly related or interpreted to relate to the design-build-use process. Principle 4 goes further and is concerned with “Enabling socially equitable and environmentally sound development” as a basis for bioregional planning, and included are such welcome rules as “compensation shall never be used as reason for not exercising the duty to preserve, protect, conserve the environment”.

The Earth Charter is described as “a shared vision of basic values to provide an ethical foundation for the emerging world community”. Significantly for this study it represents the fullest engagement with human and ecological rights and the concept of their global interdependencies, and will be taken forward as the benchmark of principles and rights in the enquiry. Furthermore, the Earth Charter recognizes that answers also lie outside the design of the appropriate technologies in that “a change of heart and mind” is required. Its history is that following the call from the 1987 UN World Commission on Environment and Development for a new charter that would set forth fundamental principles for sustainable development, a draft was prepared for 1992 Rio Earth Summit. In 1994 a new Earth Charter initiative led to the Earth Charter Commission being formed in 1997 to oversee the project and an

Earth Charter Secretariat was established at the Earth Council in Costa Rica. The Earth Charter continues to be developed through worldwide consultation, and endorsement by the UN is currently being sought. For all those connected to the processes of creating, using and maintaining the built environment and wishing to act ethically it represents the way forward. However, its true value will be realized after the lengthy process of translating the principles into ethical frameworks and practical guidelines for the built environment players and organizations. The principles are grouped under: respect and care for the community of life; ecological integrity; social and economic justice and democracy; and non-violence and peace.

5. The Earth Charter

Following the selection of the Earth Charter as the embodiment of human and ecological rights, each principle will now be examined to ascertain whether it 'could be enacted' in some way by the activities of the built environment process. The analysis suggests: a) principles of direct built environment relevance ('Yes'), b) a general principle indirectly related to built environment activity ('--'), and c) principles which have no relationship with built environment activity ('No'). Only a few fall into category 'c'. Participation related principles are highlighted by an asterisk. The Earth Charter starts with four broad commitments:

I. RESPECT AND CARE FOR THE COMMUNITY OF LIFE

1. Respect Earth and life in all its diversity.	Yes
Recognize that all beings are interdependent and every form of life has value regardless of its worth to human beings.	Yes
Affirm faith in the inherent dignity of all human beings and in the intellectual, artistic, ethical, and spiritual potential of humanity.	Yes
2. Care for the community of life with understanding, compassion, and love.	Yes
Accept that with the right to own, manage, and use natural resources comes the duty to prevent environmental harm and to protect the rights of people.	Yes
Affirm that with increased freedom, knowledge, and power comes increased responsibility to promote the common good.	Yes
3. Build democratic societies that are just, participatory, sustainable, and peaceful. *	Yes
Ensure that communities at all levels guarantee human rights and fundamental freedoms and provide everyone an opportunity to realize his or her full potential. *	Yes
Promote social and economic justice, enabling all to achieve a secure and meaningful livelihood that is ecologically responsible.	--

4. Secure Earth’s bounty and beauty for present and future generations.	Yes
Recognize that the freedom of action of each generation is qualified by the needs of future generations.	Yes
Transmit to future generations values, traditions, and institutions that support the long-term flourishing of Earth's human and ecological communities.	Yes

The Earth Charter states that in order to fulfil these four broad commitments, it is necessary to:

II. ECOLOGICAL INTEGRITY

5. Protect and restore the integrity of Earth’s ecological systems, with special concern for biological diversity and the natural processes that sustain life.	Yes
Adopt at all levels sustainable development plans and regulations that make environmental conservation and rehabilitation integral to all development initiatives.	Yes
Establish and safeguard viable nature and biosphere reserves, including wild lands and marine areas, to protect Earth’s life support systems, maintain biodiversity, and preserve our natural heritage.	Yes
Promote the recovery of endangered species and ecosystems.	Yes
Control and eradicate non-native or genetically modified organisms harmful to native species and the environment, and prevent introduction of such harmful organisms.	No
Manage the use of renewable resources such as water, soil, forest products, and marine life in ways that do not exceed rates of regeneration and that protect the health of ecosystems.	Yes
Manage the extraction and use of non-renewable resources such as minerals and fossil fuels in ways that minimize depletion and cause no serious environmental damage.	Yes
6. Prevent harm as the best method of environmental protection and, when knowledge is limited, apply a precautionary approach.	Yes
Take action to avoid the possibility of serious or irreversible environmental harm even when scientific knowledge is incomplete or inconclusive.	--
Place the burden of proof on those who argue that a proposed activity will not cause significant harm, and make the responsible parties liable for environmental harm.	--
Ensure that decision making addresses the cumulative, long-term, indirect, long distance, and global consequences of human activities. *	Yes
Prevent pollution of any part of the environment and allow no build-up of radioactive, toxic, or other hazardous substances.	Yes
Avoid military activities damaging to the environment.	No
7. Adopt patterns of production, consumption, and reproduction that safeguard Earth’s regenerative capacities, human rights, and community well-being.	Yes
Reduce, reuse, and recycle the materials used in production and consumption systems, and ensure that residual waste can be assimilated by ecological systems.	Yes

Act with restraint and efficiency when using energy, and rely increasingly on renewable energy sources such as solar and wind.	Yes
Promote the development, adoption, and equitable transfer of environmentally sound technologies.	Yes
Internalize the full environmental and social costs of goods and services in the selling price, and enable consumers to identify products that meet the highest social and environmental standards.	Yes
Ensure universal access to health care that fosters reproductive health and responsible reproduction.	No
Adopt lifestyles that emphasize the quality of life and material sufficiency in a finite world.	--
8. Advance the study of ecological sustainability and promote the open exchange and wide application of the knowledge acquired.	Yes
Support international scientific and technical cooperation on sustainability, with special attention to the needs of developing nations.	Yes
Recognize and preserve the traditional knowledge and spiritual wisdom in all cultures that contribute to environmental protection and human well-being.	Yes
Ensure that information of vital importance to human health and environmental protection, including genetic information, remains available in the public domain.	--

III. SOCIAL AND ECONOMIC JUSTICE

9. Eradicate poverty as an ethical, social, and environmental imperative.	--
Guarantee the right to potable water, clean air, food security, uncontaminated soil, shelter, and safe sanitation, allocating the national and international resources required.	Yes
Empower every human being with the education and resources to secure a sustainable livelihood, and provide social security and safety nets for those who are unable to support themselves.	No
Recognize the ignored, protect the vulnerable, serve those who suffer, and enable them to develop their capacities and to pursue their aspirations.	No
10. Ensure that economic activities and institutions at all levels promote human development in an equitable and sustainable manner.	--
Promote the equitable distribution of wealth within nations and among nations.	No
Enhance the intellectual, financial, technical, and social resources of developing nations, and relieve them of onerous international debt.	No
Ensure that all trade supports sustainable resource use, environmental protection, and progressive labor standards.	--
Require multinational corporations and international financial organizations to act transparently in the public good, and hold them accountable for the consequences of their activities.	No
11. Affirm gender equality and equity as prerequisites to sustainable development and ensure universal access to education, health care, and economic opportunity.	--
Secure the human rights of women and girls and end all violence against them.	--

Promote the active participation of women in all aspects of economic, political, civil, social, and cultural life as full and equal partners, decision makers, leaders, and beneficiaries.	--
Strengthen families and ensure the safety and loving nurture of all family members.	--
12. Uphold the right of all, without discrimination, to a natural and social environment supportive of human dignity, bodily health, and spiritual well-being, with special attention to the rights of indigenous peoples and minorities.	Yes
Eliminate discrimination in all its forms, such as that based on race, color, sex, sexual orientation, religion, language, and national, ethnic or social origin. [Disabilities?]	Yes
Affirm the right of indigenous peoples to their spirituality, knowledge, lands and resources and to their related practice of sustainable livelihoods.	--
Honor and support the young people of our communities, enabling them to fulfill their essential role in creating sustainable societies.	--
Protect and restore outstanding places of cultural and spiritual significance.	Yes

IV. DEMOCRACY, NONVIOLENCE, AND PEACE

13. Strengthen democratic institutions at all levels, and provide transparency and accountability in governance, inclusive participation in decision making, and access to justice. *	Yes
Uphold the right of everyone to receive clear and timely information on environmental matters and all development plans and activities which are likely to affect them or in which they have an interest.*	Yes
Support local, regional and global civil society, and promote the meaningful participation of all interested individuals and organizations in decision making. *	Yes
Protect the rights to freedom of opinion, expression, peaceful assembly, association, and dissent.	--
Institute effective and efficient access to administrative and independent judicial procedures, including remedies and redress for environmental harm and the threat of such harm.	--
Eliminate corruption in all public and private institutions.	No
Strengthen local communities, enabling them to care for their environments, and assign environmental responsibilities to the levels of government where they can be carried out most effectively.	Yes
14. Integrate into formal education and life-long learning the knowledge, values, and skills needed for a sustainable way of life.	No
Provide all, especially children and youth, with educational opportunities that empower them to contribute actively to sustainable development.	No
Promote the contribution of the arts and humanities as well as the sciences in sustainability education.	No
Enhance the role of the mass media in raising awareness of ecological and social challenges.	No
Recognize the importance of moral and spiritual education for sustainable living.	No

15. Treat all living beings with respect and consideration.	Yes
Prevent cruelty to animals kept in human societies and protect them from suffering.	No
Protect wild animals from methods of hunting, trapping, and fishing that cause extreme, prolonged, or avoidable suffering.	No
Avoid or eliminate to the full extent possible the taking or destruction of non-targeted species.	--
16. Promote a culture of tolerance, nonviolence, and peace.	Yes
Encourage and support mutual understanding, solidarity, and cooperation among all peoples and within and among nations. *	Yes
Implement comprehensive strategies to prevent violent conflict and use collaborative problem solving to manage and resolve environmental conflicts and other disputes. *	Yes
Demilitarize national security systems to the level of a non-provocative defense posture, and convert military resources to peaceful purposes, including ecological restoration.	No
Eliminate nuclear, biological, and toxic weapons and other weapons of mass destruction.	No
Ensure that the use of orbital and outer space supports environmental protection and peace.	No
Recognize that peace is the wholeness created by right relationships with oneself, other persons, other cultures, other life, Earth, and the larger whole of which all are a part.	Yes

6. Potential Best-Practice Holistic Sustainable Buildings

Here is represented the start of the exploration of the relationship between built environment related human and ecological rights, i.e. those rights that are touched by activities in the design-build-use life-cycle, and leading edge examples of sustainable building design. Table 1 illustrates a potential candidate: the ING Bank headquarters for 2,500 employees (formerly the NMB Bank) in Amsterdam, as it can be seen to fully address the holistic sustainability design profile of social, ecological, spiritual, energy, environment, economics, materials and health issues. Designed by Ton Alberts it was completed in 1987.[9]

Table 1: ING Bank Sustainability Design Profile
NB: a design characteristic may apply to more than one part of the profile.

ENVIRONMENT: Design with climate. Environmental impact. Slope of walls deflect traffic noise. No air-conditioning. Maximum natural lighting. Everyone has the right of space next to opening window. Generally, environmental control in hands of the occupants. Solar energy pre-heats air for use in building. Irregular form gives domestic scale and allows daylight into mass of the building.
HEALTH: Impact on people's health and planet's health. No air-conditioning. Night flushing expels contaminants. Non-spirit based paints and stains. Water: flow-forms, pools and water sculptures soothe, cool and oxygenate the air. Planting: improves air quality and creates a 'natural' atmosphere. Soft coloured surfaces. Absence of 'imposing'

rectilinear layout. Domestic scale. Irregular form gives domestic scale and allows daylight/sunshine into mass of the building. Everyone has the right of space next to opening window. Views into gardens. Generally, environmental control by occupants. Slope of walls deflect traffic noise. Gardens reduce barrier between ‘outside and inside’, ‘life and work’, ‘nature and artefact’.
ECONOMIC: Local economy. Community. Decision by employees on site for building (relation to public transport). Displays of local hand-crafts. Local brick.
SOCIAL: Social process. Participation. Equality. Stake-holding. Irregular non-institutional circulation routes. Absence of ‘imposing’ rectilinear layout. Domestic scale: to the internal street and to the workspaces. Internal street displays of local hand-crafted works: paintings, sculpture, stained glass, mirrors and textiles. Employees selected the architect, the site location, and worked with design team. Generally, user environmental controls. Social organisation of work spaces.
ECOLOGICAL: Nature. Eco-systems. Bioregionalism. Planting: improves air quality and creates a ‘natural’ atmosphere. Views into gardens. Gardens reduce barrier between ‘outside and inside’, ‘life and work’, ‘nature and artefact’. Irregular form allows daylight/sunshine into building. Rainwater used. Water forms soothe, cool and oxygenate the air. Solar calendar.
SPIRITUAL: Sacred. Cultural. Reverence. Personal transformation. Solar calendar and time of day indicator. Slope of walls at base give ‘earth bound connection’. Towers bring light in to filter down to the internal street. Water forms create calming ambiance. Views into gardens. Gardens reduce barrier between ‘outside and inside’, ‘life and work’, ‘nature and artefact’. Local hand-crafts on display. Brickwork traditions of Amsterdam School. Employee design contribution.
MATERIALS: Sources. Life cycle. Non-spirit based paints and stains. Local brick industries.
ENERGY: Conserving. Consumption. No wide structure spans. Waste heat recycled. No air-conditioning. High insulation. Heat used from people, computers, lighting and sunlight. Maximum use of natural lighting. Solar energy pre-heats air.

Across the globe, housing satisfies a fundamental need and the majority of peoples have a direct involvement in their housing provision with many through a degree of self-build. It is therefore in the housing process that most people are likely to become complicit in a violation of human or ecological rights if the highest set of sustainability principles has not been followed. To illustrate the range of sustainability issues which housing can address two UK developments, known to the author, are introduced in Table 2. The Beddington Zero Energy Development (BedZED, ‘B’ in Table 2) in Sutton, Surrey, consists of 82 homes, plus office space and live-work studios, designed by the architect Bill Dunster and built by contractors.[10] The Diggers Self-build development in Brighton (‘D’ in Table 2), consists of nine single and two storey dwellings, designed and constructed by the dwellers, and facilitated by the architectural practice Architype.[11]

Table 2: Housing Sustainability Design Profiles

ENVIRONMENT: Design with climate. Environmental impact. **B:** 100% brownfield site. Compact, high occupation. Zero 'fossil' energy / 'Carbon neutral'. Design life: target is 120 years for principle structural elements. **D:** Steely sloping site/ undeveloped leftover land. No modification of ground levels – timber frame on pads – 'treading lightly'. South facing with partial passive solar design.
HEALTH: Impact on people's health and planet's health. **B:** 'Carbon neutral' by avoiding fossil fuels. Cycles link to cycle network. 'Pedestrian first' policy. Onsite Healthy Living centre and Organic Food shop. Adjacent park with allotments. Maximise fertility, productivity and amenity of (roof) gardens. **D:** Sunlight brought into heart of the dwelling. Natural materials and non-spirit based paints. Pedestrian friendly car free site. Planned to have allotments.
ECONOMIC: Local economy. Community. **B:** Reduce need to travel: Living/work spaces, Internet shopping and on-site facilities. Broadband Internet access for business use for residents. Building materials from within 35 miles where possible. Local contractors and local fabrication where possible. **D:** Communal gain through individual effort. Communal 'ownership'.
SOCIAL: Social process. Participation. Equality. Stake-holding. **B:** Mix of homes aiming for socially inclusive community. Nursery and after-school club. Café/organic food shop. **D:** Participatory design of site layout. Co-designed houses with architect, then individual adaptations. Teamwork to build the houses. Convivial, easily understood, building technology. Communal garden.
ECOLOGICAL: Nature. Eco-systems. Bioregionalism. **B:** Water saving appliances. Handbooks on reducing water use. Rain collection into underground storage tanks. Greywater recycling via reed bed water treatment in Living Machine for toilet flushing and for gardens. Roof gardens. Recycling bins in every home. External water features to attract wildlife. Porous landscaping/hard-standings. **D:** Grass roofs for insulation, wildlife, water filtering. Local chalk down-land grass mixes. No modification of ground levels: treading lightly timber frame. Rainwater butts.
SPIRITUAL: Sacred. Cultural. Reverence. Personal transformation. **B:** Personal satisfaction through involvement. Caring for the planet with an eco-lifestyle. Aware of consumption of resources via electricity, energy and water meters in the kitchens. **D:** Social process. Awareness of issues: community, environmental, energy, quality of materials. Gaining confidence and life-skills. Solar access and distant views.
MATERIALS: Sources. Life cycle. **B:** Where possible: natural, renewable or recycled and from within 35 miles of site. Forest Stewardship Council certified timber. **D:** Breathing construction. Recycled newsprint insulation. Untreated timber UK sourced if possible. 'Auro' organic paints and stains. Linoleum floor finish. UK windows.
ENERGY: Conserving. Consumption. **B:** 'Zero-energy' (in total). Bio-mass: heat and electricity from tree waste. South facing. Super insulation. Triple glazed timber windows. Harnesses casual heat from cooking, bodies, etc. Photovoltaics. Wind driven natural ventilation with heat exchangers to outgoing stale air. Energy saving appliances and low-energy light bulbs. Public transport, cycles, pedestrian. Communal electric cars. Legally binding green transport plan as part of planning permission. **D:** South facing with conservatories and decks. High efficiency gas condensing boilers.

These three built projects, from the descriptions supplied, appear to qualify as leading edge examples of holistic sustainable design. It is known that each design grew from a holistic sustainability brief, and the clients, designers, specialist consultants, etc. were all sympathetic with the sustainability paradigm. However to test whether these are best practice examples of sustainable design each building will need to be examined against the set of rights as only then will it be able to be used to illustrate how the highest set of principles can be realised.

7. An Examination of the Right to Participate

The Earth Charter includes reference to the right of people to participate. In the above presentation of the Earth Charter, an asterisk highlights participation related principles. Firstly, we find there is a broad commitment to participation at the highest level: i.e. *3. Build democratic societies that are just, participatory, sustainable, and peaceful.* Participation is seen as a fundamental freedom and when opportunities are provided, through it people can realise their potential. Under 6, the link is made between participation and peoples’ engagement with long term planning and raising awareness of the environmental impacts of design decisions: *Ensure that decision-making addresses the cumulative, long-term, indirect, long distance, and global consequences of human activities.*

Under Democracy, Nonviolence, and Peace there are further references to participation: i.e. *13. Strengthen democratic institutions at all levels, and provide transparency and accountability in governance, inclusive participation in decision-making, and access to justice.* Here the important links between peoples’ involvement in decision making and environmental issues is taken further: *Uphold the right of everyone to receive clear and timely information on environmental matters and all development plans and activities which are likely to affect them or in which they have an interest. Support local, regional and global civil society, and promote the meaningful participation of all interested individuals and organizations in decision making.*

Under 16 the importance of a collaborative (between professionals from different disciplines) approach is emphasised: *Encourage and support mutual understanding, solidarity, and cooperation among all peoples and within and among nations. Implement comprehensive strategies to prevent violent conflict and use collaborative problem solving to manage and resolve environmental conflicts and other disputes.*

Warwick Fox, in exploring the scope of the ethical dimensions of built environment design and planning has already suggested how a human right may be violated:

> ... given the pervasive effects that built environments have upon the people who live in them (to say nothing of their effects upon the rest of the planet and its other inhabitants), it might reasonably be considered that not including people in the process of designing the buildings they use is tantamount to a violation of the rights of human beings to a significant degree of self-determination.[12]

Indeed, in a conventional planning and building process the decision makers: politicians, financiers, professionals and developers, often work in isolation from the people and communities they serve. From my personal experience of facilitating the participation of users and communities in the design of their buildings, when participatory processes are initiated from the outset with respect for contributions from all participants, experts and lay people alike, frameworks for physical, social, economic and ecological change can be agreed by consensus, many of which can be long term in nature. A common sense of ownership is established and building briefs and action plans are implemented in true partnership. Change towards a more sustainable future, to be other than superficial, depends on such partnerships, which taps the core values shared by all and releases energy and creativity at all levels.

The understanding that expertise does not reside solely with the professional but with all those whose interests are affected by a design or planning problem, has been acknowledged by design methodologists and a few design practitioners for some time. Yet despite governments adopting Agenda 21 after the 1992 Rio Earth Summit, which emphasised the importance of involving whole populations in broad processes to achieve change, there has been little impact of this approach upon mainstream architecture.

In my own action-research as a community architect I have been able to show that when people participate in the creation of the environment that they themselves will later inhabit, they often begin to critically examine broader ecological aspects of building design. I am able to go further and claim that the synthesis of participation with an ecological agenda results in a significant personal level of change within the participants themselves, and I believe that this personal transformation is one of the most beneficial outcomes of the participation process, and is

an important ingredient in contributing to the social sustainability of communities. I refer to this as a spiritual outcome, and just as important as the creation of a socially responsible and ecologically sound physical architecture.[13]

The ING Bank example can be seen to have followed many of these principles: Democratic decision by the bank's employees on where the building was to be sited; elected employee committee selected the architect; employees worked with the collaborative design team that included engineers and architect, acousticians, landscapers, occupational therapists, artists, contractors; and generally, environmental control of the building in use is in hands of the occupants.

