

Critical Issues

Imaginative Research in a Changing World

Engaging with Environmental Justice
Governance, Education and Citizenship

Edited by

Matthew Cotton & Bernardo Heisler Motta

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**Engaging with Environmental Justice:
Governance, Education and Citizenship**

Edited by

Matthew Cotton & Bernardo Heisler Motta

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Introduction

Matthew Cotton & Bernardo J gkurgt 'Motta

The 9th Global Conference on Environmental Justice and Global Citizenship was held at Mansfield College, Oxford University in July 2010. This e-Book volume presents not just the proceedings of the conference, rather each chapter is a reflective report upon the presentation, feedback and group deliberation emerging from each delegate's contribution to the broader discussion. Together these contributions explore a diverse range of theoretical and practical perspectives on current and future challenges to human and non-human life and wellbeing. Across the twenty-four chapters presented, the concepts of 'Environmental Justice' and 'Citizenship' are explored within a range of regional, philosophical, technological, legislative and policy contexts, and book encompasses a rich variety of case studies examining the environmental challenges facing developed and developing nations.

The chapters submitted to the eBook have been grouped into six categories, each part reflecting a shared theoretical or case-related theme. In the sections below, we provide a brief overview of each of the individual contributions.

In the first part, titled 'Citizen Action for Environmental Protection' the volume opens with Irene Hoetzer's examination of 'Ecofeminism and Environmental Justice', where she evaluates Australia's response to anthropogenic climate change through the Carbon Pollution Reduction Scheme, highlighting the problems of social justice for marginalised peoples through the lens of Socratic, Rawlsian and ecofeminist theoretical perspectives.

Bernardo Heisler Motta's chapter 'The Community's Right to Know about Toxic Spills in American Legislation' investigates the implications of the community-right-to-know approach to policy-making, as presented by the Emergency Planning and Community Right-to-know Act of 1986 in the United States, and how this legislation influences and the ideals and actions of the Environmental Justice and Anti-toxic movements in the USA.

In the chapter, 'The Role of Citizenship Responsibility for Environment within Individualized Society', Lukas Kala draws upon the theories of virtue and justice and aims to clarify the meaning of the term 'individualization of environmental responsibility'. The chapter examines these issues by responding to opposing approaches to the process of privatization of environmental responsibility.

Vu Le Thao Chi's chapter, 'Agent Orange and its Victims: A Neglected Warning', presents a case study which examines the unchanged behaviour among farmers in Vietnam when confronted by drastic and threatening changes in their environment. Thao Chi finds that farmers have trouble with the dramatic transformation proposed by specialists and choose not to change their ways.

In the second part entitled, 'Education and Environmental Transformation', Silvia Pierosara begins by investigating the connection between educational practices and environmental justice, especially during early childhood in her

chapter ‘Environmental Justice and Education: Transformative Perspectives’. Using Maori and Alaskan communities as examples, Piersara shows how the development of responsibility towards other beings has transformative power in education.

Kerry Shephard continues the examination of the power of education to shape sustainable practices in his chapter ‘Exploring the Impact of Higher Education Experiences on Students’ Ecological Worldviews’. Here he discusses the challenge of universities to ‘educate for sustainability’ and identifies theoretical models to analyse the problem by comparing four instruments in this analysis: The Revised New Ecological Paradigm Scale (NEP), Partial scenario setting and two versions of the Personal Meaning Mapping.

Nina Šrot analyses the use of social learning to improve waste management practices in Tonga. Šrot shows that obstacles at different levels of social interaction affect social learning in waste management and indicates that a broader awareness of the socio-cultural context added by other long-term initiatives are necessary to improve social learning practices.

The concept of ‘education’ is broadened out in Tim Taylor’s case study: ‘A Study of Sustainable Social Progress in the Kingdom of Tonga’, where he examines the conflict between the reported development of Tonga and the growing problems of social injustice and environmental degradation. His analysis reveals alternative means of measuring and integrating concepts of sustainable social progress into Tongan sustainable development policy and practice.

In the final chapter of this group, Janet A. Paladino reflects upon the value of a sustainable educational outreach program run at Waynesburg University in fostering environmental literacy. She presents and assesses a model of environmental education that encourages students to adopt the role of ‘environmental ambassadors’ and thus develop an interconnected relationship between local educational institutions and the wider community to promote greater responsibility for local environmental issues in their region.

In the third part of the book, ‘Environmental Justice and the Law’, Christos Tsaitouridis begins with ‘Hunting Laws and the Animals’, drawing examples from the hunting laws and the legislation on the protection of wild birds in Greece and Cyprus. He principally focuses upon controversial issues concerning a right to hunt, hunting as a kind of sport, the abolition of hunting and the role of the state in the legal regulation of hunting practice.

The legal discussion continues with ‘Inequality, Exclusion and Discrimination: The Mexican Biosafety Law’, by Wendy Cano and Andoni Ibarra. The authors use a social network analysis to study the actors involved in the genetically modified organisms debate in Mexico. They find that the Mexican Law on Biosafety excludes the plural composition of the Mexican culture and restricts public participation, denying the potential of non-experts to change and transform inequalities that have affected the Mexican people for many decades.

In the following two chapters by Jo Kehoe, issues of environmental and legal justice are explored, firstly in the ‘Rural Landholders in Queensland Australia: Legislation, Litigation and Litigants’ which examines the Vegetation Management Act of 1999, one of the most controversial pieces of legislation debated in the Queensland Parliament in the last decade. One particular area of contention following from this Act has been the litigation surrounding vegetation clearing offences. Secondly, ‘The Rural Community in Queensland Australia: Political Systems and the Politicization of Environmental Law’ explores the complex relationship between the Queensland government and the agricultural community, with particular emphasis on the political context and systems within which environmental laws are made and shaped.

Finally in this part, Erika J. Techera examines the problems of the World Heritage Committee’s protection of cultural heritage, exploring how the impacts of climate change necessitate a broader conception of cultural heritage than is currently available in international law, arguing that it must include both tangible and intangible elements - lifestyles, language, customs, traditional knowledge and practices as well as associated spaces and physical objects.

In part four, Radoslaw Stech begins with a chapter concerning the role of Non-Governmental Organisations in deliberating upon issues arising from the United Nations Economic Commission for Europe’s Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the Aarhus Convention). Stech examines the role of NGO’s through qualitative analysis of their involvement at the Third Meeting of the Parties (MOP) to the Aarhus Convention in Riga in 2008, revealing that they wield considerable power as non-voting participants during the MOP.

Phillip L. Thompson’s chapter, ‘Eradicating the Water and Sanitation Crises via Unification’, examines the challenges of multi-party involvement in providing access to safe water and sanitation in developing countries. His involvement in practical solutions is outlined, as is an argument favouring a single international organization such as the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation as a means to unite sector players in every developing nation and thus solve the organizational problems involved in meeting safe water management challenges.

The third and final chapter in this category is by Lisa Palframan, James O. Jenkins, Xiaoqiang Zhang. Through their examination of the practices of the Letchworth Garden City Heritage Foundation, they challenge the dominant corporate social responsibility (CSR) and environmental management approaches prevalent in sustainable regional development, instead favouring a corporate sustainability approach, which can better enable organisations to reduce their environmental impacts and simultaneously enhance their community contributions in a manner in line with sustainable development goals.

Carla Alvial-Palavicino and Masaru Yarime's chapter, 'Sharing and Shaping Perceptions: Dialogues with Expertise in the Deployment of Renewable Energy Technologies', examines the development of renewable energy technologies (RET) as a socio-technical phenomenon, focussing upon the different conceptions of expertise when applied to public and stakeholder interactions within project design and deployment. They assert that an understanding of interactional expertise can better enable the integration of multiple problem framings and stakeholder conflict in the RET sector

Matthew Cotton's chapter 'Public Participation in UK Infrastructure Planning: Democracy, Technology and Environmental Justice', examines the changing role of public and stakeholder involvement in the planning processes for Nationally Significant Infrastructure Projects in the UK, looking at recent changes in legislation in this area that precludes effective 'upstream' involvement of affected communities in project design, which exacerbates local community conflict over the siting of controversial infrastructures such as energy technologies, roads and airports.