In the Diggers Self-Build project participation is maximised throughout the designing and construction stages, whilst at BedZED there is a different form of stakeholding developing. Residents who were initially attracted by the sustainability philosophy behind the project, are now helping the project succeed through their behaviour, life-style and activities, and are participating in a range of community initiatives.

8. Prospect

The further research will involve the analysis of existing buildings and interviews with their designers and users. The ultimate aim is to produce a set of holistic sustainability design principles and guidelines for their implementation using built examples of the characteristics of best practice ‘ethical’ buildings, which satisfy a defined set of rights. I hope to raise awareness of the ethical responsibilities of the built environment professional; inform governmental and professional bodies, and contribute to policy making and prompt extensions to UK construction and planning legislation; and provide an outline of expanded approaches for built environment higher education courses.

Notes

1. Williamson, Radford and Bennetts, 2003, 127.
2. Ibid., 14.
3. Ibid., 127.
4. Larsson and Cole, 2001, 337.
5. Mollinson and Holmgren, 1990, 2.
6. Mische, 1999.
7. Fox, 1995: Devall and Sessions (page 234), Arne Naess (page 230), Neil Evernden (page 238) and Joanna Macey (page 240).
8. Du Plessis, 2001, 374-380.

9. Table 1 ING Bank: details from visitor pack and personal visits.
10. Table 2 BedZED: details from <http://www.bedzed.org.uk/> and personal visits.
11. Table 2 Diggers: details from Jonathan Hines of Architype.
12. Fox, 2000, 225-226.
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The Environmental Impact of Housing: Local and Global Ecological Footprint of a House

Roselle Miko and Shirley Thompson

> When we build, let us think that we build forever. Let it not be for present delight nor for present use alone. Let it be such work as our descendents will thank us for; and let us think, as we lay stone on stone, that a time will come when those stones will be held sacred because our hands have touched them.
>
> John Ruskin[1]

1. Introduction

The house you live in affects your health, the environment and resource distribution. Healthy housing is a basic need, yet it is not available to all. In the southern hemisphere, 100 million people live in overcrowded housing with inadequate provision of sanitation and water and do not have safe, healthy, affordable housing.[2] Housing also produces a large ecological footprint to build and to operate – particularly in the cold climate of Winnipeg, Canada where this story about an ecological footprint of a house takes place. Four months of the winter the temperature hovers around –30 ° Celsius requiring barrels of oil to heat and then shoots up to +30 ° Celsius in the summer, requiring cooling.

Worldwide, the scarcity of renewable and non-renewable resources is indicated by rising oil and gas prices, water concerns, and public outcry from dispossessed groups. Canadians consume and waste more than their fair share of these precious resources. Daily, Canadians generate 1.7 kilograms of waste per person as opposed to 0.8 kilograms per person in Sweden.[3] As a result, a Canadian's ecological footprint is much larger than other people's at 8.85 global ha/person, which translates into 4.7 Earths if everyone's footprint was Canada's footprint.[4] This calculation reveals the extent to which affluent people and countries have already taken 'more than their fair share' of life essentials, such as energy, arable land, and water. There are not enough resources worldwide for everyone to seek similar levels of resource consumption as Canadians; therefore, responsibility to control overconsumption rests with those who have appropriated more than is equitable.

In light of the serious global environmental impacts of resource and energy use, Canadians are increasingly choosing to adopt recycling programs, fuel-efficient vehicles, and organic foods, but not healthy houses. In Canada, healthy housing choices are limited by affordability

and availability: only the wealthy can afford to purchase custom built healthy housing and everyone else must settle for what is available on the market. For those lacking the legal right of home ownership, which disproportionately includes Aboriginal people, the poor, elderly, and disabled, there is no option for healthy housing. People with limited means often have to live in apartments with mold, drafts, and moisture problems. As mold causes respiratory illnesses and aggravates environmental sensitivities and allergies these conditions are guaranteed to negatively impact human health. But there is no other choice – only 1% of all new home construction in Canada is built to an environmental standard such as the R2000 standard which is a voluntary building standard that provides performance standards for new houses.[5] It goes beyond the Canadian National Building Code minimum requirements and considers in all aspects of design and construction human health, accessibility, energy efficiency, environmental responsibility, human comfort, and maintenance. R2000 material and construction practices require solid surface floorings throughout (little to no carpeting allowed), volatile organic compound free paints, formaldehyde free finishings (cabinets), sealed combustion furnace, ventilation system (required), and a fully insulated basement.

2. Our Approach

But what can be done to translate an objective of environmentally healthy housing into a physical reality? In order to make this transformation from goal to reality, Miko monitored sustainable building techniques by participating in construction of an eco-home built by a family member.

Building to environmental standards in what we call the 'eco-home', allowed us to explore the links between local actions and global environmental impacts. Some elements of the ecological footprint were employed to evaluate the environmental impact of sustainable building choices, in comparison to the average building. The ecological footprint makes use of two simple facts: first, we can track most of the resources we consume and many of the wastes we generate; second, most of these resource and waste flows can be converted to a biologically productive area necessary to provide these functions. Therefore, the ecological footprint calculates the total area of productive land or sea required to produce all materials used to support each person's basic living requirements and can show their overconsumption. However, to be more meaningful, we wanted to express it not only in these terms, but also in Canadian dollars and environmental justice descriptive terms. Rather than

coming up with one number representing an economic value or ha/person, as the ecological footprint does, a lifecycle analysis of this one home was employed to illustrate how local decisions have global impacts on energy, resource consumption, cost savings, and human health. For example, a vapour barrier saves energy; minimal framing uses less lumber/trees, and the ventilation system determines air quality but these choices also determine whether communities are logged, mined or dammed. As a result, we discuss the need for environmental standards in national building codes to encourage global citizenship in Canadians by consuming less energy, materials, and water.

3. Energy: Managing our Appetite with Insulation, Vapour Barriers, and Fixtures

Awareness of the many associated injustices created by energy overconsumption challenged us to reduce energy-use in the eco-home by: using super-insulation amounts, proper air and vapour barriers, and efficient lighting fixtures.

Canada's energy use is 50% higher than countries with similar climates such as Sweden.[6] Energy consumption peaks during our long, cold Canadian winters. Temperatures average –30° for two to four winter months in many parts of Canada where temperatures range from –40° to +30° Celsius. Therefore, extra insulation amounts are invaluable for retaining heat and lowering heating costs.

Canadian's appetite for energy consumption is immense and increasing daily with housing being a large part of that. Between 1990 and 1997, net electricity generation increased by 2.5% per year, compared with a total population growth of 1.2%. Between 1990 and 1998, Canadian energy consumption grew by 13%. Canadians consume more energy per capita than any other country in the world, using more energy than the 700 million people in Africa combined.[7]

For those countries and peoples experiencing daily power shortages everyday living presents challenges – food spoilage, water shortages, and equipment failures in essential facilities such as hospitals – all of which result in increased mortality. In contrast, Canada exemplifies waste.

Many Manitobans assume our energy requirements are met by hydroelectricity produced in Manitoba; nevertheless, we must import three-quarters of our yearly energy requirements from Western Canada.[8]

Worldwide, Canada produces the largest amount of hydroelectric power. Canada is also the world leader in long distance transmission lines,

as hydroelectric energy is produced in the north and sent south for consumption.[9] Not only does Canada's energy consumption create local/global equity issues, but there is also a north/south equity issue within Canada.

Often promoted as 'clean, renewable' energy, northern mega hydroelectric dams benefit southern communities with energy, while disproportionately negatively impacting northern Aboriginal communities and ecosystems located near projects. This dynamic, coupled with an 'out of sight, out of mind' attitude, has created a situation of environmental injustice for northern Aboriginal residents. For Aboriginal people, generating energy caused the flooding of traditional lands and continues to result in loss of wildlife habitat, the resultant loss of traditional ways of life, changes to fish quantities and related health concerns such as mercury poisoning, water current changes and changes to the duration and nature of ice cover. These negative impacts are not softened by limited employment opportunities at hydro stations or profit sharing dividends that could occur if they jointly owned the generator. Having to endure even one of the above injuries would be injustice, but to bear them all is an indication of Canadian society's disregard of the consequences of energy overconsumption. Efforts must be made to eliminate north/south and local/global energy disparities by reducing energy use.

Rather than producing more energy to meet increasing demand, the United Brotherhood of Carpenters and Joiners of America Local Union 343 state, "Energy efficiency creates more jobs per dollar than mega projects."[10] A more recent study by the Pembina Institute for Appropriate Development confirms the Brotherhood's statement: "For each million dollars invested in efficiency, 36 full-time jobs were created."[11]

A. Insulation

Twice the recommended amount of insulation was used in the eco-home to improve heat retention. The result is a super-insulated house that requires no furnace and that can be heated by passive solar and electric baseboard heat. Yearly heating costs in the eco-home are half of what an average home requires. According to Canada's Kyoto commitment, Canada has agreed to reduce greenhouse gas emissions to six percent below 1990 levels by 2012, which would represent a 26% reduction from previous projected 2012 levels.[12] The eco-home demonstrates that reducing greenhouse gas emissions is achievable; however, for there to be any meaningful impact on energy consumption, all housing, both new and renovated, must become energy efficient –

therefore the entire construction industry must become environmentally and energy conscious.

Insulation works in conjunction with air and vapour barriers to control heat loss, an important fact considering Canada's extreme climate. The vapour and air barrier act as skin, protecting us from wind, cold and heat, but their ability to do so is proportional to their completeness. The vapour barrier is located on the interior of the wall structure and the air barrier is located on the exterior.

B. Vapour Barrier

The R2000 construction standard requires vapour barriers to perform and uses blower door tests to determine air leakage. Structures without continuous vapour barriers cost more to heat, are less energy efficient, and more prone to moisture related problems. Vapour barriers are one of the easiest technologies to use correctly, but one of the most neglected factors.

In the eco-home, the total labour and material cost for installing both the vapour and air barrier was $800, or less than 1% of the cost of construction. The vapour barrier contributed to the energy savings of the eco-home, a savings of 50-60% on heating bills. The average *total* energy bill for the eco-home is $800/year rather than the typical costs of $1,500-2,000/year that other Canadians would pay; therefore the homeowner recoups the initial vapour barrier cost in a year.[13] Requiring a properly installed vapour and air barrier in every new and renovated house is logical. If the current trend of rising energy costs continues, properly installed and tested air and vapour barriers are the most efficient ways to recoup money and save energy.

C. Fixtures

Energy efficient fixtures and natural lighting proved ideal for lowering energy consumption. Upgrading light bulbs from incandescent to tungsten or fluorescent is very simple and can be done at any time in any home by simply replacing the old incandescent bulbs as they burn out. In renovations or new home construction, it is important to recoup energy savings from all areas, which is why we used high efficiency fluorescent light bulbs. As well, natural lighting freely supplied by the sun offers a warm glow.

Passive solar design is critical for heating the house and allows natural light for illumination. As well, the light from large south facing

windows provides excellent indoor gardening opportunities and contributes to the occupant's general sense of well-being.

Although initially costing more ($5-10/bulb as opposed to $1-3/bulb), compact fluorescent lamps last about 10 times as long as incandescents and reduce energy requirements by up to 75%.[14] Used throughout the eco-home, the fluorescent lights provided warm task lighting as well as energy savings.

The combination of passive solar and energy efficiency eliminated the need for a furnace and resulted in a bright cozy home that made it affordable to maintain at comfortable temperatures.

4. Timber: Skinny Walls Save a Small Forest

Awareness of the global implications of resource overuse led us to carefully manage our local lumber choices in the eco-home. Forestry issues are volatile topics both within Canada and internationally. Heated debates, blockades, and violent clashes are occurring between corporations and activists on Canada's West Coast about forestry practices. Resources, access to them and ownership of them, are battlegrounds.

Canadians live in a 'forest nation'. Canada is the largest exporter of wood and related wood products, and also produces a third of all newsprint in the world. A 1997 report from the World Resources Institute provides a global perspective on Canada's forests. Of all remaining frontier forests, defined as those forests with intact ecosystems, one-quarter is located in Canada's boreal forest.[15]

According to the World Resources Institute and Rainforest Alliance, 80% of tropical forests have disappeared. In Canada alone, the Institute states that over 200,000 hectares of forest is destroyed yearly, close to one hectare every two minutes. The global forestry situation is grim, but it can be reversed if societies change their consumption and value systems. Elizabeth May states that,

> Our economies are badly skewed … if the importance of the forests' role in maintaining global climate was properly valued, and weighed against the costs of reducing that ecological gold mine to a pulp, logging would be drastically reduced.[16]

Wall construction requires lumber, but amounts vary by framing technique. In the eco-home, we used minimal framing techniques, which are more environmentally friendly than standard framing methods. Using this method saved 1362 board feet of lumber or $749 or a small forest of

62 spruce trees of medium diameter. The savings contributed to the cost of a heat recovery ventilator and the trees left standing continue to provide benefits – carbon sinks, aesthetic appeal, medicines, habitat, and air purification. In addition, an innovative truss wall system created a larger cavity, which we require for greater than average insulation amounts. The vapour and air barriers and insulation, create a tight envelope keeping the occupants warm and comfortable.

The hardwood flooring was made from locally grown and processed Manitoba Ash. Reduced transportation costs and reduced pressure on slower growing hardwoods resulted from purchasing locally. As well, the local economy benefited from the family business 'buy local' philosophy, which espouses the idea of purchasing quality new and used materials as close to each job site as possible. Therefore, the definition of *local* is dependant on the *locale* of the construction site.

5. Water: Want Not

Plumbing fixtures were chosen for their ability to conserve water. Pressure to conserve water is escalating at municipal, national, and international levels as droughts, contamination, population, and water scarcity increases. Issues of water privatization are also relevant to the northern hemisphere as companies position themselves to take advantage of this precious resource.

In terms of per capita water consumption, only Americans use more water than Canadians. Of the 29 member nations of the Organization for Economic Cooperation and Development (OECD), Canada's per capita water consumption is 65% above the OECD average.[17] Canadians use 1600 cubic meters of water/year, which is twice the amount of water an average person from France and 4 times more water than the average Swede uses.[18] Experts say that an average person needs between 30 and 50 litres of water for daily drinking, cooking, and cleaning requirements – which is five times more than an African has access to daily, while Canadians use six times that amount daily.

Canadian International Development Agency (CIDA) estimates that in the year 2000, 450 million people in 29 countries suffered chronic water shortages, particularly in Africa and the Middle East. Furthermore, in 1998, water-related diseases caused at least 3.4 million deaths, particularly in children.[19]

The United Nations Environment Programme (UNEP) states that, "two out of every three people will live in water-stressed areas [where consumption exceeds 10% of total supply] by the year 2025."[20] Therefore,

current water consumption rates everywhere, including Canada, must be dramatically curtailed if we are to avoid the above-predicted scenario.

For the ecosystems of the world, increased water demand will result in decreasing water quality and quantity. A local example of decreased water quality was seen in Winnipeg when the current infrastructure failed and emitted 500,000 cubic meters of untreated sewage into the Red River in September 2002.[21]

For municipalities, reducing water demand lowers investment requirements into the water and waste infrastructure needed to purify, gather, deliver, and dispose of water. The money saved in infrastructure could be returned in taxes, or used to better the community in other ways.

We chose to proactively address water overconsumption in the eco-home by installing low flow faucets and toilets, as well as an efficient hot water heater.[22] An average Canadian family uses 1000 litres of water daily and flushes 40%, or almost half of their clean, drinkable water down a toilet every day.[23] Pre-1985 toilets use more than 20 litres of water per flush, while a low flow toilet uses 6 litres of water per flush. Low flow shower heads save approximately 12,000 liters per person each year.[24] All told, water use in the eco-home was halved, bringing water consumption in line with France, but still not as good as Sweden's water consumption levels.

6. Construction Materials: Waste Not

Ideally, before building new housing, retaining and retrofitting existing houses for energy, water, and resource efficiency is the most environmentally responsible and socially just option. Where retrofitting is impossible, it is critical to salvage materials from the structure before rebuilding. When demolishing structures, it is important to remove all materials that can be reused.

Reusing building materials reduces buildings' ecological impact, and helps preserve ecological integrity since 80% of materials are recyclable.[25] Demolishing buildings without salvaging as much material as possible fails to consider the social and environmental costs of building materials. The Earth Charter, which serves as the environmental equivalent of the UN Universal Declaration on Human Rights, states: "[Everyone] has a responsibility to integrate a concern for environmental protection with social justice and economic opportunities."[26]

Canada is the third largest *per capita* producer of greenhouse gas emissions worldwide (22.2 tonnes), with Australia producing the most at 27.9 tonnes, and the United States closely following Canada at 20.7 tonnes. In contrast Sweden, with a climate similar to Canada, was one of

the lowest producers of greenhouse gases at 5.2 tonnes.[27] In order to meet Kyoto commitments, the construction industry must play a critical role in Canada's plans to curb greenhouse gas emissions.

Taking construction materials directly to the landfill without incorporating salvage is squandering the embodied energies resulting from the manufacturing process of materials such as lumber and brick.[28] Replacing these landfilled materials with new materials requires energy that begins another round of manufacturing, and leads to increased greenhouse gas emissions from the processing sectors.

Webster's dictionary defines demolition as "To destroy the structure of (a building etc.); to reduce to nothing."[29] Salvaging these materials instead would have: contributed to job creation, reduced pressure on landfills, extended material lifecycles, and provided materials for further construction. In 1998, an estimated 4.6 million tonnes of solid waste was generated in the demolition and construction of buildings, representing 157 kilograms of solid waste per Canadian. Of that 4.6 million tonnes, 16% of the waste is attributed to residential construction waste.[30]

For example, transporting 'waste' to the landfill costs up to 4% of the total home construction costs and fills five 40 yard dumpsters.[31] Reclaiming these materials lowers new materials amounts required for new construction and decreases our impact on the environment, since 80% of the wasted materials can be recycled.

In the case of the eco-home, we used reclaimed brick, salvaged and purchased locally, thereby extending the useful lifecycle of the brick by another 50 to 100 years before it enters the waste stream. The eco-home exterior is a combination of brick and stucco, both of which are low maintenance, energy efficient, durable, and aesthetically pleasing.

The initial labour and purchase cost of brick is relatively higher than other exterior choices such as aluminum, wood or vinyl siding, but by amortizing brick's initial purchase cost over the house's lifecycle, brick becomes economically feasible. Both the stucco and brick are durable and capable of handling Manitoba's temperature extremes with little to no maintenance. Furthermore, a solid, aesthetically pleasing exterior creates a visual sense of well-being and pride in people. Housing exteriors are, unconsciously or consciously, used to judge the social well-being of a community. For example, driving down a street where houses have boarded up windows, and peeling paint evokes a different impression than driving through streets where the houses have well kept exteriors. While it is difficult to quantify a sense of well-being, housing quality is used as social and economic indicators in communities, regions, and countries.

7. Human Health: Healthy Insulation

In the eco-home, we considered employee and occupant health to be equally important, and as such, we chose low emission materials to limit everyone's exposure to toxins. Globally and locally, the impact that issues such as environmental racism, sexism, and poverty have on determining worker health and safety requires reflection. Research indicates that worker and environmental health is inter-related:

> The level of occupational health and safety, the socioeconomic development of the country and the quality of life and well-being of working people are closely linked … intellectual and economic inputs into occupational health are not a burden … some industries and countries have demonstrated that it is technically feasible and economically productive to prevent and minimize hazards at work.[32]

Occupational injuries and disease is even more critical to monitor and reduce in developing countries where 70% of the working population lives. The movement of companies into developing countries for cheap, available labour has created several disparities between producers and consumers of goods, often segregating occupational health issues to the country of production, while the country of consumption and frequently, the consumer, remains indifferent to occupational health, focusing more on the cost of the goods. Therefore it is important to include occupational health into a product's lifecycle analysis.

The International Labour Organization (2003) estimates that worldwide two million people die annually as a result of work, 160 million people develop work-related diseases from hazardous exposures or workload, and 270 million are injured.[33] Nine million employees are exposed to known sensitizers and irritants associated with asthma, while 4 million chemical mixtures remain untested, but research on more than a thousand links chemical mixtures to fertility and pregnancy abnormalities.[34]

The US Environmental Protection Agency has concluded that workplace exposure to environmental hazards poses a greater health risk than any other known factor: workplace exposures are generally more direct, continual and concentrated than for other exposure sources and like other issues, it is not evenly distributed.

In response to worldwide increases in worker-related illnesses and deaths, in 1994 in Beijing, China, the World Health Organization adopted a strategy, 'Occupational Health for All', recognizing the,

> Urgent need to develop occupational health in a time when rapid changes in working life are affecting both the health of workers and the health of the environment in all countries.[35]

The National Occupational Research Agency created a 'top ten' list of workplace diseases and injuries. Their research indicated that allergic and irritant dermatitis accounted for 15 to 20% of all skin-related occupational diseases and is estimated to cost one billion annually in loss of productivity. In Canada, worker illness, death, and environmental issues are also high: occupational deaths are the third leading cause of death after heart disease and cancer.[36]

Blown-in cellulose fibre was chosen for its higher insulation values, compatibility with the wall system, and because it is less irritating to skin than the widely available fibreglass product.[37] Made from recycled newsprint, cellulose has little associated health risks in installing or living with it. In the eco-home, cellulose provided the best trade off for health, performance, and environmental impact compared to fibreglass.

While commonly used, fibreglass insulation has health risks associated with installation. Exposure to fibreglass from handling and inhalation during the installation process can cause skin, eye, and lung irritation. As well, fibrosis, also known as lung scarring, may result from long-term exposure.[38]

Also, our choice of cellulose insulation increased energy efficiency in the eco-home, decreasing contributions to global warming and improving indoor air quality.[39]

While we do not definitively know how contact with every material used will affect us, it is better to use the precautionary principle wherever possible. Often worker health and safety issues in relation to producing and applying finishings are not considered, but were in the eco-home. Low VOC (volatile organic compounds) adhesives and paints were used in the eco-home. A water-based urethane finishing was used on the hardwood floors and there is no carpet. The use of low emission paints and adhesives alleviates problems like 'sick building' syndrome where off-gassing from carpets, paints, adhesives, furniture, etc. causes headaches, concentration problems, respiratory illnesses, loss of coordination, and increased environmental sensitivities and/or allergies.

In the eco-home, a commitment was made to both worker and occupant health. Insulation, flooring, low emission paints and adhesives, and the ventilation system were chosen with health in mind.

8. Indoor Air Pollution

Indoor pollution is a major public-health issue causing allergy-related problems, asthma, bronchitis, coughing and other respiratory problems experienced by North Americans. A Massachusetts Special Legislative Commission report concluded, "Indoor air pollution is a growing problem in the United States and accounts for 50% of all illness."[40] After a decade of studying volatile organic compounds, carbon monoxides, pesticides and particles Wallace found the major sources of toxic exposure are personal activities and consumer products.[41]

While a house can be built to the best available standards, indoor air quality is often affected by what occupants *bring* into the house. Toxic chemicals brought into homes include cleaning chemicals, perfumes, and cosmetics. Also, new materials off-gas formaldehyde including particle board in cabinets, furniture, and flooring, carpeting, draperies, upholstery, plastic containers, books, and mattresses.[42] Therefore, a properly sized and functioning ventilation system is critical for removing hazardous air pollutants and benefiting human respiratory health and just as importantly, people must make conscious decisions about the products they *bring* into the house.

Healthy housing links individual and household habits to the marketplace through green consumerism. Our purchases become networked into global social relations that include: production practices and technological choices, labour conditions and distribution inequities, ecological impacts and the powers of global corporations.

Overconsumption is a large part of the environmental problem where, according to Rabbi Daniel Swartz, the market place has become the main religion of America [and many other countries including Canada] – the major idol of the twentieth century.[43]

9. Ventilation: Completing the System

Ventilation systems are the lungs of the house, inhaling fresh air and exhaling stale air full of moisture, carbon dioxide, indoor pollutants, and odours.

North Americans spend 90% of their time indoors: at their homes, places of employment, and elsewhere,[44] therefore healthy built

environments are vital. In the eco-home, we realized that proper ventilation was critical for managing moisture and mold problems.

Inadequate ventilation combined with a tightly sealed vapour barrier result in moisture and mold problems, leading to respiratory illnesses and increased environmental sensitivities. Installing a heat recovery ventilator deals with these issues, and is *required* by the R2000 standard.

Ventilators control air exchanges between the house and the outdoors. Air exchanges denote the number of times per hour the entire volume of air in the house is exchanged with outside air. In the average house, uncontrolled air exchanges occur between 9 and 11 times an hour, but R2000 standards specifies exchanges can only occur one and a half times an hour.

The use of heat recovery ventilators can save from 50 to 60% of heating and cooling costs yearly. While the initial cost of a good ventilation system ranges from $800-$2000, homeowners can recover their purchase cost from the improved energy efficiency of the house in one to five years.

Attention to each individual component created a larger system capable of improving health, as well as saving energy and resources.

10. Conclusion

The sustainable building practices that went into the eco-home illustrate that reduced consumption and green consumerism can be a socially and economically enriching experience. The eco-home demonstrates that the local use of simple, affordable technologies such as vapour barriers and efficient lighting can produce regional and international benefits. Transforming one newly constructed or renovated eco-home into millions would benefit the environment and society.

Decreasing southern Canada's energy overconsumption will be a step towards taking responsibility for the environmental and cultural impacts that Canada's northern Aboriginal populations have experienced. Developing partnerships around energy production, job creation, training programs, and electrical generation dividends may help alleviate years of injustice to the peoples of the north.

By building to an environmental standard, we illustrate that energy and resource consumption can be reduced, human health improved, and money saved. This holistic housing approach encourages the reduction, reuse and recycling of resources required to build housing and gives equal weight to social, economic, and environmental factors, while linking the local housing decision to the world situation.

With Canadians spending the majority of their time indoors, improving occupant health in housing is critical for reducing respiratory diseases and environmental sensitivities. The eco-home illustrates that limiting the use of high emission solvents, glues, carpet, and other common housing materials improves air quality.

In *Yearning*, bell hooks links environmentalism with social justice in everyday praxis:

> We are concerned about the fate of the planet, and some of us believe that living simply is part of a revolutionary political practice. We have a sense of the sacred. The ground we stand on is shifting, fragile, and unstable.[45]

By using environmental standards in the eco-home, we discover that principles found in environmental justice – fair resource distribution and balanced and responsible use of land and resources – could be achieved by walking more lightly on the Earth.

11. Recommendations

The eco-home shows that healthier indoor environments, energy and resource efficiency, and durability of construction result from environmental standards. Merging Canada's National Building Code and environmental construction standards would create a holistic policy connecting the social, economic, and ecological aspects of construction, thereby ensuring that all Canadian citizens receive healthy environmentally-friendly housing.

By incorporating environmental standards into the code, we create a proactive framework to deal with future resource issues, rather than remaining reactive to crises such as oil and gas shortages. In addition to becoming proactive, adopting environmental standards into the code would help reduce Canada's ecological footprint. Unfortunately, only 1% of all current Canadian new construction is built to this R2000 environmental standard.

As a signatory to the Kyoto Protocol, Canada is committed to reducing energy consumption, lowering greenhouse gas emissions, and promoting the development of cleaner energy sources. For the construction industry, Canada has set a target to retrofit 20% of existing building stock, both residential and non-residential by 2010 to meet greenhouse gas emissions goals.[46]

The National Climate Change Process found that the Kyoto Protocol requirements could be met using available technologies; however

not all industries are using the technologies available to meet the criteria. Voluntary application of environmental standards in the construction industry is only at 30%, indicating that mandatory, not voluntary use would be more practical in getting contractors to build environmentally friendly homes. Environmental standards – developed in Canada – for green construction already exist. It is in the application of these standards that the Canadian construction industry lags behind.

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Part III

Building Alliances

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Forestry and Illegal Logging: Law, Technology and the Environment in Natural Resource Management

Paul Toyne

1. Introduction

In an ideal world there would be the combined application of law and technology leading to the fair and sustainable removal of the planet's natural resources. This ideal world is far from the realities of today's uncertain world and there are numerous examples of conflicts involving natural resources: for example, diamonds in Sierra Leone and The People's Republic of Congo, gold in Brazil and timber harvesting in Indonesia. These conflicts lead to a number of outcomes, some of which include social injustices, ecological degradation and economic impacts. The application of law together with the technology transfer, which combines the sharing of expertise and assets, can play a pivotal role in resolving these issues, helping to turn them from conflicts to potential win-win situations.

Illegal logging and associated trade undermines global governance: a topical issue post 11 September 2001 events. It also undermines efforts by the international community to ensure sustainable forest management – why invest in the necessary management changes if a competitor can under cut you by trading illegally or legally but with illegal timber? Illegal logging impacts on some of the worlds must vulnerable and threatened forests. Many of these forests provide people with local and global services such as maintenance of local climate, provision of potable water, food and shelter, and biodiversity. For these reasons, amongst others, governments, the private sector and NGOs (representing both environmental and social groups) realize the need to take action. The range and the application of actions are the subject of many debates.

This chapter will review the current problems within forestry and explores both public and private sector initiatives to address illegal logging and associated trade. It will consider the role of technology and technology transfer within these initiatives and how engagement and dialogue can liberate knowledge to enable mutual identification of risk leading to action – the pre-requisite for good governance. It concludes by describing Article 13's guide to innovation delivered through corporate social responsibility for European companies engaged in this sector.

2. The Timber Industry & International Trade – a Brief Review

Forests provide a wide range of services to humans, including wood products, recreational opportunities and ecosystems services. Consumption of the main forest products has grown by more than 50% since 1970. Approximately half of the wood products harvested for human use worldwide are used for fuelwood, about 90% of which was produced and consumed in developing countries. The other half is for industrial purposes such as building materials, furniture, or paper products. To meet these growing demands global industrial roundwood production is forecast to grow by 70% between 1998 and 2020.[1]

The forestry industry is a major global sector; gross production accounted for $160 billion worldwide in 1998 (of which $105 billion was in OECD countries), representing 0.4% of value-added in the economy; this is projected to grow to $299 billion by 2020.[2] The sector has become increasingly globalised, with ownership of forests and processing plants, concession rights, and management contracts (e.g. for harvesting) increasingly held by foreign companies. Southern transnational corporations, mainly based in southeast and east Asia, are increasingly important participants in the market.

Box 1: Defining Illegal Logging[3]

> Illegal logging takes place when timber is harvested, transported, bought or sold in violation of national laws. The harvesting procedure itself may be illegal, including corrupt means to gain access to forests, extraction without permission or from a protected area, cutting of protected species or extraction of timber in excess of agreed limits. Illegalities may also occur during transport, including illegal processing and export, mis-declaration to customs, and avoidance of taxes and other charges.

Why is there illegal logging?

First, it is useful to define what we mean by illegal logging (see Box 1). Illegal logging occurs like all other forms of crime, as it is profitable. The monetary gains are worth the risks involved. The problems of forest law enforcement and governance are most common in developing countries where resources are limited, international companies which offer investment are proportionately more powerful, and civil society is weaker. Some estimates suggest that the illegal trade may comprise over a tenth of a total global timber trade worth more than $150 billion a year.[4]

The very nature of international environmental crime makes the

scale and value of the illegal trade in timber difficult to estimate. Crime within the forest sector is widespread with illegal activities been uncovered whenever and wherever authorities have tried to find them. The World Bank's 1999 review of its global forest policy observed,

> countries with tropical moist forest have continued to log on a massive scale, often illegally and unsustainably. In many countries, illegal logging is similar in size to legal production. In others, it exceeds legal logging by a substantial margin … poor governance, corruption, and political alliances between parts of the private sector and ruling elites combined with minimal enforcement capacity at local and regional levels, all played a part.[5]

However, illegal logging is not confined to developing countries. Within Europe there are incidences from Estonia, Latvia, Poland and Scandinavia.[6] The problem also occurs in Canada and Russia, two of the world's largest producers and exporters.[7]

Why is illegal logging allowed to happen?

There are a number of conditions that allow illegal logging and the illegal trade of wood-based products to occur. What follows does not address the underlying causes that may force an individual to steal timber but looks at conditions that allow organised crime in the forest sector. They are best considered by dividing into issues within timber producing countries and within timber consuming countries.

A. Conditions within Timber Producing Countries

Lack of legislation

An immediate problem facing any attempt to control the trade in illegal timber and wood products lies in defining what constitutes illegality. If, as is the case of many countries, the forestry legislation is not clear or is inadequate then there is an immediate problem in controlling the illegal trade.[8] An overview of Indonesian forest governance revealed inconsistencies between laws and between government department decrees.[9]

In many countries there may simply be no clear definition of what is and is not illegal. The definition of what is legal and what is not may depend on the current administration. Many practices may be legal

under existing laws but are in fact detrimental to the environment and local communities, e.g. the allocation of concessions (see governance section below). This highlights the virtual impossibility of implementing any means of controlling the trade in illegal timber without, in most producer countries, simultaneous reform of the legal and regulatory systems. This makes reforms of laws that prohibit sustainability essential. Current laws and the actions of regulators should not be under-mined, however laws can be revised and stakeholder dialogue to agree the interim measures of legality prior to legal reform will be necessary.

Lack of law enforcement

Existing forest legislation may be socially fair and just, and so provide the basis by which to produce and trade in legal timber, but if those laws are not enforced, conditions for illegal acts are created. However, there are examples that if laws are enforced then illegal acts can be reduced and sustainable practices promoted as in Bolivia.[10]

Lack of governance

Poor governance can facilitate and in some cases drive illegal acts – indeed the allocation of timber concessions has often been used as a mechanism to provide rewards to allies and engender patronage. Timber companies protected by networks of influential people can evade national regulations with relative impunity. State forestry institutions may be subject to regulatory capture, becoming clients of concession-holding industrial interests of the ruling elite, exercising their powers as a form of private property rather than as a public service.

Governance problems are most common in developing countries where resources are limited, civil society is weaker and international companies relatively rich and powerful.

Lack of knowledge sharing and technology sharing

The ownership of assets – knowledge, forests, timber and non-timber forest products – has become an area of conflict. Ownership and user-ship are often separated and plans for these ‘assets’ made in isolation of considerations about the wider picture: the users, further business and generations, national economies etc. The wide range of stakeholders carry out their activities in isolation of each other or the ultimate supply chain they may be providing for.

B. Conditions within Timber Consuming Countries

Lack of legislation

There is a wide array of existing laws and regulations at EU level and within member states that could be effective in controlling the trade in illegal timber such as laws on bribery and corruption, stolen goods.[11] However there is no EU legislation that bans the entry of illegally produced timber into the EU. Enforcement of existing and new laws would be by a range of government agencies. In many cases there is need for better enforcement now, for this to happen investment in improving the capacity of these agencies is required.

Lack of corporate accountability

How many companies buying or selling timber and wood based products have enforceable purchasing policies that ensure the timber they buy is legal? If they do, are they actually being implemented? Businesses in North America and Europe are becoming increasingly engaged in corporate social responsibility, which is essentially a business response to the sustainable development agenda. However, there is progress to be made as the implementation of policies addressing illegality will require an array of tools such as management information systems, incentives and sanctions. A response to this is the development of codes of conduct and in some cases revised procurement policies by trade associations: For example the UK's Timber Trade's Federation Code of Conduct.[12] Such codes are generally voluntary and are un-tested as to whether companies take any notice.

Lack of legal verification and monitoring systems

Detailed tracking of the production and movement of timber and wood products is necessary if legality of the product is to be guaranteed. There exists some voluntary schemes, including product labelling and certification. Some schemes assure consumers that the products have been produced in accordance with a set of criteria and indicators of sustainable timber production, for example the Forest Stewardship Council. Whilst others, such as the European Eco-Management and Audit Scheme, or ISO 14000, confirm an organisation's or company's ability to manage all aspects of its business in an environmentally sound manner. However, despite these schemes there is poor use and global coverage of them. In western Europe, where market penetration is highest, certified wood

products now account for 5% of the market.[13]

C. Conditions within both Producing and Consuming Countries

There are two general areas where a lack of action helps facilitate illegal logging. First the lack of dialogue or engagement mechanisms: Without a forum in which to share and discuss issues, identify risks and opportunities for win-win situations, the unsustainability of an industry is being promoted. Secondly, the use of appropriate technology: There is a range of different technologies available including log tagging with micro-chip implants or DNA chips.[14] When and how to use such technology, and equally important, the source of the necessary investment for the application of technology, could be discussed if various forums involving stakeholders in both producing and consumer countries were available.

Underlying this lack of action has been a clear lack of political will in the past. The reasons for this are complicated and involve a combination of issues including bribery and corruption, vested economic interests and political funding systems amongst others.

3. Approaches to combating illegal logging

This section reviews a selection of initiatives that are currently in operation.

A. Inter-governmental Approaches

The issues of forest law enforcement and governance (FLEG) are currently being discussed regionally. Participants representing governments, trade and civil society groups meet in plenary and in working groups to share knowledge and address issues around FLEG so as to identify priorities and develop recommendations for ministerial declarations. The first FLEG initiative was the Sept 2001 Asia FLEG Ministerial Conference which resulted in a ministerial declaration[15] and the formation of a task force. The declaration covered issues to be addressed at the national level: political and legislative actions; decentralization; institution and capacity building; concession policy; conservation and protected areas; public awareness; and transparency and participation. At the regional and international levels, the proposed actions related to: information and expertise sharing; trade and customs; and research.

An African FLEG Ministerial Conference is provisionally planned for October 2003 in Cameroon. The objective of the meeting is

"to galvanise international and multi-stakeholder commitment at high political levels to strengthen capacity for law enforcement in Africa, in particular with regard to illegal logging and associated trade". The conference is supported by the European Commission and the governments of France, Switzerland, UK, and USA.[16]

In addition to the two FLEG processes, the European Commission launched a similar process and incorporated trade in its discussions held at a workshop in April 2002. The resulting proposed action plan identifies a range of actions which include voluntary licensing schemes and assessment of legislation to control imports of illegally harvested timber.[17]

Elsewhere, Japan and Indonesia with other partners announced the Asian Forest Partnership at the World Summit for Sustainable Development.[18]

B. Government Initiatives

There are several governments of timber importing nations involved in various initiatives. In general, they involve domestic actions such as legislation changes, voluntary procurement policies, as well as assisting actions in timber producing countries through aid and technical support. Some of these actions have been reviewed together with an analysis of options open to governments.[19]

The governments of the United Kingdom and the USA have been the most active in pursuing solutions to these problems (see below). Other governments, in particular those of China, Japan, Indonesia and Malaysia, have had discussions on how best to improve cooperation on the issue of illegal trade.

C. UK Government Initiatives

Public procurement

The UK Government recognized that it is an important buyer of timber, with this in mind they announced their public timber procurement policy. This stated that the UK government would actively seek to buy from sustainable and legal sources.

> Illegal logging damages both the environment and society. It reduces Government revenues, destroys the basis of poor people's livelihoods and in some cases even fuels armed conflict. It is counterproductive to help

> enforce laws abroad without striving to ensure that illegally produced timber is not consumed at home ... the Government are major purchasers of both timber and timber products, and have a responsibility to ensure their own house is in order.[20]

However, two years later the UK Government were criticised by the House of Commons Environmental Audit Committee (EAC) for their apparent lack of action in turning these fine words into action.[21] Greenpeace in April 2002 exposed this lack of application of policy when they occupied Cabinet Offices in Whitehall when it was suspected, quite correctly, that some of the timber used did not meet the specification of the contract.[22]

MOU between Indonesia and UK

In April 2002 the Government of Indonesia and the Government of the U.K. announced a memorandum of understanding (MOU) whereby both countries commit reforming legislation and developing systems to prevent the harvesting, export and trade of illegal timber. The UK has undertaken to provide technical and financial assistance to design and implement these systems in Indonesia. Guiding principles include:

- identification of reform of forest legislation covering harvesting, trade and export
- multi-stakeholder dialogue involving civil society from planning to allocation and management of concessions
- both countries should support verification of legal compliance based on independently verified chain of custody
- joint development of systems for exchange and collection of data between both countries – to include prior notification of shipments and harmonization of means of identification of shipments
- develop effective collaboration between enforcement agencies of both customs
- application of procurement policies by UK
- both governments should encourage action by private industry to reduce the volume of illegal

timber traded between the two countries.

UK Forest Partnership for Action

This was a new partnership within the UK between government, business and environmental groups to promote sustainable development in the forest sector, both at home and internationally. It was launched at the World Summit in Johannesburg 2002 and covers five general areas; forest certification, illegal logging, timber procurement, promotion and forest restoration and protection.[23]

D. Government of USA Initiatives

The President's Initiative against Illegal Logging

The Government of the USA announced the President's initiative in 2002. It comprises of actions in four areas.

- Harnessing technologies – help develop integrated monitoring systems and build in-country capacity to monitor forest activity and forest law compliance by improved mapping/monitoring, information sharing and training/knowledge transfer.
- Empowering communities – foster conditions and incentives for local communities to reduce illegal logging and conserve forests and wildlife.
- Energizing market forces – promote good business practice, transparent markets and legal trade.
- Strengthening the rule of law – aimed at addressing concerns of transparency, corruption and legal/institutional barriers to strengthen rule of law.

Congo Basin Forest Partnership

This partnership was announced at the World Summit for Sustainable Development in September 2002 by Colin Powell, US Secretary of State, who said:

> The partnership aims to combat illegal logging and other unsustainable practices, through implementing programmes to improve forest management and give

> people a stake in the preservation of the forest, by providing them with sustainable forest based livelihoods.

The partnership will work in eleven key landscapes in six central African countries: Cameroon, Central African Republic, the Democratic Republic of the Congo, Equatorial Guinea, Gabon and the Republic of Congo.

The partnership is with a range of stakeholders including governments, the private sector, the scientific community, conservation groups and the organisations of civil society. The first meeting to start the process of implementation was in Paris in January 2003. Prior to that the US announced it intends to invest $53 million over 2002-2005 to realise the partnership. Funding is also available from the International Timber Trade Organisation, the European Union and the government of France.

E. Private Sector Initiatives

In general the forest sector has been waiting for governments to take the lead and then respond accordingly. Governments in response have noted the need for public-private partnerships recognising that this problem can not be solved by actions from just one group of decision-makers. Some companies in the forest sector, notably the larger companies with more public profile, have reacted to the issues of illegal logging and associated trade. Some of them did so in the mid 1990s due to concerns that they did not know where they were sourcing their timber from and the last thing they wanted was an environmental pressure group revealing that fact. Listed below is a selection of approaches taken by retailers or by trade associations.