Gary Kass' chapter, 'Succeed through Science? Science, Technology and Innovation as a Central Theme in a Scenarios Exercise to Guide a Societally-Centred Approach to Environmental Management', explores the future technological and environmental world through an assessment of the UK government advisory body Natural England's use of 'futures' methodologies to develop an understanding of long-term social, ecological and technological sustainability, and to inform its working practices. He explores the conceptual framework and methodology of four scenarios used to shape the thinking of Natural England in response to long-term changes in ecosystems, societal configurations and scientific and technological progress. In particular he explores the link between techno-scientific innovation and ecological sustainability and the potential role for science and technology in helping to secure the future of the natural environment and to explore the potential changes to how future people may interact with nature.

'A Bio-integrated Model of Food Production Based on Scientific and Traditional Knowledge in Ciudad del Carmen, Mexico', by Luis Domínguez-Trejo, Miguel R. Morales-Garza and Wendy Cano Domínguez, examines a system that links recirculating aquaculture with hydroponic vegetable production, as a means to integrate fish and plants in a polyculture. They argue that this system increases not only the diversity of available food products but also of knowledge, by integrating the wishes of the community, and by 'rescuing' traditional knowledge, particularly that of elders and women, resulting in a community that takes charge of both their knowledge and physical resources.

In the final section, 'Rethinking Climate Change', Vanessa Burns draws upon the work of Sociologist of Science, Bruno Latour, in examining how democratic relations between humans and non-humans can be fostered in the context of

anthropogenic climate change in her chapter ‘Climate and Agency: Post-Humanist Geographies and Environmental Change’. Burns evaluated the problems of the anthropocentric focus in governing the environment, and reveals how emerging physical geographies of climate interact with human geographies and how this problematises the concept of ‘the social’.

The penultimate chapter, Ruth Irwin’s, ‘Adapting to Climate Change: Science, Scepticism and Philosophy’, applies Heideggerian philosophy to the climate change debate. Examining the question of why it is dominated by scientists and economists. Using the example of the Copenhagen summit in December, 2009, Irwin illustrates the narrow policy framing of climate change due to entrenched scepticism and powerful political and economic arguments about science, distribution of environmental harms and benefits and social justice.

The final chapter of this section and of the book itself, is fittingly, Linda Hadfield’s work, ‘The Climate Change Debate: Where do We Go from Here?’ Hadfield evaluates the role of knowledge within climate change debates, in particular examining how the systemic uncertainty over the causes and impacts evokes passionate political responses across the scientific debate. Hadfield assesses Kuhn’s work on scientific progress to consider the processes by which scientific knowledge about climate change has developed and become accepted, the role of the scientific method; and the extent to which arguments based on the scientific method differ fundamentally from arguments based on value judgements.

PART I

Citizen Action for Environmental Protection

Ecofeminism and Environmental Justice

Irene Hoetzer

Abstract

If the great moral issue of our generation is climate change, initiatives to create a better future for generations to come should stem from our moral obligation to safeguard nature rather than economic considerations. The Platonic notion of justice and the social contract theory of John Rawls focus on moral rightness, and encapsulate the ecological feminist – or ecofeminist – view of environmental and social justice. As Cornell argues, it is only a matter of willingness to create change by adopting different or other perspectives to effectively address climate change and eradicate the many injustices that are perpetrated on humans and non-humans alike. Since Australia's climate change policies and Government initiatives focus on cost effectiveness, they fail to embrace the notion of environmental justice based on 'moral' rightness'.

Key Words: Ecofeminism, social justice, distributive justice, anthropocentrism, economic power, globalisation, Western capitalism.

1. Introduction

Scientists regard human activity to be responsible for most of the observed global warming over the past fifty years and warn that serious consequences will arise if greenhouse gasses are not restrained.¹ Should predictions of rising temperatures and sea levels, increase in floods, droughts, and forest fires, disease epidemics, thawing permafrost and damage to crops and water supplies prove true, global warming is 'the most damaging environmental problem in history',² and thus also 'the great moral issue of our generation'.³ However, whilst a moral obligation to create a world that is 'safer and cleaner for our children than the one we have created',⁴ is acknowledged, no concrete policies or actions have been considered to date that are 'even remotely equal to the threat of climate change'.⁵ World leaders deliberate over how the global economy can be transformed into a lower carbon world but the prospect of safeguarding nature against ecologically destructive societies⁶ still appears inconceivable under modern capitalism.⁷ Indeed Australia's response to climate change mirrors that closed mindset and fails to adopt the necessary 'flexible and pragmatic'⁸ approach to ensure that past bad practices are not repeated. For real change to eventuate, unprecedented shifts in attitudes, values and beliefs must be embraced and a more holistic, just and equitable approach towards all life on earth adopted.⁹ In this chapter, Australia's response to Climate Change via the Carbon Pollution Reduction Scheme will be looked at from an

ecofeminist perspective and in light of the understanding of social justice held by both Socrates and John Rawls.