Retailers

IKEA is a company that uses wood in a wide range of the products that they sell. To ensure that the wood raw materials used in their products originate from independently verified well-managed forests IKEA has entered into a partnership with WWF.[24] One aspect of the partnership involves funding the development of ‘producer groups’ which are co-operatives of timber companies that all commit to harvesting timber legally and to a series of actions that will lead to improvements in forest management leading to certification. These producer groups are in key areas of countries that supply IKEA such as China and Russia.[25]

B&Q, the chain of do-it-yourself stores in the UK owned by Kingfishers plc, were one of the first to recognise the dangers in not

having adequate verification of where their timber came from.[26] That was in the early 1990s. It was not just the legality issue but the issue of sustainability that was important and led them to being one of the founder members of the WWF 95+ Group. This is a group of companies that are committed to purchasing ever-increasing volumes of their wood from well-managed forests. The 95+ Group launched in 1991 was the first of now many buyers groups whose network comprises over 800 companies.

Trade associations

All members of the UK's Timber Trade Federation (TFF) – the UK's timber trade association – are required to adopt and comply with the TTF's Code of Conduct, written in 2001 and launched in 2002.[27] The code is set up to provide a generic set of steps to ensure companies are taking all possible actions to minimize their impact on the environment and source their timber and timber products responsibly. There is an environmental component to the code that commits members to working with suppliers and other stakeholders towards the elimination of illegal logging practices. There is a procedure to deal with complaints arising from the code, but it is too early to say how well the code is working.

The Interafrican Forest Industries Association (IFIA) has developed a code of conduct for its members in a response to the recognition that despite large amounts of investments from government aid agencies to the forestry sector within the central African region illegal logging, illegal trade and unsustainable harvesting of timber is rife. The code is directed at forest operators in humid west Africa and the Congo Basin forests. The IFIA code of conduct covers four parts: forest concession planning, regional practices for valuing production forests, local timber processing and lastly, cooperation with all operators and improvement of the standards of living of local communities.[28] Under each part the signatory to the code commits to a series of actions aimed at improving forest management.

4. Discussion

The majority of governments regard illegal logging and the trade in illegal timber products as an issue of law enforcement. However, some governments, notably the Government of the UK, also recognise that the problem is more complex and involves political and social issues such as land tenure rights as well as forestry issues such as sustainable harvesting and the role of certification. This is the primary motivation for a suite of actions that includes voluntary public procurement policies, MOU bi-

lateral agreements which include financial aid and technical support to address some of these issues, and support to the regional FLEG processes.

In general, governments have the opportunity to provide the legal framework and enforcement mechanism so that timber production is legal. They can also provide the enabling conditions so as the application of law allows the private sector to provide the type of product required by the market. These requirements are changing.

The implications of change are that more governments will need to ensure that their purchasing of timber is not illegal and that the products they buy have been sourced and produced in a responsible manner. Within Europe, the UK is set to implement its procurement policy at the end of 2003 and other EU countries such as Denmark, France and Germany are considering similar policies. This policy will only be implemented if the private sector – who are the delivery mechanism – can provide the goods that meet their specifications. The private sector, that is, the logging companies, the sawmills, the transporters, the manufacturers and the retailers, will need to respond to the new legislation, and new voluntary public procurement policies. If not, they will lose market access, and be vulnerable to reputation damaging campaigns. An example of this is the change in policies of banks in Holland who were found to be investing in forest clearance for the unsustainable production of palm oil. As a result of national campaigns they now have in place policies.[29]

To respond to the risk of reputation and market loss the private sector will need to invest in supply chain technology and management systems. This investment makes good business sense as it ensures that they can supply the specified product to satisfy a government or retailers contract. If done well it should improve efficiency in the business and help build long-term relationships with suppliers, and generate other spin-offs such as staff retention and motivation. It will help create a sustainable business and have the added value of stimulating other forest operators to improve their practices to compete.

The role of dialogue and engagement plays an important part in delivering the solutions. In the context of good governance only by sharing the agenda can governments and industry truly understand the risks in the industry and to the long-term sustainability of the industry. By building an agenda for action and change requirements for win-win actions can be identified.

The way in which these reforms will occur is crucial. The engagement of all stakeholders and the process of transfer of technology, backed up by political will, is key. Article 13 experience in setting up and enabling the dialogue between governments, growers, fair-trade organizations, processors, retailers and consumers through a commercial

branded product, demonstrates a new way of doing business that can occur if parties 'share the agenda'. These dialogues may not be easy but they focus on action and a way of making these issues practical. They provide the way to balance the differing needs of the various stakeholders. They do that by enabling technology transfer and the sharing of knowledge and assets, access to markets and commercial expertise to disadvantaged growers and communities and access to new consumer opportunities for the fair-trade movement and commercial partners. Those companies that respond through innovation to address these issues will undoubtedly have a more long-term future than those will that continue to deny the problem exists.

Finally, there is also a bigger question that needs to be answered. Will addressing the issue of illegal logging and associated trade lead to a more responsible use of forest resources leading ultimately to well-managed forests and ecological justice? Article 13 would agree that it is a step in the right direction but would challenge governments and the private sector to recognise that sustainability should be the end goal. Therefore, measures developed now should provide the flexibility to allow progressive governments and companies to achieve that end goal, whilst not penalizing those that are making genuine improvements and for whom sustainability is still a long way off.

5. Article 13's Recommendations

Governments in timber producing countries

Legislative reforms including; the creation of clear definitions of illegal activities; addressing corrupt or improper allocation of concessions; establishing significant deterrent sanctions, specifying enforcement responsibilities at every stage in the timber commodity chain, and accredit auditors.

Governments in consumer countries

Governments should learn from the experiences of the UK Government and develop procurement policies that will address their issues. To underpin procurement policies it is recommended that governments should continue to explore voluntary bi-lateral agreements, and provide technical aid and support for their implementation, this would include investment in independent verification of the chain of custody. There also needs to be better communication of policies amongst government departments so procurement officers and all stakeholders are

aware of the new policies.

Private sector

Retailers need to invest in independent third party verification of the supply chain. Purchasing from buyers groups that are independently monitored would provide this assurance. The buyers and importers need the same assurances as retailers: they should invest in improving the various mechanisms available for tracing the movement of logs and wood-based products. For purchasing policies to be effective businesses need to take more responsibility and embed it within the culture of the company. For this to happen there needs to be good management from the top of the company, i.e. board members through to executive officers.

With this in mind Article 13 offers some steps for action for stakeholders in Europe. This process has been developed from our experiences gained through planning and facilitating multi-stakeholder dialogue processes.

Article 13's ten-point plan (see Box 2) outlines a process that starts with first identifying the stakeholders – who are the key people that need to be involved – and what are the issues? From this larger consultation a smaller core group of usually self-selecting representative stakeholders gets established. The core group meets to confirm the issues, e.g. what barriers do they face? What are the opportunities? What would success 'look' like to them and others? The process looks simple but the reality is very different – achieving the widest possible participation can be difficult. However, it is very interesting as some surprising results are usually revealed as more often than not, people are not usually asked to contribute, nor are they used to talking to the other stakeholders.

The core group then confirms and contributes to the process, the agenda and identifies who else should be involved. They have ownership of the process and can decide where and how best to focus their attentions, e.g. concentrating on capacity building, finance, the application of law and the harnessing of technology. They agree what the group can do and set targets with indicators to measure progress.

The resulting action plans are then championed and piloted by key members of the core group either by themselves or they promote them to others such as market leaders, champions of industry and key government personnel. Communications needs to occur throughout the whole process. It is really important to convey success especially after some actions have been piloted as this builds confidence and stimulates more buy-in. It promotes a 'yes we can do and you could too' attitude.

Box 2: Article 13's Ten Point Plan

1. Map the stakeholders of the industry
2. Map all their known and likely objectives (use proxy's if necessary)
3. Pull together a core group to represent these stakeholders
4. Enable that group to confirm the issues, the risks to the industry and all stakeholders
5. Ask that group to help build a process and agenda for action (areas for action could include; capacity building, education, finance, law, application and harnessing of technology)
6. Set objectives for the group relating to the agenda for action and the promotion of legal and sustainable trade
7. Build measures of success
8. Industry thought leaders to pilot the resultant actions to deliver innovation
9. Build a framework for governance in the industry[31]
10. Communicate the framework and initial successes

Article 13 have used this process to bring together a wide array of stakeholders to resolve issues in other sectors such as agriculture and pharmaceuticals and believe it could work to great effect in the forestry sector in Europe or elsewhere.

Acknowledgements

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Notes

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2. OECD, 2001.
3. Examples of these illegalities are reviewed by Contreras-Hermosilla, 2001.
4. OECD, 2001.
5. World Bank, 1999.
6. Toyne et al., 2002.
7. Contreras-Hermosilla, 2001; Bureau for Regional Oriental Campaigns et al., 2000; RIIA, 2001; RIIA, 2002; Toyne et al., 2002.
8. See for example White and Case, 1999.
9. Suparna, 2001.

10. Lyall, 2002.
11. See review by FERN & RIIA, 2002.
12. TTF, 2001.
13. Worldforest.com, 2001 cited in RIIA, 2002, 18.
14. Dykstra et al., 2002.
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16. Worldbank, 2003b.
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18. See Type II partnerships for forests on <http://www.johannesburgsummit.org>.
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20. Rt. Hon Michael Meacher, Minister for the Environment, July 2000.
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Solid Waste Management in Jamaica: Household and Institutional Perspectives

Ruby Pap

1. Introduction

Jamaica, like other developing nations, is struggling to manage the increased amounts of solid waste on the island. While developed countries contribute their fair share to the planet's burgeoning waste issues,[1] scholars have paid increasing attention to the causal factors associated with persistent solid waste problems in the developing world, where appropriate infrastructure for solid waste management (SWM) is lacking. Conclusions on causal factors have evolved out of different lenses for looking at the problem. These include looking at economic/industrial development and urbanization processes, technical factors, citizen/household behaviors, and institutional behaviors.[2]

This research in Jamaica concentrated on both institutional and citizen/household behaviors with respect to SWM. This chapter considers citizen/household SWM behavior and the relationship between citizens and local government in implementing new SWM technology. It also examines SWM institutional arrangements and relationships between the central and local government in formulating and implementing these new technologies. It finds that the level of trust in local government influences citizen/household SWM behavior and acceptance of new technologies. This level of trust is influenced by the behavior and performance of local government in respect to SWM, which is, in turn, influenced by its relationship with central government, and historical and current problems within the SWM institutional sphere. These influences seem to be circular in nature, as Figure 1 in the concluding section shows.

2. Background

A. SWM Issues in Jamaica

An estimated 790,000 tons of solid waste per year is generated in Jamaica. Of this amount, approximately 170,000 tons remains uncollected, filling the island's landscape and waterways.[3] Approximately 60% of generated waste comes from households, while the rest comes from commercial, industrial or institutional establishments. Sixty-five percent of the population receives regular garbage collection service. This service is concentrated mostly in urban, upper-class neighborhoods.[4]

The current method of government-sponsored disposal in Jamaica is open-dumping. These environmentally hazardous dumps are unlined, have no leachate control or drainage systems, and the groundwater or surface water is not monitored. Since there is little waste separation in Jamaica, solid, hazardous (household paints and batteries), and infectious (surgical and biological wastes from medical facilities) wastes are often mixed in together, making it difficult to monitor the waste content, or estimate the extent of pollution risks at dumps. Additionally, waste is not covered on a daily basis, as is common practice with modern sanitary landfills. This leaves the waste more susceptible to fires, and the surrounding environment is more susceptible to pollution from surface runoff. "One can almost certainly locate a solid waste dump by following the smoke screen observed in any township or community."[5]

When waste isn't formally collected, informal dumping occurs in drainage gullies, rivers, coastal wetlands, and open lots and fields. Poor metropolitan communities located next to garbage-filled gullies are disproportionately impacted by the unsanitary conditions, such as waste harboring insects landing on their food as they cook. Most rural non-metropolitan areas have no access to garbage collection service, and people have historically taken care of their waste through backyard burning and informal dumping. This system used to be relatively harmless, until recent times when more non-biodegradable materials, especially plastics (toxic when burned) entered the country. A rough 1996 study estimated that the waste stream is comprised of 31% food waste/organics, 25% paper, 10% metals, 10% plastic, and 24% 'other'. While the informal nature of the SWM system has left us with a lack of information on the extent of the problem, the percentage of non-biodegradable materials in the waste stream has likely increased into today.

Burning garbage can be toxic to human health. In 1989, the Pan-American Health Organization (PAHO) monitored the smog emanating from two area dumps surrounding Kingston and Spanish Town. Particulate matter was found to be 4 times higher than the USEPA standard of 260 $\mu g/m^3$, with an average of 1,000 $\mu g/m^3$. It has been postulated that this particulate concentration is a leading factor in respiratory tract infections around Kingston, and it can also cause eye ailments and asthma.[6]

When garbage is left uncovered, it becomes a breeding ground for mosquitoes and other flies, which can harbor disease vectors. In the 1980s, there was an outbreak of Typhoid Fever in Savannah-La Mar, Westmoreland, likely caused by flies that bred in the local dump. Open dump disposal also threatens surface and groundwater resources. Riverton dump (in Kingston) drains an estimated 188,380 m^3 per annum of leachate into the Ferry River and adjacent swamps.[7]

B. New Technology

The Government of Jamaica, with funding from the Inter-American Development Bank (IDB), has developed a new SWM policy for the island. Institutional changes include the streamlining of SWM activity into one centralized agency (NSWMA), removing SWM legal responsibility from local governments, regionalization of collection service, gradual privatization of service, implementation of cost-recovery mechanisms, a public education campaign, and strengthening of anti-litter and dumping laws. Technical changes include the development of 4-5 regional landfill sites and accompanying transfer stations, environmental closure of inactive dumpsites, developing plans for waste minimization, hazardous and medical waste management. Central government has received an $11.5 million loan from the IDB for phase 1 implementation of the plan, which focuses mainly on landfill improvements in the Kingston Metropolitan Area. Meanwhile, local governments in non-metropolitan areas such as Westmoreland are struggling to solve local SWM problems.

C. SWM Issues in Westmoreland, a Local Non-Metropolitan Area

Westmoreland is a non-metropolitan parish located on the western side of the island. It has a population of around 130,000 and is known for its sugarcane farming, fishing, and tourism. Like the rest of Jamaica, most of its residents are poor. There is no solid waste disposal facility in Westmoreland, and garbage collectors have to trek its garbage 31 miles over mountainous terrain to Montego Bay. There is also a shortage of collection equipment, and many communities experience garbage pile-ups. Due to the distance of travel to the nearest disposal site and the lack of equipment, illicit, informal dumping occurs throughout the parish.

Westmoreland officials have been searching for a new waste disposal site, but obstacles from two entities, local citizens and central government, exist. Local government's SWM track record has not been good. Some past dumps were located in mangrove areas, near squatter communities and a public school, posing significant public health and environmental hazards. Local citizens protested with roadblocks, a common form of civil action in Jamaica, where the politically powerless can shut down government and business activities through blocking of the road with derelict cars, debris, and burning tires. This action stopped the trucks from coming, and left officials with diminished alternatives for waste disposal. It is also unclear how the local government will fund a

new landfill, as the central government has not committed current or future funds for this project.

3. Methods

During the summer of 2001 research was conducted in the metropolitan capital of Kingston (central government) and in the non-metropolitan parish of Westmoreland as a local government case study. Three questions were explored: (1) what is the perspective of local citizens on SWM issues and how do they affect SWM policy and practice? (2) How do current institutional relationships affect solid waste management policy and practice? (3) What is the relationship between central government policy makers and local leaders and how does this affect waste management policy and practice?

Belmont district, Westmoreland served as a model non-metropolitan community for citizen/household interviews. It is a small fishing and farming community on the coast. The majority of Belmont's residents are poor, with some middle class residents, and a minority of upper class residents. Like many small non-metropolitan communities in Jamaica, Belmont contains a main street where curbside collection exists ('The Main'), back roads with a communal dumpster collection point ('Up Street' and 'Blue Hole'), and deep rural communities ('Pit Enne' and 'Mount Airy'), where there is no formal garbage collection system. Sixty-five semi-structured interviews were conducted across all these areas to ascertain household disposal methods, and levels of satisfaction with and impacts of the SWM system.

Investigations were also conducted in a community located next to a proposed landfill site in the Burnt Savannah district. Semi-structured interviews were conducted with local government officials involved with the site's selection, and conversations with local community members were conducted.

Semi-structured interviews were also conducted with stakeholders from central, local and non-government organizations in Kingston and Westmoreland, using a snowball sampling method. Analysis of stakeholder perceptions of current solid waste issues, and new policies and technologies, was conducted with the interview data. In addition, historical policy research of agency plans, policies and studies on solid waste issues was also conducted.

4. Citizen/Household Perspectives

A. Household Study Results: Disposal Techniques

Citizens in Belmont have different techniques for taking care of their garbage, depending on differing levels of collection service. A total of 35 people were interviewed from ‘Up Street’ and ‘Blue Hole’. Those living closest to the dumpster dumped all of their household garbage into it. People living furthest away either carried all their garbage down to the dumpster, or separated out the ‘non-burnable’ (such as glass, tin, and sometimes plastic although plastic was often considered burnable) materials, carried them to the dumpster, and burned the rest. Those living furthest from the dumpster mostly burned all their garbage, buried it, or created mini dumps in the bush. Nineteen citizens living on ‘The Main’ were asked about their disposal methods. Seventeen said they put their garbage out for the truck. Only 2 out of 19 mentioned burning. People living in more rural areas of Belmont, ‘Mount Airy’ and ‘Pit Enne’, have no sponsored garbage disposal options. Eleven citizens from these two areas combined were interviewed. Garbage disposal activities included burning, burying, ‘flinging it away in the bush’, and composting.

B. Household Study Results: Satisfaction Levels

Thirty-four people in ‘Up Street’ and ‘Blue Hole’ were asked if they were satisfied with the garbage system. Despite the existence of the new dumpster, eighteen respondents were not satisfied. People who described the system as “ok” coupled answers with statements like “better than nothing” and “better than before”. Of those unsatisfied, people both living close to the dumpster and away from it voiced concerns. Some said the dumpster was too far for them to use, and instead chose to burn, bury, or dump their garbage in the bush. Those living close to the dumpster experienced impacts associated with its overflow of garbage, resulting in people lighting it on fire. Many didn’t take part in the new communal dumpster system, because they had grown up taking care of their own waste.

> “(I) don’t know them (their) program, so I won't carry down my trash. What I do now is what I've done since I was a child. (I) don’t know one (any) other way. This is (the) country. When (I was a) child (it was) just leaves and paper – would biodegrade fast. The bottles we had we used to buy oil and carry tins to buy medicine. (We)

> never had this amount of rubbish (before)…(there's) more rubbish now than money." (Female resident, 'Up Street')

Despite the relative ease of solid waste disposal for 'The Main' dwelling citizens, satisfaction with the system was still evenly split down the middle. Some were impacted by the fact that the garbage truck was unpredictable and didn't come often enough.

> "(The truck) should come more often because sometimes garbage is out for days and causes people to burn (their garbage.)" (Male resident, 'The Main')

Most people in 'Pit Enne' and 'Mount Airy' weren't entirely satisfied with this system, and felt it would be better to have a truck come through to collect garbage, even though the road was in dismal condition.

> "(We) would like to see (the) garbage truck to come up here, but the road is bad…(the) garbage skip (dumpster) is too far – if everyone had car would be different." (Group of male residents, 'Pit Enne')

A group of young men from 'Mount Airy' experienced dismay at the lack of options for improvement: "but we can't do better. Government don't care about us up here."

C. Household Study Results: NIMBY (Not In My Backyard)

Citizens around Westmoreland are generally suspicious of any state sponsored solid waste disposal site being selected near their homes or communities. When asked about what should be done with the garbage after it is collected, the majority of responses reflected the experience of the general public with final disposal. Open dumping and regular burning responses were common. Recycling, separation, and sanitary landfilling were less so. Comments about disposal being as far away as possible were evidence of the NIMBY phenomenon in Westmoreland. "Should carry to far wasteland and burn it. It won't cause a lot of trouble there, where people don't live." One person's sole answer to the question was, "Furthest from me, the better."

Conversations with local government officials about a new proposed disposal site in Burnt Savannah, and citizens from the surrounding area further highlighted the NIMBY phenomenon, and

provided insights into its underlying roots. Local government officials have been searching for a local disposal site, with the hopes that it will fit into the new national policy. Ironically, proposed sites have been in rural to semi-rural areas, often near settlements that don't receive regular garbage collection. This proposed disposal site was less than 1/2 mile away from a community in Burnt Savannah District. Government officials held meetings in the community, and brought in experts to educate them about new landfill technology in comparison to the open dumps they were used to. But the people claimed the politicians were trying to trick them with their big words. According to one local government official, "Citizens didn't want even a *landfill* now. (We) looked for locations, (but) every person said they didn't want no (a) dump there."