2. Alternative Approaches to Combating Climate Change

Climate change is a global problem that requires a global solution, so it is simply not good enough to ‘merely consider what could be done within the normal institutional limits of predatory Western capitalist societies’ whose actions are determined by greed.¹⁰ Indeed, if economics were subject to the same evidence-based scrutiny as is climate change, the world would be run quite differently.¹¹ So it is time to think outside the square and translate our human ability to reason into an ability to develop and implement alternative and viable solutions that are less preoccupied with finding new reasons for continuing our destructive and predatory behaviour.¹² Nature does not exist for human use, to be exploited for its materials and resources.¹³ Things do not need to be organised into hierarchical dichotomies through which the world is interpreted and our interactions dictated, as this not only pits men against women, privileged whites against people of colour, elites against masses, employers against workers, the First World against the Third World, but also an industrial capitalist economic system against the natural world.¹⁴

This anthropocentric view of the world fails to acknowledge the intrinsic value of non-human life. Environmental ethicists argue that all nature has its own intrinsic value and that a just society embraces reciprocity, mutuality and diversity.¹⁵ For ecofeminists, the ecological crisis is more than a question of environmental destruction and human misery. They argue that the culture over nature dichotomy that results from the Western paradigm of dualism leads to both women and nature sharing a common inferior position and to common prejudices, such as sexism, racism and speciesism.¹⁶ In turn, Socrates argues that justice involves doing and giving one’s best, and results from the harmonious relationship between the just person and the just city state.¹⁷ Rawls considers justice to be the first virtue of a social institution and to involve a social contract based on fairness. Hence, for both Socrates and Rawls justice is achieved through decency, benevolence and altruism. For Rawls this involves an impartial distribution of goods, in which privilege and bias do not come into play. Each person has an equal right to the most extensive total system of equal basic liberties and social and economic inequalities are to be arranged so that they are, firstly to the greatest benefit of the least advantaged and secondly, attached to offices and positions that are open to all under conditions equality and fair opportunity.¹⁸

Rawls recognises ‘the ability of oligarchic (or capitalist) financial interests’ to appeal to people’s needs out of fear and ‘a misconstrued sense of revealed truth’.¹⁹ He reaches for a conjectural reasoning, in which ‘the ideal is put behind a veil of ignorance’, which in turn disregards ‘the unregulated capitalist interests of the rich and powerful’.²⁰ Rawls’ creation of an ‘imaginary moment of public space’ is of

particular significance here, as this means creating an imaginary space, in which public reason is able to make judgements and defend those judgements as better or worse within a related field of ideology. When applying this to the ecofeminist position on environmental justice, it can be understood as active and impartial collaboration with nature on the part of all people, regardless of sex, race and class.²¹ In that light, the ecofeminist perspective creates an imaginary space for change.

3. Australia's Position and Response to Climate Change

Australia has the highest emissions per capita in the developed world and is ranked fourth last in actions undertaken by industrialised and emerging countries.²² In the Second Reading speech to the Senate on the Carbon Pollution Reduction Scheme Bill 2009, Senator Ursula Stephens warns that under a worst case scenario, irrigated agriculture in the Murray-Darling Basin will disappear and bushfires will become more intense, with shortened intervals.²³ Australia's wildlife is also at serious risk, so protecting wildlife and biodiversity and looking after Australia's life-support systems all contribute to Australia's national well being.²⁴ Australia's polluters pay policy under the Carbon Pollution Reduction Scheme however still subsidises pollution rather than close the door to the regulatory vacuum that enables Australia's biggest corporate polluters to continue to pollute.²⁵ The Australian Minister for Climate Change and Water, Senator Penny Wong, rightly argues that there is no easy solution to climate change and that it cannot be tackled without changing the economy.²⁶ However, the question remains whether putting a price on pollution really is the best way to respond to climate change and, in that light, to what extent will 'making polluters pay' change behaviour?²⁷ Senator Wong argues that the Carbon Pollution Reduction Scheme creates the incentive for clean development and that the alternative would be to 'let the biggest polluters off scot-free'.²⁸