Conversations with some community members yielded that they had not attended the government's meeting, but had heard about the landfill and its opposition through the community grapevine. Many said that the stench and burning associated with a dump would 'affect them'. When pressed about the difference between a dump and a landfill, many knew and understood the difference, but did not believe in it, nor did they trust the government would pursue or maintain the new technology. A group of men explained that the 'dump' would never be permitted near their community, because they wouldn't let it. They would threaten the garbage truck drivers and block the trucks. They stressed that the river would be polluted from the run-off, and the air from the stench and the fires. When asked about the community meeting sponsored by local government, they said they had not attended because they felt it was only a place for politicians to gain more power. When asked whether they knew about new landfill technology, one replied, "Yes, but how long?" He went on to explain that for the first month or so the government would do a good job, but then it would stop and the landfill would turn into an open dump. Once they let the government start something it would be difficult to stop it. As a result, they didn't believe in government's regulatory promises. This group also noted that the community members of Blackness burn their own garbage. They claimed that burning kept the community neat and clean, and the smoke didn't bother them, as they had been doing it their whole lives. As for regional solutions for the parish's garbage crisis, this group felt that the waste should continue to be taken to Montego Bay, not to their community. They wouldn't sell out their community for other people's garbage.

D. Citizen/Household Perspectives Discussion

Although citizens have a wide variety of disposal methods, many are not happy with the job local government has been doing. Even those that receive neighborhood service are not altogether satisfied, and don't always utilize the service. Responses indicate that despite new technology such as communal dumpsters and increased curbside collection, old disposal practices, such as burning, prevail partly because of the lack of regular upkeep by the local government garbage collectors. Therefore, technology alone cannot alleviate the impacts associated with unsafe household disposal techniques, such as respiratory ailments that have been speculated as associated with burning plastics (many children in Jamaica are afflicted with asthma), flooding associated with debris-blocked drainage areas, potential contamination of waterways with debris and unmonitored hazardous wastes, and potential contamination of drinking water sources.

What is striking about the citizen study in Belmont is the culture of garbage separation that exists among people with no easy access to collection systems. Out of necessity, they separate out different materials according to their ease of disposal (often, those that can't be easily burned). Some of the local and central government stakeholders interviewed for this study said that there is no culture of garbage separation in Jamaica, but it seems to exist among those that had to fend for themselves in SWM. In order to probe this question further, I asked respondents whether they would be willing to separate their garbage for recycling. Thirty-one of thirty-three respondents said yes. One person drove the point home, referring to the separation culture that already exists: "Yes, because that's what we're doing now." This dichotomy in responses between the government stakeholders and citizens regarding garbage separation is evidence of disconnect between government and citizens. The existence of this garbage separation culture could be a great benefit to future recycling programs, or community outreach programs for garbage management here and in other inaccessible communities.

Deep rural areas have become problematic for solid waste practitioners, as non-biodegradable materials make their way to all settlements. It is uneconomical to send garbage trucks to sporadic settlements, yet most citizens don't own cars or have other transport to take their waste to a communal collection point. One solution put forth by government is to have outreach programs that are tailored to each community's characteristics and central collection systems where a truck comes up about once per month to collect. This will take time and commitment to educate people on 'proper' disposal techniques of non-

biodegradable materials, especially those that pose a danger to health when incinerated, such as plastic. This type of commitment from the government is uncommon for a multitude of reasons, including but not limited to a lack of resources, political will, and a lack of trust from local communities in welcoming government representatives into their communities. As evidenced from comments about 'government not caring' there is a feeling of being left out of the system. This disconnect became further apparent in people's comments about property taxes, and the perceived lack of benefit they receive from payment of their taxes. These murmurings became stronger as I began to investigate the NIMBY phenomenon that was prevalent around the parish.

Conversations with citizens in a community adjacent to a proposed disposal site in Burnt Savannah emphasized the lack of trust and disconnect between local citizens and their government. Many citizens that are not part of the garbage collection routes have a culture of taking care of their own garbage, even though many have said in interviews that SWM should be a government responsibility. It is not surprising that they wouldn't want a landfill near them. They do not trust the government's plans or promises and do not want their community to become the neglected dumping ground for garbage that doesn't include their own. Until the government can gain the trust of local communities, and communities have a solid understanding of landfill systems, government will have continued difficulties siting landfills and promoting other technologies.

Citizen behavior, whether it be a lack of reliance on new technologies that aren't properly maintained or distributed amongst the populace (such as curbside and communal collection systems) or outward obstruction of new technologies (such as new landfills) is linked to the negative track record of SWM at the local government level. To end this analysis with the citizen perspective would be an incomplete analysis, however. Institutional perspectives are equally important in evaluating problems and potential solutions. Why has local government's track record been so problematic? Is local government entirely to blame? Will new central policies and technologies help local governments to regain local trust? Answering these questions requires one to work up the chain of relationships to the wider institutional level, examining central-local relationships in SWM.

5. Institutional Perspective

A. Historical Research Results

Historical information has been gleaned from Norconsult[8] and interviews with SWM organizational representatives. Historically, SWM was the responsibility of public cleansing departments of local governments, under monitoring of local public health departments and the central government. In the 1980s, local governments were absolved of their responsibilities and the central Ministry of Local Government (MLG) assumed power over a new system of newly created public cleansing companies. Over the next decade, responsibility would again switch back and forth between organizations at the central and local level, often coinciding with changes in political party leadership of the central government. This has served to blur the lines of responsibility, and thus impacted effective SWM.

SWM practitioners have also had to work with a minimal amount of monetary resources. In 1974, the central government took control of the collection and allocation of property taxes, a replacement of the 'local rates' system that was administered by local governments. This served to make local governments increasingly more dependent on the central government for funds. In addition, the country has only been able to collect 50% of property tax, and this combined with an inadequate rate structure, or other cost recovery systems, has prevented the adequate financing of infrastructure services, such as waste and sewage management.[9] While local governments have remained legally responsible for SWM (legislation transferring authority to the central government was never officially completed), with central government owned solid waste companies acting as their contractors, the central government allocates funding to these companies. The result is a lack of control over solid waste services at the local level. Mechanisms have since been set up for local authorities to channel their own monies to the garbage companies, but old habits die hard, and the local authorities are often bypassed. This has led to a lack of accountability within the system.

B. Central and Local Government Interview Results and Discussion

Semi-structured interviews revealed that central government SWM policy makers are well informed about SWM issues in Westmoreland. Almost all mentioned the parish's difficulty with disposal sites, and the indiscriminate dumping that is occurring. In this way, there is a connection between the central and the local (at least in

Westmoreland), because central policy makers are not ignorant of local problems. But there are some unacknowledged disconnections when the situation is looked at from the reverse. Many local leaders were excited about the improvements new policies and technologies would bring to the parish. At the same time, however, some knew very little about national plans, and one former local leader was highly critical of the central government's efforts.

> "They just hand down decisions. They should meet with each (parish) and learn their unique problems. Decisions only relay to (the) national interest. There is strong resistance to their decisions. Local authorities feel cheated."

Another was hopeful their legal responsibilities wouldn't be taken away under the new national SWM policy. When discussing whether the new SWM technologies will positively affect the parish he said, "Once you have local input and say in management. (You) can't divest local authorities. (We) should be able to monitor and see."

Central policy makers should be praised for their efforts in creating a new national SWM strategy for the island. The policy is covering crucial issues of environmentally-friendly disposal, cost-recovery, institutional structures, public education, and waste minimization. But certain policy components are problematic. The new policies will serve to centralize SWM once again, and remove responsibility from the local authorities. This will lead to further accountability issues, and citizen perceptions that local governments are continuing to perform badly, while local governments will have little control over SWM in their local areas. While there is nothing wrong with streamlining SWM activities into one agency, it is unclear as to whether all stakeholders will be represented in this agency or on its board, including local government representatives.

In addition, despite the fact that central policy-makers are informed about local SWM issues in Westmoreland, they are still focusing their efforts in the Kingston Metropolitan Area, an area much closer to them, and the country's largest urban center. When discussing solutions for other areas, they referred to those solutions "fitting into the national plan" or being part of projects slated for future funding (this is in part due to budget constraints and loan conditions imposed by the Inter-American Development Bank (IDB) indicating that central government behavior is in part affected by its dependence on international funding agencies). Westmoreland leaders are, in turn, highly focused on the Westmoreland

dynamic itself. Local leaders are trying to find a disposal site in their area despite lack of commitment from the central government, and a lack of trust from the local citizenry. As one stakeholder put it, "local government's hands are tied". This lack of autonomy and power on the part of local government to solve local problems for themselves, is due to the institutional arrangement between central and local government, and solidified by Jamaican law under the Parish Councils Act. As one official source puts it,

> The relationship between the central government and the local government can be described as a partnership in which central government is the senior partner, deciding what powers are to be left to local government and what measure of freedom is to be accorded at the local level.[10]

6. Conclusion and Recommendations

This research finds that behaviors at the household/citizen level with respect to SWM depend on relationships and behaviors in the wider institutional sphere.

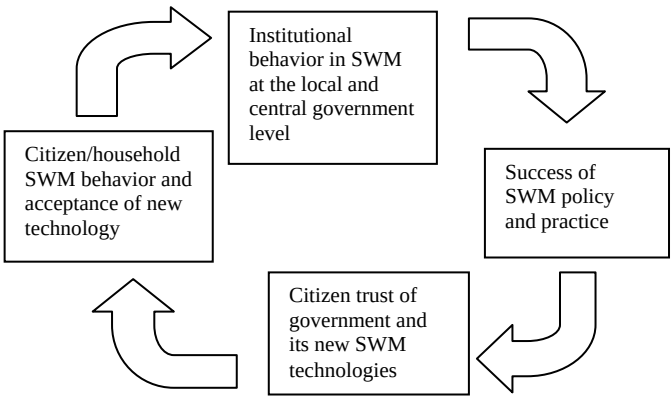

Figure 1: Institutional Behaviors, Citizen/Household Behaviors, and SWM

Institutional problems at the central and local government levels affect solid waste management policy and practice. This, in turn, affects citizen trust of local government and new SWM technologies.

Longstanding citizen/household SWM behaviors become difficult to change, and NIMBY takes hold. These citizen/household behaviors perpetuate the cycle by impacting institutional SWM behavior, and limiting progress in implementing and formulating new solid waste technologies (see Figure 1).

Technology, in the form of new policies and modern disposal techniques by themselves, cannot solve environmental problems. They must be accompanied by meaningful institutional analysis and reform, in order for the technology to be appropriate for the local situation and properly implemented. At the local level, relationships between citizens and local government need mending, and a key way to do this is for local government to exhibit demonstrated improvement in SWM as well as other services. Institutional reform between the central government SWM stakeholders and local government SWM stakeholders must take place in order for local government to demonstrate this improvement. Local government should be given the power to solve solid waste issues that are unique to their own areas. One way the central and local government can repair broken connections is by giving local representatives key positions on central boards, so that they may meaningfully inject local interest into national plans. Meaningful avenues for inter-agency communication and exchange need to be created, and at the same time, roles and responsibilities within the system should be clarified by law and widely published throughout the field. Since implementation of landfill technology will be slow due to low funding, and citizen objection to site selection, alternative waste management plans must be put in place concurrently. Waste minimization schemes should be put higher on the priority list, such as waste and product charges, environmental taxes, deposit return systems, and comprehensive recycling systems coupled with subsidies for waste prevention programs.

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Notes

1. See Tammemagi, 1999; Blumberg and Gottlieb, 1989.
2. See Betts, 1984; Diaz, 1996; Sakurai, 1990; Hogland et al., 2000; Anand, 1999; Korfmacher et al., 1997; Monsoor et al., 1999, etc.
3. Bertram, 2000.
4. Norconsult, 1996.
5. Pinnock, 1998, 52.
6. Pinnock, 1998.
7. Wright, 1998.
8. Norconsult, 1996.
9. Bertram, 2000.
10. Statistical Yearbook of Jamaica 1999, 39.

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Norwegians as Global Neighbours and Global Citizens

Anne K. Haugestad

1. Introduction

If rich consumers are concerned about poverty alleviation and protection of the environment they must be willing to give up some of the 'environmental space' they are now occupying.[1] But what are the chances that rich consumers will voluntarily take action to limit their own consumption opportunities for the sake of a fair and ecologically sustainable future? To explore this question a study is being done on Norwegians' attitudes towards cosmopolitan values and global regimes of resource quotas.

Norwegians are among the world's most privileged consumers – and in 2001, 2002 and 2003 Norway was ranked as 'the best country in the world to live in' by UN Development Programme's Human Development Index.[2] A study of Norwegians' attitudes can thus give some general ideas about privileged consumers' willingness to consume in a globally responsible manner.

Studies show that many Norwegian consumers in fact seem to be willing to consume in a more resource-friendly manner even if this would mean a lower standard of living. Depending on the method of questioning, from 30 to 80 per cent of Norwegians indicate such willingness in different surveys.[3] Still, Norwegian figures show a steady increase in consumption of natural resources and emissions of greenhouse gases.[4] If there is a significant willingness to consume in a resource-friendly manner – why, then, does this not lead to significant changes in consumption patterns towards less resource-intensive consumption? Studies on the potentials for changes towards more sustainable consumption patterns indicate a complex picture of hindrances. People's consumption decisions continue to be unsustainable because of: materialistic values;[5] the provision system for goods and services;[6] transportation and housing policies;[7] non-identification with ecological 'fundamentalists'; lack of knowledge regarding consumption decisions that promote sustainability; the feeling that individuals' actions will not make any difference;[8] and for other reasons.

This chapter and the related research project deal with the missing link between consumption decisions and sustainable development. In a constructive research design a potential bridge between purchasing decisions and cooperative, sustainable development is being explored. Are there any possibilities for an 'invisible heart' to outweigh the workings of

the market's 'invisible foot' which steps on nature and disenfranchised groups and creates environmental crises and poverty?

For the project 'Norwegians in the Global Household', a special interview design was developed which allows for 'fieldwork in possible and desirable futures'. The design is built around the 'fair share vision', an overlapping political vision which is constantly reconstructed in dialogue with the research material and findings. This method is chosen for its potentials to contribute to the building of a fundament for trust and cooperation between politicians from different political parties and between politicians and citizens. If broad 'overlapping visions' can be identified through the fieldwork in possible and desirable futures, trust and cooperation might prevail. This chapter will present some findings from the interviews, related to 'neighbourly' and 'citizenly' motivations and to three different aspects of transnational citizenship.

2. Neighbourly and Citizenly Motivations

Neighbourly motivations are related to feelings of care and desire to help. Citizenly motivations are related to rights and obligations. One's self-respect or one's wish to win other people's respect can make one want to do 'the right thing' (a citizenly motivation) even if one doesn't have neighbourly feelings towards the person(s) affected by one's acts. Both neighbourly and citizenly motivations (or 'subject positions') can lead to decisions that contribute to cooperative and sustainable development. But this does not imply that it is a wise strategy to make political campaigns to promote both neighbourly and citizenly acts. In line with the principles followed by John Rawls in his search for 'overlapping consensus', I will argue that different ideas of 'the good' should not be allowed to intervene in the search for overlapping political visions. Instead, this search should be guided by the principle of 'justice as fairness': A global vision of the future can be regarded as fair if this is a future that all global citizens will choose 'behind a veil of ignorance', i.e. without knowing his or her own preferences and geographic and societal positioning in this future.[9]

This is not to say that neighbourly motivations are unimportant. People motivated by neighbourly – altruistic, unselfish – feelings are important contributors to the workings of the market's 'invisible heart'. But *expecting* altruistic feelings and actions will probably do more harm than good. Some people are 'open-hearted' – others are not. And those who are not, may have had good reasons for closing their hearts. Opening closed hearts by force or persuasion is not a heroic mission. Hearts can only be opened voluntarily, from within, and respectful dialogue might

lead to such opening up. Manipulation from the outside is not an advisable strategy. Thus, neighbourly acts and attitudes should probably not be expected, but they should certainly be protected and acknowledged.

Citizenly motivations and acts, on the other hand, should certainly be expected from everyone who wants to be a member of society and benefit from citizen rights.

Several concepts are in use to encompass different kinds of ecologically, socially and economically responsible transnational citizenship. With reference to Bart van Steenbergen, Andrew Dobson makes the following distinction between an 'earth citizen' and a 'world citizen': "The earth citizen possesses a sense of local and global place, while world citizens make their deracinated way around an undifferentiated globe".[10] In Dobson's terminology, the ecologically responsible earth citizen is an 'ecological citizen'. Because of a discovered resistance against green or ecological 'fundamentalism' among some of my interviewees I have chosen not to adopt Dobson's terminology when labelling different versions of transnational citizenly motivations. The chosen terminology instead distinguishes between the following three 'ideal typical' 'subject positions': (1) 'the global citizen', whose global consciousness is primarily oriented towards societal justice and human rights; (2) 'the world citizen', whose global consciousness is primarily oriented towards mobility, trade and entrepreneurship; and (3) 'the earth citizen', whose global consciousness is primarily oriented towards ecological sustainability.

The world citizen, the global citizen and the earth citizen, as defined here, each have one of the three dimensions of sustainable development as their main concern.[11] In the following, 'global citizen' will also be used as a term for 'universal citizenship', encompassing all human beings on earth, in accordance with the UN Universal Declaration on Human Rights. This means that all human beings are considered as 'global citizens', even if they do not explicitly identify with the subject position defined here as 'the global citizen'.

One could of course search for a new kind of transnational citizenship that transcends the distinction between 'world citizenship', 'global citizenship' and 'earth citizenship'. This is, however, not the path chosen in this project. The chosen path is rather to search for potential 'overlapping visions' between the three dimensions of transnational citizenship. The fair share vision is the result of this search. The interview material shows that in fact all interviewees might identify with global citizenship, world citizenship, *and* earth citizenship. But many of them also have enemy images of 'fundamentalist' world citizens, global citizens or earth citizens. Such 'fundamentalists' are supposed to have totalitarian

motives – they are willing to sacrifice one or both of the other dimensions of sustainable development as long as their own favoured dimension prevail. Such enemy images seem to be important hindrances in the search for overlapping consensus and overlapping visions. Building of trust and open dialogue on motives and enemy images thus seems to be an important step towards overlapping visions for a common future.

3. Fieldwork in Possible and Desirable Futures

The present design for fieldwork in possible and desirable futures is based on interviews with concerned Norwegian citizens covering the whole political spectrum. Potential interviewees were picked from 16 electoral lists for the 2001 parliamentary election and the final group of interviewees consists of 13 women and 15 men from 15 different electoral lists. None of the interviewees are members of parliament. 16 interviewees represent the 8 parties that are represented in the present Norwegian parliament. The aim was to have one man and one woman from each of the 16 lists, but there was also a time frame set for the whole interview process. The one list that is not represented in the interview material is a protest list with little political significance. The 28 interviews in the interview material cover several analytical dimensions and a kind of 'theoretical saturation', as described by Glaser and Strauss,[12] is presumably achieved.

The design for fieldwork in possible and desirable futures was developed with inspiration from both quantitative and qualitative approaches.[13] The main research tool is a questionnaire with 24 dilemmas or challenges (formulated as a choice between two statements) which taken together cover many aspects of 'consumption and distribution in today's world', which was the explicit theme of the interviews.

When designing questionnaires for quantitative studies one has to take into consideration that most people will unconsciously read much more meaning and intentions into a questionnaire than the researcher can ever imagine. In quantitative studies such unintended 'over-interpretation' often leads to uncertainty about how to interpret the data.[14] By using a questionnaire to frame qualitative interviews this tendency to 'over-interpretation' becomes a strength instead of a problem. When designing the questionnaire for this study, respondents' general tendency to read a questionnaire as a coherent narrative was thus treated as a resource to be utilized. The questionnaire is divided into three main sections.

The first section of questions creates a framework for the conversation by introducing different issues and potential worries. The aim of this section is to establish a partly overlapping understanding of

today's global challenges. Everyone does not worry about everything, but everyone worries about something. Hence, everybody might have an interest in finding common solutions that attend to the concerns of all in the population. The main challenges introduced in this section are: the poverty crisis; environmental problems; terrorism; over-population; migration pressure; and materialistic value systems.

The second section of questions introduces and explains one particular potential solution to the problems that were identified in the first section of questions. The questions revolve around principles of distributive justice and suggest global regimes of resource quotas as a principle to be added to the current use of purchasing power as the ruling distributive principle in the world market.

The third section of questions is aimed at a closer exploration of different 'discursive resources' on causes, effects and responsibilities. The themes from the first section are repeated, but this time the aim is not only to face some worries, problems and challenges. In this final section it is also important to map 'ownership' to different problems and potential solutions. Mapping of 'ownership' means identifying 'winners' and 'losers' in today's situation and finding out who is affected by different problems and solutions and who has the power to advance changes. This focus contributes to greater awareness on how different solutions might protect or harm the interests of different groups, and the interviewees easily become involved in a search for win-win solutions.