The Carbon Pollution Reduction Scheme thus continues to protect the minority, namely those with money and power, who are the most advantaged. For Rawls, social justice means arranging social and economic inequalities for the greatest benefit of the least advantaged. Although Senator Wong implies a moral obligation to create social justice, the impetus of her argument is on management of bad behaviour.²⁹

We know that the world has already lost the opportunity to stop any climate change. That has already been squandered by past generations of political leaders but we do have an opportunity if we act soon to hold the risk, to hold temperature rise to levels that our children and our children's children can manage.³⁰

In Plato's Republic, Socrates illustrates how justice can be implemented by the nation, or city state through the parable of the ship in an open ocean, in which only the navigator can bring the ship to port, or reach its destination (the good) by taking control (thus overcoming institutional limitations).³¹ So, perhaps the long-term, lasting structural reform that is needed 'to bring about change over decades to come'³² should involve independent, 'external, non-political bodies'³³ to create an imaginary public space for making better judgments and incorporating different perspectives. The focus should shift from costs and benefits to finding real and workable solutions in which our moral responsibility to safeguard nature is of primary concern. If the fundamental values of the Australian nation are to be based on 'fairness, justice, generosity and compassion,'³⁴ it is not simply a matter of addressing the inequality within existing structures but of actually changing the structures that reflect the mode of thinking that has led to the problem of climate change in the first place.³⁵ And to do this, generation of wealth and economic growth cannot be at the forefront of the debate.

4. Conclusion

The Australian Government claims climate change is one of its highest priorities and that it is working towards finding a viable solution. However, to date, it has failed to deliver. Whilst world leaders acknowledge a moral obligation to safeguard nature and admit that not nearly enough is being done, the moral obligation to preserve and conserve nature and its resources for future generations is lost in the dynamics of economic power, which leaves no space for justice.³⁶ Even if human intervention did not to have a significant effect on climate change, once we recognise that what we are doing is wrong, we have a moral obligation to stop doing it. However, this thought is not even entertained because the world is run 'according to the dictates of an altogether more variable discipline, economics, whose insights and proposals are subject to a weaker scrutiny'.³⁷

Orthodox economics is based on simplifications that so distort the real world as to make it unrecognisable, yet its basic tenets are credulously repeated on an almost daily basis in national newspapers and on television news. A genuinely evidence-based approach to economic policymaking would not produce a system remotely like the one we have, the business-as-usual version that many climate sceptics seem so eager to defend. Given the vast range of subjects covered, the thousands of scientists involved, and the sheer size of the reports, it appears incredulous that perspectives have not changed.³⁸

As climate change severely impacts countries which are least to cope, it is 'the essence of hypocrisy that developed countries propose such weak rules for

themselves while requiring the necessary rigor from the developing world on emissions reductions from deforestation and forest degradation under a global agreement'.³⁹ Hence, for environmental issues to be properly addressed, the interconnections, both conceptual and material between the domination and exploitation of women, people of colour, the poor and the natural world must be interrogated together.⁴⁰ Until this happens, all living things, human and non-human will continue to be reduced into commodities, be it in the name of progress and modernity or as an assertion and reflection of a perceived superiority and an artificially constructed hierarchy of ownership and worth.

Notes

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⁶ M. Bookchin and D. Foreman, *Defending the Earth: A Dialogue between Murray Bookchin and Dave Foreman*, South End Press, 2004, p. 17.

⁷ Ibid. C. Jordan, CNN World, <http://www.cnn.com/2009/WORLD/europe/12/12/copenhagen.protests/index.html>. Protests such as at the 2009 G20 summit and the UN Climate Change Convention have a long history: Montreal (1995), Cologne & London (1999), Seattle (2000), Quebec (2001), Genoa (2001), Ottawa (2002).

⁸ Obama, loc. cit.