In the interpretation of the interview material much inspiration can be found in the literature on biographic research and ethnographic fieldwork.[15] The interpretations just have to be adjusted to the constructive aim of fieldwork in possible and desirable futures. When doing research on a person's or a society's past and present the researcher must be careful not to impose anything which is foreign to the case in question. The aim is to manage to take the other's perspective as far as possible. 'Constructive fieldwork in possible and desirable futures' is also about taking the other's perspective, but another characteristic of this kind of fieldwork is the creation of a specific space for dialogue – a meeting place in an imagined future. In the present design this is a meeting place between, on the hand, the vision sketched through the questionnaire and, on the other hand, the interviewees' perceptions of possible and desirable futures. In this meeting place, shared meaning – a mutual understanding between interviewee and interviewer – is created, and hindrances and potentials are discovered. The role of the researcher in this design is thus very far away from 'the detached observer', but this ideal is usually abandoned as unachievable and unwanted in biographic and ethnographic research as well.[16]

The meaning that is created is shared meaning, and it is the responsibility of the researcher to report on *how* this meaning was created. The interview can be viewed as a sequence of 'events' in the life of the interviewee. To handle these events the interviewee makes use of available discursive resources – both those resources accumulated through the interviewee's lived history, and the resources that are made available through the questionnaire. Hence, the main difference between this design and most biographic and ethnographic research is that the interviewees are exposed to distinct 'events' and are offered a given set of discursive resources through a questionnaire. In this way the design creates a conversational space which in some respects is equal across all interviews. This facilitates comparisons between the interviews. In other respects, however, the interviews differ enormously. On the one hand this has to do with the different discursive resources which the interviewees bring into the interview setting, but on the other hand it is also a product of the researcher's agenda. The researcher's agenda is to map a broad spectrum of hindrances and possibilities, and this means that to each new interview the researcher brings with her the information gathered in previous interviews. The researcher can thus choose to go quickly through discursive resources which have already been explored in earlier interviews, while new discursive resources can be explored more thoroughly. In this way 28 two-to-three hour interviews have provided an extraordinarily rich material on available discursive resources and how these resources are utilized.

Towards the end of each conversation the interviewee was asked to evaluate the interview. A positive evaluation under such circumstances does of course not tell much about how much importance the interviewee attaches to the issues in question. Both interviewer and interviewee have invested time and energy in the conversation and both parties would probably regard a negative evaluation as an offence. Despite of this it still seems to be worth mentioning that all interviewees found the conversation interesting and challenging. And the tape recordings from the interviews show that this is not just something they say of politeness. The interviews are full of the interviewees' own anecdotes about relevant issues – triggered by the dilemmas presented in the questionnaire. Several interviewees said that this was a kind of conversation that one should have more often. This positive evaluation of the conversations contradicts the quite common belief that most people do not care about global issues. Of course, the people recruited from electoral lists are likely to be more concerned citizens than the average Norwegian, but this is balanced by the fact that nationalists are significantly overrepresented among the interviewees because of a number of nationalist protest parties.

All in all the fieldwork in possible and desirable futures revealed a surprisingly big potential for dialogue and consensus. It is, however, important to mention that this potential seems to be closely linked to the fact that the interview design approaches the interviewees as global *citizens*, not as global *neighbours*.

4. The Market's 'Invisible Heart'

With the help from Adam Smith's well-known metaphor of the market's 'invisible hand', which promotes societal ends,[17] one can describe the market as a meeting place for sellers and buyers where fair competition guarantees that goods and services are correctly priced. The 'correct price' mirrors both the costs of production and the perceived benefits for the buyer. The problem with this simple picture is that only the seller's own economic costs are mirrored in the 'correct price'. Societal costs and environmental costs are not included. Hence, an 'invisible foot' is allowed to operate. This 'invisible foot' steps on nature and less powerful groups and creates environmental problems and poverty. As long as the products in the marked are allowed to present themselves as pure and free from any history, this 'invisible foot' can operate freely.

The market's 'invisible heart' has already started its efforts to win the competition against 'the invisible foot'. Consumers all over the world have started to use their purchasing power to purchase goods and services which are guaranteed free from slavery work and destruction of the environment, and which secures a fair share of the outcome for the workers. But the market share for these products is still very small. To some extent the lack of demand for such 'globally responsible' products can be traced to feelings of powerlessness on the side of the consumers. Why shall 'little I' sacrifice comfort and purchasing power when no one else seems to be doing anything? ('Globally responsible' purchases might be inconvenient and more expensive than the alternatives.) The idea of the 'invisible heart' might help consumers to view their purchasing and saving decisions as contributions to a global movement towards a fair and ecologically sustainable future. This might provide the extra motivation necessary to make globally responsible purchasing decisions.

With major changes in patterns of production – but quite minor changes in patterns of consumption – it is possible to uphold a European standard of living on an equal share of the world's resources. Thus, today's very unequal distribution of access to the earth's natural and environmental resources is not a necessary prerequisite to secure a high level of welfare for Europeans and other privileged consumers.[18]

Consumers who want to consume in a globally responsible manner – without giving up too much comfort and welfare – just need some help from producers of goods and services. In part because of pressure from NGOs, consumers, and/or politicians, several industrial actors have started major changes in production patterns, known as for example 'ecological modernization' and 'industrial ecology'. Previously, other industrial actors have not been willing to take the lead in such changes. Thus, today's concerned consumers can make responsible choices by buying products from those actors who are taking part in the process of change; through investing in responsible industries; and through changes in one's own consumption pattern towards more resource-friendly consumption.

In addition to the above mentioned globally responsible versions of more traditional purchasing and saving decisions a new option for globally responsible use of purchasing power is now increasingly debated: the payment of compensation for overconsumption of basic natural and environmental resources.[19] Such compensatory justice might become a mechanism for the transfer of purchasing power from rich 'over-consumers' to poor 'underconsumers'. International air traffic stands out as a very interesting field for implementing such a compensatory justice mechanism. International air traffic contributes with large amounts of emissions that are not covered by any international agreement to curb emissions of greenhouse gases.[20] And most who can afford an air ticket can hardly claim to lack the purchasing power to pay an aviation tax. While waiting for a global aviation tax to be implemented, privileged consumers can choose to pay a voluntary aviation tax.[21]

5. The Fair Share Vision

The fair share vision sketches a model for global compensatory justice. The vision is the result of previous research.[22] Since it was first formulated in May 2000 it has been revised several times to encompass new insights. When doing the fieldwork in possible and desirable futures the vision was a 'hidden' research tool, which was only implicitly revealed to the interviewees through the questionnaire and follow-up questions. But it has always been the plan to reveal a revised version of the vision in the fieldwork report. In re-interviews the interviewees will then get a chance to respond directly to the vision.

The fair share vision is a framework for perceiving consumption choices as steps towards global distributive justice within ecological limits. For the vision to be as productive in building 'overlapping visions' as possible it is important to continually revise the vision so that it meets as many of the potential objections and wishes as possible. The vision

might be read as a 'dialogue guide' for conversations on possible and desirable futures. Each point in the vision should be viewed as an invitation to respond to a statement about facts, problems and/or solutions.

The following version of the vision is revised according to interview feedback, input during the UN World Summit on Sustainable Development in Johannesburg in 2002[23] and other learning.

Point 1: *Limits to resource use*. There are limits to the earth's resources and potential for production.

Point 2: *Human activity is threatening the future of the earth*. The totality of human activity is threatening the earth's resources and potential for production.

Point 3: *The need for international cooperation.* Global limits to human activity can only be achieved through international cooperation. International cooperation on limits can only be reached if the interests of all countries are taken into consideration.

Point 4: *Regimes of resource quotas.* Resource quotas are a well-known and broadly accepted mechanism for limiting/managing the effects of human activity on the ecosystems and distributing scarce resources within groups of people. Examples are fishery quotas established through negotiations, or food and fuel rationing in times of crisis.

Point 5: *Taking total global use of basic natural and environmental resources as a starting point*. A voluntary and bottom-up regime of global resource quotas can take total global use of basic natural and environmental resources (sink capacities, arable land, clean water and energy) as a starting point. In this way one avoids that endless debate on sustainable limits to resource use prevents one from debating distributive justice within ecological limits.

Point 6: *Fair global resource sharing*. If one is searching for a fair regime of global resource quotas, one should accept the principle that every global citizen has a right to a fair share of basic natural and environmental resources no matter where he or she is born. To compensate poor 'underconsumers' and finance the fight against poverty, those who use more than the global average might be expected to pay a tax on overconsumption.

Point 7: *Standards of living*. It is possible to live a good life on an equal (per capita) share of the earth's basic natural and environmental resources (comparable to today's Norwegian standard of living), provided that patterns of production and consumption are changed to a more efficient use of resources.[24]

Point 8: *Both top-down and bottom-up changes*. Some technological and organizational changes need to be top-down, while others need to be bottom-up. Business and politicians can make sure that information

is available so that consumers can make informed decisions. Actors within business and agriculture can also make sure that resource-friendly products are available. Labelling products with how much of the per capita quotas that are used in the production and consumption should be obligatory. Taxes on overconsumption should be considered and debated. Individual consumers and citizens can actively demand the necessary technological and organizational changes and can start paying voluntary compensation for overconsumption of natural and environmental resources, such as a voluntary aviation tax.

Point 9: *Meaningful projects and life quality*. Many individuals are willing to change habits and consume more responsible if they feel that their efforts contribute to a bigger process of change. Voluntary global resource sharing seems to be a meaningful context that can inspire people to change their habits towards a responsible pattern and level of consumption. The consciousness of moving towards living within a fair share (and thereby making space for increased consumption by the poor) seems to have potentials to enhance rich consumers' life quality.

6. The Challenge: Redefining the Successful Consumer

Being a successful consumer in today's Norway first and foremost seems to mean to get the most for your money – for example by travelling to Sweden to buy cheap meat and alcohol. This picture is heavily supported by the mass media, which frequently bring information on (1) how to get cheaper goods and services; and (2) how much Norwegian consumers can save by travelling abroad – buying meat in Sweden, buying a car in Denmark, getting your car repaired in Germany, and so on. So the signal to Norwegian consumers seems to be quite clear: Consumers who pay more than they could have done are uninformed, careless and perhaps even irresponsible (squandering). The 'good (responsible?) consumer' is thus pictured as a person who uses his or her purchasing power in a way that maximizes the amount and quality of purchased goods and services.

Is this 'good consumer' problematic for sustainable development? Not necessarily. But s/he might be. It depends on whether the consumer has also taken the resource impact into consideration. If indicators of globally sustainable consumption, such as 'ecological footprint' calculations,[25] are available to the consumer s/he might choose to maximize the amount and quality of purchased goods while minimizing the resource use and environmental impact. To what degree this will result in more sustainable consumption patterns, depends on (1) to what degree resource-light goods and services are available; and (2) whether the

perceived extra benefits outweigh the perceived extra costs related to choosing the most resource-light alternative. The fair share vision might increase the perceived benefits from resource-friendly consumption.

'Globally responsible consumption' is the core concept in this ongoing research. It is defined as an intermediary level between overconsumption and globally sustainable consumption. Globally responsible consumption is characterized by awareness of present overconsumption and a willingness to move towards not consuming more than one's equal (per capita) share of the earth's basic natural and environmental resources. This definition is different from the present Norwegian picture of 'the good consumer', which is primarily defined in terms of economic responsibility towards the household and sometimes towards the local community or the nation.

A possible long-term goal, corresponding to the fair share vision, is that by the year 2050 all global citizens should have consumption opportunities corresponding roughly to an equal share of the earth's basic natural and environmental resources. Such a goal gives sufficient time for creating a culture of resource-consciousness as well as exploring technological and organizational solutions through stages of responsible consumption. The limits to inequality following from the fair share vision are: (1) In a world of affluence nothing can legitimate that people do not have access to basic resources to cover their basic needs. Access to such an amount of basic resources should be a legally protected human right. (2) There are no legitimate arguments why two children born in different parts of the world should not have equal access to basic natural and environmental resources. There are, however, historical reasons that children born today have unequal access, and it takes some time to level out this inequality. However, working towards equal access in the future – with 2050 as a suggested point of reference – should be a legally binding human obligation.

The language of these limits to inequality is the language of rights and obligations – a citizenly language. The 'globally responsible consumer' is thus a 'citizen-consumer',[26] or 'political consumer', not necessarily an 'ethical consumer'. A globally responsible consumer might of course be driven by ethical motives, but the point to be made here is that such motives are irrelevant for the political argumentation for globally responsible consumption. The ecological limits to total global consumption implies that globally responsible consumption should be regarded as a citizenly obligation, which is in accordance with the long-term interests of all global citizens.

7. Responses to the Fair Share Vision

The interview with 'Heidi'[27] was quite an experience. Before she had even had a look at the questionnaire she had made a statement that in fact sums up the idea of the market's 'invisible heart':

> "Now I want to pursue one of my crazes, which is related to consumption. Free trade is all right as long as the costs are included. If the costs are not included what is going on is an enormous subsidizing of the destructors. One has to make calculations, but if one is able to implement free trade as the rule, and that all costs of a product is included in the price, then the problem is solved. Because what is happening now is that lots of costs are concealed. These are costs that others will have to pay later, or are already paying, somewhere else. I have the same kind of thoughts about food. It's fair enough that negative declarations are not allowed, but then one must declare everything that is in the product, that there is penicillin in the fish and pesticides in the food. Then there must be honesty about these things. It has to do with decency, and integrity. If one declares everything a product contains – okay, then people can make their own choice." (Heidi)

Heidi has obviously been thinking quite a lot about these questions. When she is asked if she has a guilty conscience because of her own consumption opportunities (compared with poor underconsumers), some of the reasons for her concern become clear:

> "It's like some kind of 'original sin'. But yes, I do have a guilty conscience because my consumption is so high, because I don't drive an electric car. Of course I use too much of everything. This has more to do with the environment. If one also introduces issues of poverty when considering one's consumption, then one is *breaking into pieces*. ... When you see those slaves... you are just... At some level you know, when you put on your Nike shoes ... then you know, if you open that door, then you know that someone has lived as slaves to produce them. So it's a guilty conscience that one somehow tries to control by not thinking about it, and

> one says to oneself: 'Why shall you take everything so damn seriously?' ... And it's very uncomfortable; it's a very uncomfortable way of life. Because you are so woven into such a... such a *viciously* unjust system." (Heidi)

Heidi is referring to both neighbourly and citizenly motivations for wanting to become a globally responsible consumer. And her citizenly motivations cover entrepreneurial world citizenship, ecological earth citizenship and humanitarian global citizenship. In Heidi's instance it is difficult to distinguish between neighbourly and global citizenly motivations, but this distinction is clearer in the interviews with 'Bill' and 'Bernard'. Both Bill and Bernard accept arguments linked to global citizenship, but they explicitly refuse to accept neighbourly responsibilities towards people in other countries. However, they express some willingness to *take* responsibility, and they seem to feel some responsibility for future justice (but not for past injustice). If they were pushed towards accepting that they personally *have* responsibility for today's world situation, their answer would probably be to withdraw from the dialogue.

Compared to Heidi, Bill is more relaxed about the contrast between his own consumption level and the poverty of the world's underconsumers. He says that he does not feel any guilt for his own consumption opportunities. He also says that he doesn't feel any responsibility for people in other countries, and adds:

> "I don't think that anyone felt responsible for Norwegians a hundred years ago either. We have starved to death here too. Just now we have a good time, but in hundred years, when the oil and gas are gone, we might well be dropping down again." (Bill)

On the one hand Bill does not feel any neighbourly responsibility towards the world's poor. And he believes that Norwegians do not have any responsibility to help others. But on the other hand he is not against such help, although he is not sure if it is very successful:

> "If you look at a lot of the development aid projects, then I think that they are total failures. But there are still many who make great contributions, but there are also so many contributions that fail. If the contributions are successful, then I fully support it (the development aid)." (Bill)

One of Bill's reasons for not having a guilty conscience is that he feels that he is not any different from most other Norwegians. He believes that it is hard to avoid being a 'materialist' in today's Norway and he does not see any reason to have a guilty conscience because he is a privileged consumer. He sees it as primarily a result of luck, not hard work:

> "We are very lucky. I don't know if we work much more than others, I guess we don't. But we have been lucky, then. [Interviewer: 'But the poverty crisis in today's world – are you worried about it?'] I can't relate to... I see that it is happening, you know, but what can little I up here do?" (Bill)

'What can little I in little Norway do?' This is a common denominator through the interview material. Through the interview, the interviewees get some ideas about things individual consumers in fact might do – and towards the end of the conversation they are asked to evaluate the tools that have been introduced to them. When asked to evaluate the fruitfulness of using ecological limits as a starting point for debates on distributive justice, Bill first is a bit confused. In contrast to most other interviewees he has just answered each question in the questionnaire without trying to figure out the overall meaning of the questionnaire. But when presented to this implicit meaning, he uses the recently appropriated discursive resources to make a clear statement:

> "If everybody in the world can drive this much with their car, everybody can eat this much meat and fish and vegetables and grain, and do this and that, and if you don't do it, then you are an *overconsumer*, if you had got it fully concretized, black on white... When it comes to a point where everybody has to think about the environment, which has not really been the case until now, then it is much easier to understand, if you get it like this... (he draws a 'resource skyline' on the table, indicating quotas of different resources)." (Bill)

In the beginning of the interview Bill didn't see that he had any power to influence the future of the world. The interview has given him some tools that links individual purchasing power and cooperative and sustainable development, and in the end of the interview he starts to use them. Bill's condition "When it comes to a point where everybody has to think about the environment" points towards an 'earth citizenly'

motivation, but during the interview he has also been open to ‘world citizenly’ and ‘global citizenly’ arguments.

Bernard, on his side, can be described as a ‘responsible world citizen’ who expects entrepreneurship and responsibility from both himself and others. He is asked to what degree he agrees with A, who says: “I find it difficult to enjoy life fully as long as there is so much poverty in the world” and B, who says: “Poverty will always exist. I am happy that I live in a rich country and I don’t feel any responsibility towards people in other countries”. In his answer Bernard expresses some feeling of responsibility, but he explains that as long as the poor countries are not acting responsibly there is no reason for him (or Norway as a country) to waste money on help which will not do any good:

> “I have problems with the formulation ‘don’t feel any responsibility’. I guess I feel some responsibility. As I told you I have travelled a lot around the world. I have been to many places, many times in Africa, and I’m not impressed by the development aid we give to Africa. ... They have to come to the point where they want help. And my impression is that today they don’t want that. ... It doesn’t help that we sit here and pour money down to Africa. We can pour the whole North Sea [the oil fortune] down there, and they will be just as poor. It doesn’t help. They must take responsibility themselves, too. And they don’t do that. And that’s my attitude to the whole problem.” (Bernard)

Compared to Heidi and Bill, Bernard is very reluctant to accept any other distributive principle than purchasing power. He seems to think that any other distributive principle than purchasing power is deemed to be bureaucratic and probably impossible to implement. Bernard’s sense of fairness is, however, put to an important test in an exchange on driving. He is asked to tell to what degree he agrees with A and/or B. A says: “Everybody has the right to use a car as much as he/she can afford.” B says: “It’s unfair that rich people can use unlimited amounts of petrol and drive their cars as much as they want when pollution and other disadvantages related to driving affect everybody.” Bernard answers that he somewhat agree with both A and B:

> “... firstly, I am no adherent of taxes ... But we can’t let the whole world adopt an American style of driving, I’m aware of that – it would empty the world’s oil reserves

> in no time – it wouldn't work. And we don't have the roads for it either. So in that view I don't fully agree with A. You can imagine – if 1.2 billion Chinese were allowed to use cars as much as Americans do, and almost the same number in India, that would be wrong. So everybody can't use a car as much as... – well, you can say, today they use cars as much as they can afford, but if everybody could afford as much as the Americans afford, then it would be wrong." (Bernard)

Here, Bernard is close to suggesting quotas as an additional distributive principle, but he is not aware of this himself. When being made aware of it he is not completely comfortable with this possible implication of his reasoning. When he is asked to consider how one should deal with a situation where 1.2 billion Chinese have the purchasing power to buy private cars, he immediately replies, "but they are not allowed to buy private cars, are they?" The seconds following this question might be interpreted as a turning point in the interview. Bernard realizes that his (liberalist) model depends on the use of coercive means in China. He can't welcome the Chinese into the consumption line, and he seems to be uncomfortable with this implication.

Bernard's answer to a later question on 'the distribution of quotas' must be interpreted in light of the 'turning point' that was reached when discussing Chinese private cars. In the question the interviewees are asked to consider the proper solution if there were to be limits set concerning the amount of fossil fuels (oil, gas, and coal) a country might use. Again the interviewees are asked to what degree they agree with A and/or B. A says: "Countries that depend on fossil fuels to keep their economy going must be allowed to use more than countries that are not yet dependent on fossil fuels." B says: "Combustion of fossil fuels releases climate gases to our common atmosphere. No one has any more right to the atmosphere than other people and emission rights should therefore be equally distributed among all world citizens. Those who have emissions above the global average should pay a tax on overconsumption." At first, Bernard does not agree with either of the statements:

> "... well – how can this be controlled... Well, of course the emission rights should be equally distributed. But how can this be done? It will become a complete mess... no, it can't work." (Bernard)

After learning that the two positions indicated by A and B's statements mirror positions in the international climate talks he seems to make up his mind that he has to think more seriously about this. He rereads the statements while giving a more nuanced answer:

> "Well, no one has the *right* to burn up more fossil fuels than others just because they depend on it. That's their own fault, that they depend on it. One cannot say that 'we are so dependent so we must have the right to burn up more than them'. No, that's not right. And it is correct that it implies emissions to our common atmosphere, but then again we have the question: how much does it matter? 'No one has any more right to the atmosphere than other people'... that's right of course. It's not possible to disagree with that. But to go from there to an equal distribution between all world citizens... I try to imagine the practical implementation... that's hard to imagine." (Bernard)

Bernard's question "how much does it matter?" refers to his sceptical attitude towards mainstream climate research which became clear earlier in the interview. The above exchange shows a potential for dialogue despite this scepticism.