⁹ C. Mallory, 'Ecofeminism and Forest Defence in Cascadia: Gender, Theory and Radical Activism', *Capitalism, Nature Socialism*, Vol. 17 No. 1, March 2006, p. 32.

¹⁰ Bookchin and Foreman, op. cit., pp. 4 and 7.

¹¹ Simms, loc. cit.

¹² J. Connelly and G. Smith, *Politics and the Environment*, 2nd Ed., Routledge London, 2006, p. 16.

¹³ Bookchin and Foreman, op. cit., p. 17.

¹⁴ Bookchin and Foreman, op. cit., pp. 30-31.

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- ¹⁹ D. Cornell and F. Herrschaft, <http://www.fehe.org/index.php?id=16>.
- ²⁰ Ibid.
- ²¹ Mallory, op. cit., p. 35.
- ²² K. Caught, WWF-Australia's Climate Change Policy Manager, <http://www.org.au/news/double-dissolution-only-option-after-cprs-failure/>.
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- ²⁵ Ibid.
- ²⁶ Senator the H.P. Wong, Second Reading Speech to the Senate, 2008, http://parlinfo.aph.gov.au/parlInfo/genpdf/chamber/hansards/2008-11-25/0101/hansard_frag.pdf;fileType%3Dapplication%2Fpdf.
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- ³¹ <http://ualbertalaw.typepad.com/faculty/2009/11/kangaroo-justice.html>.
- ³² Wong, loc. cit.
- ³³ Senator S. Fielding, Third Reading Speech, 2009, http://www.stevefielding.com.au/news/details/carbon_pollution_reduction_scheme_speech_-_3rd_reading/.
- ³⁴ Stephens, loc. cit.
- ³⁵ Buckingham, op. cit., p. 151.
- ³⁶ Bookchin & Foreman, op. cit., p. 17.
- ³⁷ Simms, op. cit.
- ³⁸ Ibid.
- ³⁹ Ibid. Furthermore, the lack of credible accounting rules means that a country could increase emissions dramatically without this showing up in its carbon

accounts. The world's wealthy nations have a long way to go on the key negotiating element of climate change adaptation.

⁴⁰ Mallory, op. cit., p. 33.

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The Community's Right to Know about Toxic Spills in American Legislation

Bernardo Heisler Motta

Abstract

This chapter investigates an important legislative response to more than 5,000 environmental disasters involving toxic spills in the United States between 1980 and 1985. Pressured by the Anti-Toxic and Environmental Justice movements of the late 20th century, the U.S.A. Congress enacted the Emergency Planning and Community Right-to-know Act (EPCRA) in 1986. EPCRA was the first federal law in the United States to fully embrace the right-to-know approach to public policy. The right-to-know approach is based on the ideas of self-governance and public participation in the decision-making process. EPCRA has served as a model for more than 80 countries, which adopted laws based on the right-to-know principle in different levels since EPCRA's enactment.

Key Words: Emergency Planning and Community Right-to-Know Act (EPCRA), TRI, toxic, hazardous, environment, risk, legislation, law, communication, anti-toxic movement, environmental justice, Florio.

1. A Community Right to Know

Since 1976, when Gerald Ford signed the Resource Conservation and Recovery Act (RCRA) – the first major piece of legislation that addressed the specific problem of toxic waste management – and throughout Jimmy Carter's presidency, there were many attempts to create a law that controlled the massive amount of toxic and hazardous materials being released into the environment.¹ However, as Marc Mowrey and Tim Redmond's investigation of the Not-In-My-Backyard (NIMBY) movement showed, the laws were not necessarily the problem, but the 9-year-old Environmental Protection Agency (EPA).

In 1979, the House Subcommittee on Oversight and Investigations found that three years after the passage of the law, the EPA still hadn't adopted a single RCRA regulation. Some 260 million pounds of life-threatening chemicals were still being dumped every day, without federal oversight.²

Another problem EPA was facing at the time was the scientific uncertainty about the effects of hundreds of chemicals. That included a large number of new synthetics created by the fast evolving industry.³

A law written by Jim J. Florio, a Representative from New Jersey⁴ with experience in both environmental and commerce issues, was described by some in the Anti-toxic Movement as its last hope to get comprehensive legislation against toxic waste dumping passed before Ronald Reagan took power. Differently from Carter's, Reagan's administration was seen in the movement as sided with the chemical industry and other anti-environmental groups.⁵

Florio's law, named Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), introduced a more aggressive and specific dispositive than RCRA and TSCA, putting the burden of paying for control and cleanup of toxic spills on industry and not on government. However, Congress passed CERCLA stripped clean from its liability clauses following the directions from the Chemical Manufacturers Association's lobby. Consequently, CERCLA had most of its power taken away during its enactment in 1980, provoking Senator George J. Mitchell's ire: '[N]one of us should delude ourselves or the people of this country that we have done anything more dishonorable,' Mitchell said.⁶

With the Reagan Administration in power and Anne Gorsuch, a radical anti-regulation legislator from Colorado with ties to oil, gas, mining, and timber company lobbies at the head of EPA, the Anti-toxic Movement's hopes dwindled.⁷ Gorsuch was later accused among other things⁸ of destroying records of a pending legal case in what became known as 'Sewergate'. Gorsuch, near the end of her term, avoided criminal charges and resigned in March, 1983.

As the Federal Government seemed to have become a dead end for the Anti-toxic Movement's goals, they started to move the fight back to the local level. Even before Gorsuch headed EPA, civil groups like Lois Gibbs's Citizens Clearinghouse for Hazardous Waste started staffing up to do what EPA wouldn't: provide expert reports and analyses for local and state governments concerned with the proliferation of toxic-waste sites. Again, the enemies were scientific uncertainty and lack of information about the causes and consequences of toxic spills, a situation that would start being reversed by some local struggles for the right to know. Coincidentally or not, one of the earliest cases happened in Philadelphia, Pennsylvania, just across the river from Camden, New Jersey, CERCLA's drafter Jim J. Florio's political home.

In 1980, Ralph Nader's Health Research Group and the Philadelphia Area Project on Occupational Safety and Health proposed a toxic-right-to-know bill for Philadelphia. The bill was set to fill an information gap for workers and residents 'who still [didn't] have a legal right to know about toxic substances in their workplaces and community' according to its proponents.⁹

A story published in *Chemical Week*¹⁰ showed mixed reactions from industry. Philadelphia was home to more than 25 chemical companies at the time, including Rohm and Haas, SmithKline, Arco, DuPont, Gulf Oil, Armak, Purex and Pearsall. Robert Vogel, at the time chief of regulatory counsel of Rohm and Haas summarized the industry's position saying that his company 'believes in the right

to know,' but 'the bill produces no protection for legitimate industry trade secrets.'¹¹

The bill, a step forward from similar legislation either passed or being discussed in other localities in California, Connecticut, New York, and Wisconsin, passed six months after its proposition.¹² Foreseeing a 'maze of local rules' following Philadelphia's legislation on the right to know, the Occupational Safety and Health Administration (OSHA)¹³ was compelled to act¹⁴ and to provide clearer standards than its previous rules.¹⁵ OSHA tried in vain to harmonize the new, more citizen-empowering bill with the concerns of industry.

OSHA's expressions of concern lest a 'maze of local [environmental] laws' spring up proved to be well founded. By 1983, 12 states and two cities, Cincinnati and Philadelphia, passed right-to-know laws. Others, like Florida, followed the example.¹⁶ Nevertheless, courts in general still held that the absence of a federal standard for right-to-know laws on toxic waste precluded the local and state legislation of creating more rigorous laws on the subject, while state legislatures and both state and federal agencies were influenced by legislators and company executives with stakes in keeping such laws at bay.¹⁷

At the federal level, 'Sewergate' was at its peak while Lois Gibbs' efforts to professionalize the Citizens Clearinghouse for Hazardous Waste by adding scientists and social scientists to its staff were finally paying off. Barbara Mikulski, a Democrat Congresswoman for Maryland, after unsuccessfully trying to get EPA to look into a toxic-waste problem in her home district, accepted Gibbs's offer to use the Clearinghouse's expertise.