When being told that many politicians and researchers around the world are in fact working to find solutions to the practical implementation of distribution of quotas, Bernard immediately replies: "And that's positive!" His positive attitude towards this illustrates the apparently huge potential for overlapping visions based on, on the one hand, fair sharing of basic natural and environmental resources and, on the other hand, compensatory justice through a tax on overconsumption.

8. Towards a Cooperative and Sustainable Future?

To Heidi an opportunity to pay a tax on overconsumption or a voluntary aviation tax would probably come as a relief. Bill would probably pay it if he trusted the system. And Bernard would probably refrain from starting a campaign against such initiatives. Their different levels of enthusiasm towards the fair share vision reflect different moral and political temperaments. The important point to be made here is that all these temperaments might contribute to a 'chain reaction', as this one described by Jon Elster:

> Some are Kantians: they want to do what would be best if all did it. Some are utilitarians: they want to promote the common good. Some are motivated by the norm of fairness: they don't want to take a free ride on the cooperation of others, but neither do they want to cooperate if few others do. ... The Kantians could act as a trigger or catalyst for utilitarian behavior, and the utilitarians as a multiplier for the Kantians.
>
> The utilitarians might themselves act as a catalyst for people who are motivated by the norm of fairness. ... Some are easily shamed into cooperating, whereas others come around only when almost everyone has joined. ... Depending on the constellation of motivations, the chain reaction may go all the way to universal cooperation or stop short of it.[28]

The interview excerpts from the interviews with Heidi, Bill and Bernard suggest that Heidi is a Kantian; Bill is a utilitarian; and Bernard is motivated by the norm of fairness – and that they can all contribute to a 'chain reaction' towards 'universal cooperation'.

One might ask what 'universal cooperation' at a societal level would look like. Gudrun Fleischer Eckblad has in fact tried to imagine such a society. In *That Other Land: The story of Aipotu, a creative, competent, and high-tech country where they rank human growth and joy of life above the acquisition of wealth*, Eckblad gives a lively picture of a future which can become possible if life quality and trust are ranked above profit and control.[29] She uses a visitor to Aipotu – from the country Bykrat – as a travel guide. Much of the book consists of dialogues between Gard from Aipotu and Adam from Bykrat. Through these dialogues, Eckblad contrasts a cooperative and a competitive society respectively. She gives persuasive examples of how a cooperative economy might attend to the need to foster entrepreneurial spirit even if the society cannot use the possibility to become very rich from high profits as a way to encourage creativity and hard work.

A mixture of entrepreneurial spirit and cooperative spirit is probably the best setting for a flourishing economy. Entrepreneurial spirit is often supposed to be nourished by a potential for high profits to the entrepreneurs. According to this supposition there is an unsolvable conflict between the high profits needed to foster entrepreneurial spirit and the sharing of profit which foster cooperative spirit. But this supposition probably builds on false beliefs about entrepreneurial spirit. Productive self-realization is so rewarding in itself that there is no reason to fear that

entrepreneurship will disappear with falling rates of profit to the entrepreneurs.[30] In fact basic security is probably more important to the entrepreneur than high profits – and basic security also fosters cooperative spirit.

Basic security is also a good starting point for taking care of a society's human resources in general – from infancy to old age. Eckblad's starting point for writing about the utopia Aipotu was her wish to describe a society in which society's most important resource – the children – is consciously nurtured so that the children's inborn capacities for entrepreneurship and cooperation can develop to the benefit of both the individual and society:

> More than anything else the child wants to learn and mature. But the child is also equipped with personal guidelines for this process. If we ignore these inborn guidelines for development, we'll face opposition. Not as a sign of unwillingness to learn, but as a sign that we're not proceeding in the right way. It's the same with any partner; if you have a partner, and you don't treat him with respect, then cooperation will be impossible.[31]

Research from the last decades has completely changed the picture of the infant. Instead of viewing the infant as an uncivilized being who has to be brought up and disciplined to become part of society, one now views the infant as cooperative from birth, and entrepreneurial spirit also seems to be an inborn capacity.[32] This research is the basis for Eckblad's optimism when writing about Aipotu. In the last chapter of her book the visitor to Aipotu first expresses a feeling of despair when thinking about his own bureaucratic and competitive society. But then he sees a two year old girl exploring her surroundings without fear and with great trust towards him – a stranger. She reminds him of his own daughter, and a though occurs to him:

> In my adult and self-centered society, children were still being born. New children, coming to us every day, just as new, just as tender, and just as open and eager to participate. They hadn't been ruined yet, and that gave us a new opportunity, every day, to break away from the old pattern.[33]

As we grow up we learn to protect ourselves from being disappointed and exploited. We learn not to trust strangers and not to give more than one receives. We learn to close our eyes and our hearts for other

people's suffering. But the potential to break out of this pattern probably survives in all humans. The fair share vision and the idea of the market's 'invisible heart' indicates that humanity does not have to wait for new and better generations to become adults before a fair world can be created. Millions and billions of global citizens can start creating such a world now – through their voting, purchasing and saving decisions and through responsible interaction with other people and the natural environment.

9. Conclusion

The fair share vision and the idea of the market's 'invisible heart' might be viewed as irrelevant idealism. And neighbourly and citizenly attitudes might be discarded as 'cheap talk'. To such objections one can reply by quoting William Thomas' famous aphorism: "If men define situations as real, they are real in their consequences."[34] This aphorism is often used to explain how beliefs about bad things – such as the bankruptcy of a bank – come true *because* many people believe that it will come true (everybody takes their money out of the bank, which then becomes bankrupt). The aphorism might, however, also be used to illustrate how beliefs about good things can come true if people believe that it is possible for these things to happen. The fair share vision and the idea of the market's 'invisible heart' are tools that might make it easier to believe that a sustainable future is possible. And if people start to act as though their purchasing decisions matter to the global household, the sum of their actions might lead to a fair and ecologically sustainable future.

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Notes

1. Carley and Spapens, 1998; Sachs et al., 1998; Hille, 1995.
2. UNDP, 2003.
3. Hellevik, 2002, 9-10; NSD, 2000.
4. Lafferty et al., 2002.
5. Veblen, 1992; Geus, 2003.
6. Spaargaren and van Vliet, 2000.
7. Holden, 2002.
8. Norgaard, 2003.

9. Rawls, 2001, 37, 81.
10. Dobson, forthcoming.
11. WCED, 1987.
12. Glaser and Strauss, 1967, 61.
13. Main sources of inspiration: Foddy, 1994; Kvale, 1996.
14. Foddy, 1994, 52.
15. I.e. Chamberlayne et al., 2000; Emerson et al., 1995.
16. Wengraf, 2000, 144; Emerson et al., 1995, 3.
17. Smith, 2003, 572.
18. Carley and Spapens, 1998; Sachs et al., 1998; Hille, 1995.
19. I.e. Dobson, 1998, 157-162.
20. See WBGU, 2002.
21. See Myclimate, 2003; Strohalm, 2003.
22. Haugestad, 2000.
23. Especially related to Sachs et al., 2002 and WBGU, 2002.
24. This is documented in the literature on the 'environmental space' approach, i.e. Hille, 1995, Carley & Spapens, 1998, Sachs et al., 1998.
25. Wackernagel and Rees, 1996; Chambers et al., 2000; WWF, 2003.
26. Spaargaren and van Vliet, 2000, 56-57.
27. Names of interviewees are fictive. I have chosen to use excerpts from three of the interviews because they illustrate different types of transnational citizenship and are representative for trends in the interview material. The excerpts are translated from Norwegian.
28. Elster 1995, 133.
29. Eckblad, 2002.
30. Elster, 1993, 133-136.
31. Gard to Adam, in Eckblad, 2002, 37.
32. Stern, 1985; Bråten, 1998; Eckblad, 2002.
33. Eckblad, 2002, 225.
34. Jary and Jary, 1995, 687.

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Globalisation from a Complexity Perspective: Explored not as an Abomination but as Irresistible Human Enterprise

Robert Woog and Vladimir Dimitrov

1. Introduction

In discussing globalisation one quickly comes across the disagreement about aspects of it that we like and dislike. We bring to our assessment of globalisation different motivations. This chapter is no different.

Globalisation presents many faces to many different observers. The most general and the most negative are those dealing with the process of economic globalisation. The ugly face of globalisation has become the huge transnational corporation with a relentless drive to create a consumer dominated global middle class.

This chapter will discuss such aspects of globalisation as economics, the desire to collaborate between nations and communities for common good, social justice, health and sustainable environments. It will also look at the uncontrolled popularist form of globalisation, communicated through the informal use of global communication technologies.

It will be argued that globalisation has been an evident and powerful social trend for at least half a millennium and that the protesters have arrived at the rally, 500 years too late. A somewhat controversial proposition will be made that the protests opposing globalisation are the manifestation of the same forces that are driving globalisation, the so-called "will to power".[1] In a globalised society the 'powerful' are those who grasp and utilise purposefully the compression of space and time by having control of the technology that allows travel and communication. Those who are capable of using and are greatly advantaged by the compression of space and time are a minority of the world's population and their actions are leading to a decline in democracy.

Both globalisation and complexity theory have the reputation that they are difficult to comprehend. In this chapter the two concepts are linked together and in this way the emergent explanation of both domains is advanced.

2. Compression of Space and Time

Globalisation may be thought of as a form of time and space compression.[2] The First World lives in time, but our first experiences in globalisation were based around the compression of space.

Early human lives were dominated by space, expressed as distance and a lack of knowledge, mingled with fear, myth and superstition about what lay 'beyond' the known boundaries.

What follows is an exploratory speculation about the social implications of the compression of space and time and how this may be thought of as the generic face of globalisation. The examples chosen, about space and time compression, are indicative and not definitive.

3. The Wind Knows Every Corner of the Globe

Every society knows its own territory, its own country. As populations, exploration and trade grew during the early history of human development, there was an accompanying growth in knowledge about our world. What was known was often thought of as the 'centre of the universe'. 'Esfahan is half the world' and other such sayings, some 2000 years ago, were indicative of prevailing attitudes. This saying also hints that what was unknown was not worth knowing.

By the time of the Middle Ages, there was a good knowledge of the Mediterranean lands. Northern Europe, Africa and Asia were known about and often without much detail or accuracy. The Americas and Australia remained unknown and the source of mystery and speculation. But the wind knew every corner of the globe.

The Portuguese were among the first to venture extensively into a monster-filled ocean towards a horizon that they may have fallen off. Prince Henry of Portugal, also known as Henry the Navigator, became obsessed with the discovery of the things hidden from men. Under his patronage from 1425 and 1434, Europeans set sail to explore the world. Henry also organised what would now be called the appropriate infrastructure support by bringing together mapmakers, sailors, astronomers and shipwrights. He was ably abetted in his task by Renaissance men like Ferdinand Magellan and Christopher Columbus, who wanted to prove something in which they believed. Others, like Vasco de Gama and Francis Drake, were motivated by a mix of desire to conquer the unknown and the acquisition of wealth and glory.[3]

Through rapid advances in shipbuilding and sailing technology, a new kind of ship, called the caravel began navigating to all parts of the world. The first compression of space had begun, under sail. This sail-led

exploration of the world could, truly, be called the first major act of globalisation, because the discovery was made that the world was actually not flat, but spherical or 'global'.

The tyranny of distance was being conquered, the compression of space had begun, but it came at a price. The price was time. It would be several centuries before inventions like the telegraph and radio would begin the compression of time.

4. Greed and the Will to Power

The ships tied the globe together for the first time by bringing 'home' tribute, intelligence and commercial advantage.

What started out as a restless curiosity of what lay beyond the rim of the ocean quickly gave way to an unbridled greed and a will to power.

Soon the competition between the major trading nations of the world for exotic produce, like slaves and spices, led to jealousy and enmity between them. Almost simultaneously with the development of globalisation began an exploitation of the weak and a warring between the powerful and dominant – trends that, in varying scale, have continued to characterise globalisation to this day.

Accompanying the commercial rivalry between the major global traders was a desire not only to be successful but to be supremely successful, to become the most dominant imperial power – sadly, another of the human characteristics to stand the test of time and persist as a feature of the globalisation imperative to this day.

5. European Colonisation of Africa and Asia

Sail and trade-based globalisation quickly progressed to the stage where European expeditions not only travelled the globe but also made the producers of the exotic goods into their dominion colonies. The zenith of this period of annexation and colonisation occurred when most of Africa and Asia were made into European outposts and colonies. This represented the second advanced phase of exploration and trade-based globalisation.

It is in this way that the dominant world trading partners, while importing commodities and generating wealth, were exporting political and religious ideology – once again a trend that has continued.

6. From a League of Nations to the United Nations

Through globalisation more and more people are becoming aware of the right to have rights. The translation of this from the ethical to the political, from the philosophical to the applied has given rise to a very large number of civil or socio-political organizations throughout the world.

The United Nations is the only global political organization. It was established as a product of globalisation and in part it exists as an attempt to bring understanding and management control to the globalisation process. The UN seeks to draft and promulgate international law. It has the onerous task of enforcing those laws on nation states who offer varying levels of co-operation. The most visible action of the UN is its involvement in disciplining the conflict between powerful national states and their annexation and exploitation of the weak. It works in a global framework for human security. In this regard it is, if not the first then the most visible attempt of society to deal with globalisation on a global scale.

The activities of the UN are interlinked with the issues as well as the technologies of globalisation. In seeking to operate at a global level, the UN is engaged in wide spread high-speed communication. Such communication is needed for it to operate at a global scale to cut across the self-referential priorities and logic of the corrupt, the dominant, or the most powerful.

7. Everyone Knows Everyone Else's Business

The Internet, computers and telecommunication are the beginning of a single global nervous system. A concept foreshadowed by the first description of the *noosphere*.

The World Wide Web represents a kind of realisation of the prediction of the Russian ecologist Vladimir Vernadsky (1863-1945) and the French palaeontologist and philosopher-theologian Pierre Teilhard de Chardin (1881-1955) about the emergence of the "noosphere". Vernadsky imagined it as a sphere of intelligence, wherein humanity could employ its evolutionary gifts as a creative collaborative agent of evolution – and where the widening conflict between techno sphere and biosphere could be transformed into synergy.[4] For Teilhard de Chardin, the noosphere is a planetary thinking network – an interlinked system of consciousness and information, a global net of self-awareness, instantaneous feedback, and planetary communication.[5]

The technology is in place for quick and inexpensive global communication. In the world we now inhabit, distance does not seem to matter much; space as well as time has become compressed. Wherever we are at the moment, we cannot help but know that we could be elsewhere. Never before has communication occurred instantaneously and as unencumbered by distance, as well as being at the disposal of so many. Immediacy and communication of information has become linked. A major step in globalisation is that everyone knows everyone else's business and everything takes place in a virtual present.

While the world is still characterised by a plurality of conditions, thought and levels of thought, the Internet continues to seriously challenge and change past practices. This trend may be expected to continue at the rate that it has done so in the recent past as it continues to be fuelled by advances in communication technology and eager and rapid uptake by both business and the civil sectors of society. Global communication, one of the major contributors to the compression of time, means that everybody knows everybody's business. But there is also a resultant generification of tastes, values, culture, likes and eventually behaviour. Already, this trend is evoking, sometimes violent, retaliatory behaviour from those who remember and wish to preserve conditions from a past, different from the emerging future.

Authors such as Huxley, Orwell and Dostoyevsky[6] have most eloquently warned against the trend of unreflective standardisation and generification of humanity. While their arguments are couched in varied ethical, moral, societal and historical contexts, they are similar in that they warn against the destruction of the individuality in the human spirit, which they recognise as a guiding life force.

There are delightful and unique ethnic, cultural and spiritual variations around the globe. These conditions are sensitive and responsive to local conditions and dance delicately to the tune of many rules. Such conditions are harmed by the unselective application of globalised mega trends. These trends privilege certain values, activities, cultural, social and political ways of being, above others. The diluting and changing impact of the globalisation force is then often explained away in terms of irresistible and in some form superior, moral, ethical, political and ideological grounds. Where this becomes problematic is that because of the control and dominance of the communication medium the message and the influence it creates represents the knowledge, values, beliefs and limited life experience of a particular group who have become a power elite.

Yet the globalisation imperative associated with communications is not all negative. Complexity theory argues that if interactions among agents are improved, the adaptability and creativity of the system is also

enhanced. In globalisation terms this translates to agents being people, and interactions being relationships generated by communication. In the theory it goes on further to posit that diversity of agents in the system serves to enhance adaptability and creativity even further. Improved and self-organising global communication that results in sharing a diversity of experiences and perspectives contributes to improved relationships and connectedness and, in this way, it is significantly contributing to and improving that complex system we call humanity.

8. Thinking Globally

The cliché encourages us to 'think globally and act locally'. An attractive generalisation but like most such generalisations it is of somewhat limited applicability.

The epistemological assumptions that people hold about the nature of reality and their role within it vary according to their particular life experiences, including their exposure to various kinds of learning and living environments.

There is interrelatedness between what we know and how it is that we know.[7] Global connectedness means that people are exposed to a great volume of information some of which may be quite exotic. A result of this is that people have their existing cognitive organization challenged, through receiving new information that cannot be readily assimilated in their existing schema. The individual then experiences disequilibrium as they struggle to develop new and more powerful complex and contextually relevant assimilatory structures.

For some the dissonance they experience acts as a trigger to move on to higher and more sophisticated epistemological development. This serves as an imperative, which moves us forward towards a better-informed and better-educated world. For others, to have their epistemology come under direct and intense challenge can be very threatening. Their reaction may be far removed from a positive learning experience. In response they may withdraw, reinterpret what they think they see in more familiar but often inappropriate ways, or respond with denial or aggression. Often the reaction is confusion, bewilderment and wonder about their own worth or competence. They resent a world, which they find increasingly hard to comprehend and which is failing to accommodate and value them.

A frequent example of this occurrence is when men in Third World societies make the requisite epistemic adaptation as they move on in business, politics and aesthetics. Often they leave behind what is

colloquially referred to as 'cooking pot wives' who for a variety of reasons do not or cannot make the same epistemic adjustment.

We are open to both the positive and negative effects of developments and trends associated with globalisation. Which ones dominate or which ones we choose to accept, follow or prioritise is more determined by our value base rather than by an incontestable character inherent in those trends. It may be useful to examine and speculate some about human nature.

9. The Nature of Human Nature

Gribbin and Gribbin have proposed a theory that, in human history, there have been glacial periods – successive recurrences of harsh conditions, broken by benign and bountiful ones.[8] They argue that this put curiosity, adaptability and intelligence at a premium in all species, struggling to survive under these conditions. Natural selection would have favoured those who could most quickly take advantage of and maximise short bursts of opportunity available to them. This was the selection criterion and these were the conditions under which humans showed themselves to be incomparably successful against all other species.

Our ancestors lived in small, nomadic bands of a few dozen individuals who received their food each day by gathering plants and hunting animals. For our hunter-gatherer ancestors, problems such as finding mates, hunting animals, gathering food, negotiating with themselves and neighbouring bands, defending against aggressors, safe-guarding children and finding good habitat became the determinants of their survival. Natural selection is a slow process, and there simply have not been enough generations for it to select new circuits that are well adapted to our current form of life. We find ourselves with Star Wars technology and Neanderthal wiring.

One can speculate about the influence of our evolutionary hereditary on the motivation and behaviour of early explorers and current world leaders. The speculation could include suggestions that exploration, annexation, colonisation and rapid exploitation of resources, as they became available, were and remain part of our evolutionary heritage. Our exploratory and colonisation behaviour has fuelled the development of technology that has led to the compression of space and time.

10. Unity and the Uniqueness of Diversity

Natural selection favours the individual and not the group, but a curious attribute of being human is that we are capable of following innate

biological drives while being able to reflect upon the consequences of our actions. This may be described as enlightened self-interest. It is in this way that some of our patterns of social behaviour may be described as democratic individuality. A great deal of individual freedom is accepted and, to a degree, encouraged, as long as it lies within broad social rules. Boundary judgements between individual needs and common good remain as continuous as it is challenging. This judgement is less problematic within societies than it is between societies and cultures. Closely related to the tension between individual and group needs is the tension between who to include as members of one's social group and who to exclude. Inclusion in the group, both directly and at times indirectly, favoured at first the survival and then the ongoing prosperity of the group. Part of this process required the identification and exclusion of the non-members of the group – the exotic other. The exotic other can be those who have different aesthetic sensibilities, worship a different god or organise their political administration by other than democratic means.

There is a fear and vilification of the culturally distinct 'other'. In a recent Australian case, the focus of exclusion and hence, by default, the reaffirmation of 'Australianism' was directed at asylum-seekers. Demonisation of the ethically and culturally different is not new: it can be found in our early historical behaviour of group maintenance. It can be exhibited in current socio-political practice, such as the sloganeering during the recent Australian elections, where "People who threw their children overboard were not worthy ever to be considered as Australians". (The incident being referred to is a group of asylum seekers who had arrived by boat and after they were prevented from landing by the authorities were accused of throwing their children overboard. Later it was proved that no children were thrown overboard and the Government had deceived the electorate for political advantage.)

Adherence to cultural identity and group has been a way of managing social organization through human history. This issue may be explained with reference to Fractal Theory.[9] Fractals are patterns that appear at different levels of a complex structure. Each pattern is the image of the whole structure. A child knows his/her mother and in this way they know their family, clan tribe or nation. With globalisation there is 'fractal' confusion. When does the fractal pattern represent the whole structure right up to the global scale and when does it stop, having reached its global tribal or ethnic boundary of relevance? This re-poses the question of who are 'us' and who are the 'exotic other'. Civil wars and acts of genocide around the world continues to illustrate that for many people the question of who are 'us' and who are the 'other', continues to present a problem, but not because it is a cause of ambiguity.

11. The Ugly Face of Globalisation

Again, through the compression of space and time and its attendant developments in web based communication, satellite broadcasting and air travel, the images of high standards of living and social equality have become evident internationally and almost requisite viewing. The means of attaining the quality of life and the requisite accoutrements that support and display such life remains elusively out of reach for all but a minority of the world, privileged by class and culture. This was part of the Orwellien warning in *Animal Farm*.[10] The dissonance that comes from seeing, recognising but being unable to emulate the privileges and the life style of the power elite.

What is being depicted in the cinerama of global life torments many in society. Ironically the dissonance is also global. Those who have 'not enough' long for more and those who have excess are touched by guilt. In his influential book, *A Brave New World*, Aldus Huxley prophesied that humanity would face a future where life was bearable only if society lived in a drug-induced state.[11]

> And there is always *soma* to calm your anger, to reconcile you to your enemies, to make you patient and long-suffering. In the past you could only accomplish these things by making a great effort and after years of hard moral training. Now, you swallow two or three half-gram tablets, and there you are. Anybody can be virtuous now. You can carry at least half your morality about in a bottle.[12]

This prediction is becoming uncomfortably recognisable in certain national groups, ethnic minorities and social groups ranging from the top to the bottom of the socio-economic strata.

The somewhat speculative proposition may also be put that the frenzied drive towards material possessions and consumption (a trend much linked with globalisation) is also a form of drug dependence. It is a modern way of altering states of consciousness.

The wider the process of economic globalisation, the narrower the circle of those who benefit from it in a tangible or economically obvious way. The free, global market has begun to appear less and less free. Both trade and investment seem to be governed by more and more complicated laws and procedures in favour of monstrously rich economic and financial corporations – the real beneficiaries of the free global market. With the passing of each day, these unaccountable corporations,

with unlimited life, size and power, are taking ever-increasing control over national economies – largely to the detriment of the individual consumer, worker, neighbour and citizen. One can find much evidence that corporate-led globalisation negatively affects the environment, financial stability, equity, security, food safety, health and cultural diversity of millions of people; the number of the countries classified as the 'most poor' in the world has doubled in the last several years. There is a tendency for the governments in the Western 'free' democracy to act as the 'armed' militia for the large financial corporations and banks.

In so far as economic globalisation is a process that involves complexly interwoven social, political, psychological, anthropological dynamics, it is difficult to grasp it holistically, let alone predict its unfolding. But only to protest, foresee and preach catastrophe for a large part of humanity does not help much.[13]

Globalisation does not have a specific target; it has effects that include the erosion of the power of national governments. Nation states have to share power with others, notably the transnational corporations. This process has resulted in what may be euphemistically described as collateral casualties. One of those casualties is the enshrined governmental process of democracy.

There is a part of society whose intuitive judgement is that those who are the most influential in the ongoing development of the global economy are harming society in the long term. This belief, and the protest action it engenders, come from intuitive knowing. But how does one reconcile such an intuitive knowing with the national democratic mandate?[14] The problem is that intuitive knowing does not give one the authority to go against the policies of legitimately elected governments.

12. Democracy in Decline

Advanced states of self-organization require rapid forms of adaptive adjustment. Elections in democratic societies are held every four to five years. Despite a majority agreement about a democratic mandate, this period of time may be too long for an informed knowledge rich society to be held back from responding to the forces of self-organization.

Democracy as we know it, may have to decline in order to be replaced by a governmental system that is more representative of a globalised world which in turn is a complex system reorganising itself at higher and higher levels of complexity. At the very least it may be contestable that inter community affairs can be run in a standardised global scale even by something as socially revered as democracy. In a pluralist complex world no one ideology, even one as long serving as

democracy, is going to provide the adequate social organisational framework.

13. Sustainability and Some Doubts

Many of the arguments for sustainability are attractive. Among the admirable are, the desire to conserve resources: maintain biodiversity; reduce pollution.

Sustainability as a global ethos may be neither obtainable nor desirable. As one sector of society gets close to sustainability, another, with different time scales or experiencing different conditions or under the influence of different rules, lags behind or changes in unexpected ways. Adaptation may be required in ways that is different to what was previously accepted as sustainable. The ideological and sometimes self-righteous stance of a group or country shielded from conditions or events being experienced by another, borders on ideological hegemony and presents a most unattractive face of globalisation.

The argument for living within the desired carrying capacity of the earth (sustainability) is anthropocentric. In general such arguments support certain human activities or certain cultural social and political groups above others. Arguments on moral, ethical, political and ideological ground are all in this category.

Sustainability should be seen as periods of equilibrium which will be punctuated by change but not as something put in the place of change.

14. The Risk in Loss of Diversity

Through the compression of space and time we may be causing a reduction in requisite variety as a result of which, we may be interfering with the organisational forces that guide the architecture of world order.

This is a counter intuitive argument because it appears that we have never had more variety or choice. In fact, however, we are actually decreasing variety. This is in part the well-recognised and much lamented loss in biodiversity.

Our expanding and accelerating global impact is using up to the point of exhaustion certain finite resources. That which we do not use up we may be knocking out for competitive reasons or inadvertently as collateral damage, resulting from our heavy handed and technically enhanced daily lives. We are also specifying and standardising globally the things we grow, build and use. In valuing certain things globally beyond others, we become that force in the environment that exercises the

process of natural selection. The result of such natural selection is the proliferation and multiplication of the 'valued and chosen' leading to the consequent loss and ultimate elimination of the non competitive 'other'.

Complexity scientists, such as Kauffman,[15] argue that order and novelty emerge in the world as a result of a huge number of diverse and independent agents changing and interacting with each other in adaptive self-organising ways. If globalisation is reducing both the diversity and the independence of interactive agents, it is putting in jeopardy the vital organising force that manages the world order.

15. A Complexity Perspective

Globalisation may be thought of as manifest evidence of the complexity of our world. Key principles of complexity[16] are evident in the globalisation process. Examples include that the process is sensitive to initial conditions, it is governed by many and not a single set of rules, it is self-organising and has emergent properties.

Human systems are dynamic, adaptive, self-organising, sensitive to initial conditions. While exhibiting periods of stability, so called punctuated equilibrium, human systems are drawn towards the edge of chaos. The edge of chaos is a highly energised state full of creativity and potential. At the edge of chaos, small changes can push the system into random behaviour or lock the system into strict behaviour. It is at this point where all of the interesting self-organising behaviour occurs in a complex system, and it is where systems tend to gravitate given the chance to do so.

It is possible to argue that complexity theory may be used to explain why globalisation is continuing at an expanding scale and that it displays emergent properties which are at times unexpected and surprising.

Being drawn to the edge of chaos, many societies are adapting and changing; they are becoming more complex, larger, better informed, requiring more resources and more sophisticated management and organizations. This is one of the tenets of complexity theory, that complex systems re-organise themselves at higher and higher levels of complexity. A major feature of globalisation can be recognised in and explained by this principal. At any one time, there are expressions of complex organization at many scales of structure, ranging from village level to the metropolis. Each can still be re-organising at a higher level of complexity that is recognisable in a change from its previous condition, though vastly different in comparison to each other.

Complex systems are also entropic. They require energy to maintain themselves. Without energy they become what is known as a dissipative system. Dissipative systems require energy flows to maintain their form and function.

The resources that are vital for the maintenance of human systems and which are being consumed in ever-increasing quantities are energy, including nourishment, and information. A link may now be made with the earlier explanation of globalisation that was described as a compression of space and time. The compression of space and time can be seen as humanity's self-organising response to its increasing demand for energy resources and information.

Higher levels of energy are required for development and maintenance of systems with increasing levels of complexity. It will now be proposed that human systems have been organised around certain attractors, over time. In complexity theory an attractor is described as the preferred position for the system, such that if the system is started from another state it will evolve until it arrives at the attractor, and will then stay there in the absence of other factors. In human systems attractors can be used to describe specific kinds of organisational activity such as, monopolising resources, expanding market share or technological innovation.

Historically it can be argued that human systems have been drawn to a number of attractors. These attractors are generically and somewhat inadequately described as 'nourishment' and 'identity'. Nourishment describes the attractor for the acquisition of a wide range of resources and nutrients. Identity is the aggregated reference for things such as communications, knowledge systems and social organisational patterns and rules.

A complex system can have a number of attractors that emerge in response to changing parameters, interconnections and developments. Human societies have for a very long time understood the importance of the nourishment and identity attractors for their survival and well-being. They have sought dynamic stability around these attractors. In this way a third major attractor, 'the will to power', has emerged. It is in being drawn to the will to power attractor that resources and identity are safeguarded, maintained and perpetuated.

The globalisation imperative may, in this way, be explained in terms of these three dominant attractors: resources, identity and power. Human systems are under the influence, to different degrees, of these three attractors, each having a somewhat distorting influence on the dynamics of the other. While the attractors are the same, the systems in different attractor basins, and experiencing different distortions, present differently. It is in this way that global human systems simultaneously exhibit

individual characteristics as well as unifying themes. Paradoxically they resist standardisation while being inexorably drawn towards these attractors. The way that global societies are organised and present throughout the world, may be quite diverse and subject to change with the changing dynamics of organisational complexity. The organising principles attributable to the attractors provide enormous predictive and explanatory power.

A globally connected world is a complex world characterised by contradictions and paradoxes. One such paradox is that the decline of democracy and the desire to maintain it appear to be serving the same ends. Democracy permits the expression of individuality, including the forceful expression of individual interpretations that may lead to the erosion of the viability of the democratic system. Another is, that the motivation to resist globalisation may be an alternative manifestation of the same sort of force as the thrust for globalisation. The 'will to power' may be expressed as an unpleasant economic, resource-grabbing dominance, or less obviously as the enforced aculturalisation of parts of society to a dominant ideology. It can also have a deceptively attractive name such as sustainability or democracy.

16. Reflection

Globalisation was explored as historical examples of sociological events that demonstrated the continuing compression of space and time. The driving force behind globalisation was sought to be explained as centriphery, or an ante-anthropic imperative requiring ever-increasing physical and social resources. The compression of space and time can be seen as society's self-organising response to meet this need. The emergent nature and differing features that so much characterise globalisation were explained using attractor metaphors from complexity theory.

In discussing globalisation the challenge is to avoid creating simplicity on the wrong side of complexity. To some degree the protest against globalisation is an attempt to do this. It is trying to bring order, understanding and control to a complex process under the influence of tremendous dynamics, by imposing too few and overly simple rules. Seeking to accommodate complexity carries its own inherent risks that, in trying to account for and to accommodate an incomprehensible plurality of forces and eventualities, we end up drowning in rules. Perhaps the only response we can make is to allow globalisation to continue under the influence of self-organization but with an increased awareness of the dynamics, emergence and possible manifestations, which we cannot control, but nudge towards desirable directions. In this process we will

have to come to accept living in a world without certainty, one that continues to be characterised by paradoxes and contradictions. In having to make such an accommodation what is annoying is that it seemed so promising that with the compression of space and time we would gain control. We can, however, add a new attractor, one called 'good will and hope', to the existing attractor repertoire.

Notes

1. The term 'will to power' was adapted from Nietzsche, 1968.
2. Bauman, 1998.
3. Estensen, 1998.
4. Allen and Nelson, 1986.
5. Dimitrov and Woog, 2001.
6. Huxley, 1932; Orwell, 1945; Dostoyevsky 1992.
7. Perry, 1970; Kitchener, 1983; Salner 1986.
8. Gribbin and Gribbin, 1993.
9. Mandlebrot, 1977.
10. Orwell, 1945.
11. Huxley, 1932.
12. Huxley, 1932, p.185.
13. Dimitrov and Woog, 2001.
14. Dimitrov and Woog, 2001.
15. Kauffman, 1995.
16. Wolfram, 2002.

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Notes on Contributors

Roberto Bertollini is Director of the Division on health determinants of the Regional Office for Europe of the World Health Organization. He has an M.D. and specialty in pediatrics from Italy and M.P.H in environmental epidemiology from John Hopkins University. He is specializing in studies of the impact of the environment on human health, in particular, climate change and children's environment and health.

Guy Cook is Professor of Applied Linguistics at the University of Reading in England. He has published widely on applied linguistics, discourse analysis and the teaching of language and literature. His most recent books are *Language Play, Language Learning* (2000), *The Discourse of Advertising* (2001) and *Applied Linguistics* (2003). He is currently editor of the Key Concepts series in *English Language Teaching Journal*, and from 2004 will be co-editor of the journal *Applied Linguistics*.

Evy Crals graduated in Applied Economics at the 'Limburgs Universitair Centrum' in Belgium in 1999. Currently, she is working as a researcher at the same university, where she is involved in a research project focusing on the feasibility of tradable permits as a policy instrument. Her PhD research addresses the application of tradable permits in sectors such as transport, deficit spending and pollution.

Vladimir Dimitrov is with the University of Western Sydney (UWS), Australia. He has PhD degree in Engineering Sciences (Engineering Cybernetics) and DSc degree in Mathematics and Physics (Mathematical Cybernetics). He is author of the books *A New Kind of Social Science: Study of Self-organization of Human Dynamics* (2003) and *Social Fuzziology* (2002). He teaches online (web-based) Master-of-Arts program 'Complexity, Chaos and Creativity' in the School of Social Ecology and Lifelong Learning, UWS: <http://vlad-home-page.fcpages.com/UWS/MACCC.html>.

Andrew Dobson is Professor of Politics at the Open University, UK. He is the author of two books on intellectuals in politics (*Jean-Paul Sartre and the Politics of Reason* and *The Politics and Philosophy of Jose Ortega y Gasset*), but for the last 10 years he has devoted his research to environmental political theory. He has worked, especially, on the relationship between environmental sustainability and both democracy and social justice, asking whether they are compatible, and if so, how and why. During these investigations he has published *Green Political Thought*

(three editions) and *Justice and the Environment*, as well as two edited books. *Citizenship and the Environment* is due for publication in 2003.

Lucy H. Ford is Lecturer in International Relations at Oxford Brookes University in the United Kingdom. Her research interests lie mainly in International Political Economy and International Relations theory with a particular focus on global governance, social movements and civil society. She is further working on the ecological challenges to International Relations. Prior to her current academic position Lucy Ford worked as researcher to a Green Member of the European Parliament in Brussels.

Bob Fowles is Senior Lecturer at Cardiff University, UK, where he pursues an integrated programme of teaching, research and practice in the areas of Community Architecture and a holistic approach to Built Environment Sustainability. He has broad experience as an architectural educator specialising in live project work with community groups, local authorities and architectural practices. From an ecocentric and deep ecology standpoint current work relates built environment activities to the principles of the Earth Charter.

Anne K. Haugestad is a Research Fellow in Sociology at the Norwegian University of Science and Technology in Trondheim. In her 'constructive research' on motivational paths towards cooperative and sustainable development, she draws on experiences from participation in local, national and international solidarity, peace and environmental activism from 1980 to 1998.

Ivan Ivanov is technical officer at the Regional Office for Europe of the World Health Organization, where he deals with international environmental health policy. He holds an M.D. and a specialty in environmental and occupational health from Bulgaria, and a M.Sc in environmental sociology from USA. Currently Ivan is completing his PhD in sociology of environment and health at Michigan State University. Ivan has 19 years experience with environmental health issues, at local, national and international level.

Jennifer Kamm is a Research Fellow in the Environmental Science Program at the University of Idaho. She is currently finishing her M.S. in Natural Resources Sociology. Her research focuses on investigation of how various resource-dependent communities respond socially and culturally to external influences of economic change. She has also studied

Native American issues within the context of radioactive waste management, environmental equity, and sovereignty.

Mark Keppens graduated as a bio-engineer at the University of Leuven and has worked as a transport engineer for several international consultancy firms. At present, he is doing his PhD dissertation on transport economics at the 'Limburgs Universitair Centrum'. His main research areas are permit trading, sustainable transport policies, environmental effects, congestion and road pricing.

Angela G. Mertig has Ph.D. in sociology from Washington State University. Currently she holds a joint academic appointment in the Department of Sociology and the Department of Fisheries and Wildlife of Michigan State University. She works with the Michigan Department of Natural Resources Wildlife Division in researching the Human Dimensions of Wildlife Management. Angela specializes in research methodology and statistics, social movements, especially the environmental movement, and in the study of public opinion and attitudes regarding the natural environment. She is broadly interested in all aspects of the relationship between society and the natural world. She co-edited the book *American Environmentalism* (with Riley Dunlap) and her most recent work revolves around understanding national and international public opinion on environmental issues and a variety of contemporary social movements.

Roselle Miko is a master's candidate at the Natural Resources Institute, University of Manitoba in Winnipeg, Manitoba, Canada. Roselle has a strong interest in sustainable construction materials, energy efficiency, alternative materials, affordable housing, environmental building design, and related policies and codes.

Ruby Pap holds a Master's degree in Natural Resources and Environment from the University of Michigan, where she focused on organizational behavior, environmental conflict management, environmental policy, and international development. Her chapter is based on research conducted for her Master's thesis, *Institutional and Household Perspectives on Solid Waste Management in Jamaica: Examining National and Local Relationships*. She is currently a National Oceanic and Atmospheric Administration (NOAA) Coastal Management Fellow at the San Francisco Bay Conservation and Development Commission (BCDC).

Elisa Pieri is an applied linguist and a researcher at the University of Reading, England, where she worked on the ESRC-funded project 'The Communication of GM Crop Research: A Case Study' (Nov. 2001 – Nov. 2002). She is currently co-applicant and researcher on another ESRC-funded project on 'The Discourse of the GM Food Debate', Jan. 2003 – Jan. 2004. Her main research interests are critical discourse analysis, language and power, and language of the institutions.

Peter T. Robbins is Lecturer in Sociology at Cranfield University. He is author of *Greening the Corporation* (2001), and *Sociology of Development* (2001). He is currently working on a book manuscript on the social construction of globalization, looking at the GM debate as a case study.

Achim Schlüter is currently affiliated to Institute of Forestry Economics, University of Freiburg, Germany. At the time his chapter was written he was working in a project called 'Cultural understanding of environmental risk in industrial settings in Britain and Germany' at the University of Newcastle. He holds a PhD of Humboldt University Berlin. His main research interests are the development of informal and formal institutions in regard to the environment and qualitative research methods.

Shirley Thompson is an Assistant Professor at the Natural Resources Institute, University of Manitoba in Winnipeg, Manitoba, Canada. Her research interests include environmental health, occupational health and safety, environmental justice, toxicology, information communication technology and quantitative methods. Shirley has a master degree in chemical engineering, specializing in industrial hygiene, as well as a doctorate that focused on community development, adult education, and environmental health.

Paul Toyne is a Director of Article 13 – a business consultancy that seeks to unlock the opportunities of corporate social responsibility to give business and brands a competitive edge. Paul holds a B.Sc. (Hons) in environmental sciences and a Ph.D. from Imperial College in forest ecology and conservation. Paul has 14 years experience in both academia and conservation, working in forests throughout the world observing the issues at first hand. He is a widely published author on conservation, the environment and sustainable development. Paul brings his unique skills to assist in the delivery of innovation to assist businesses to find the competitive edge and practically respond to today's corporate social responsibility agenda. For more information see www.article13.com.

Lode Vereeck graduated from the University of Antwerp School of Applied Economics and pursued his doctoral research at Maastricht University. In 1992, he was appointed as assistant professor of law and economics at the Maastricht Law Faculty and two years later as associate professor of economics at the Limburg Business School. Since 1998, he is a regular visiting professor at the Universidad Torcuato di Tella. In 1999, he became deputy chief of cabinet for small-and-medium-sized enterprises in the Belgian government. Since 2001, he is a member of the executive board of the transnational University of Limburg. Currently, he is the head of the Research Policy Centre for Traffic Safety in Diepenbeek.

Robert Woog is an academic at the University of Western Sydney, Australia. Work in the Sciences and Humanities led to an interest in transdisciplinarity and a desire to contribute to applied problem-solving. His area of work involves the application of Complexity Theory to the investigation and the explanation of human systems. His scholarship includes teaching courses in this field at postgraduate and undergraduate level and research in areas as wide-ranging as youth homelessness to corporate creativity.

J.D. Wulfhorst is a rural community sociologist in the Department of Agricultural & Life Sciences at the University of Idaho, where he also directs the Social Science Research Unit. He teaches an interdisciplinary course on *Law, Ethics, & the Environment.* His research interests focus on local community impacts from natural resources and agricultural changes, including issues related to radioactive and hazardous waste management, public health, natural resources policy, and Native American issues.