'Ms. Gibbs,' Mikulski answered, 'I accept your offer. Yet it is really a bitter situation here. I worked all my life to become a member of Congress...Here we are, big wheels, often more self-important than we really are, and I can't get from Anne Gorsuch and her cronies...the help that I need. I have to come to a citizens group, that exists on voluntary contributions and bake sales.'¹⁸

After Gorsuch left the EPA, the situation didn't change much. The Anti-toxic Movement needed a new push to get the fight back to the federal level again and end the stalemate. Although thousands of toxic spill sites were being revealed in the U.S. between 1980 and 1985, the push came from elsewhere, in the form of a tragic accident in India.

On December 3, 1984, an accident in a Union Carbide pesticide plant caused the release of a cloud of toxic gas over Bhopal, a city located in the state of Madhya Pradesh in central India. Thousands died and many more fell ill from breathing the gas.¹⁹ The news hit home less than a year later when another Union Carbide plant released a cloud of toxic gas over Institute, in West Virginia, as reported by the *Los Angeles Times*:

The Institute factory had been touted by Union Carbide after the Bhopal accident as a model of chemical-industry safety. But it made headlines last Aug. 11 when an abandoned reactor tank, accidentally filled with toxic methylene chloride and other chemicals, boiled over and spewed 3,800 pounds of gas into a nearby neighborhood.²⁰

The accident was less tragic than Bhopal only because the gas leaked in an explosion, methylene chloride, in the Institute's plant was not nearly as lethal as the methyl isocyanate (MIC) released in Bhopal. Nobody died, but almost two hundred people were hospitalized. The incident could have been much worse: Institute's facility also stored MIC.

The tragedy in Bhopal and the accident in the West Virginia at Union Carbide plants gave new life to the Anti-toxic Movement. About the same time, the People of Color Environmental Movement was created after the tragedy involving a coal mine in Warren County in 1982. Florio saw an opportunity to reinstall provisions that were stripped from the previous version and to add a few more based on the right-to-know laws as developed in New Jersey and the city of Philadelphia.

Aiming to provide citizens with a weapon to protect them even from EPA if necessary, Florio and his staff worked on the Superfund Amendments and Reauthorization Act (SARA). Among the goals of SARA was to reactivate the liability provisions of CERCLA and re-empower local toxic-waste and right-to-know laws that were made moot by the lack of federal standards. However, according to Florio and, later, to legal analysts, the most important part of SARA was its Title III, a stand-alone piece of legislation focused on community empowerment based on emergency preparedness and the right to know.²¹

In 1986, the Emergency Planning and Community Right-to-know Act was enacted, listing 400 out of 60,000 chemicals in commercial use in the United States as extremely hazardous.²² The right to know observed in environmental impact statements obligated risk-generating organizations to provide complete, truthful, and accurate reports about toxic and hazardous materials to the local governments.²³ The burden of revelation fell on the risk-generating organization, not on the government, which, according to Hadden, should 'ensure that the other parties can exercise their rights and fulfill their responsibilities . . . [by] designing and, if necessary, redesigning public policies.'²⁴

The enactment of EPCRA provoked a surprising change of tone from the industry representatives. Many large chemical companies tried to be among the first to voice their support for the law against which they had fought so fiercely. Newspapers reported a series of examples where industry worked with citizens groups to diminish the use of toxic and hazardous materials in the years following the enactment of EPCRA.²⁵ The enactment of a federal law nullified the 'state

shopping' arguments and also provided one simpler standard for all, instead of the 'maze' of state and local legislations predicted by OSHA.²⁶

The agricultural chemical industry joined in an unusual alliance with environmental and consumer groups today to propose specific legislation to strengthen the law controlling the use of pesticides. The legislation would speed health and safety testing of pesticides already in use and impose a fee on their manufacturers to help pay for the tests.²⁷

Politicians also jumped on the bandwagon declaring how all sides were cooperating for the success of EPCRA. One reason behind this friendly environment could have been that, once enacted, EPCRA not only empowered citizens to sue companies and government agencies that were not in compliance or not doing their jobs, but also reactivated stricter state legislation, such as New Jersey's Community and Worker Right-to-know Act.²⁸ In that way, EPCRA created a massive trickledown effect that put the power of enforcement in the hands of thousands of environmental and environmental justice organizations and citizens' committees. Even if the lawsuits were not successful,²⁹ the expenditures with legal costs and scientific investigations could have been monstrous both for private corporations and governmental agencies. The law charged them for the costs of any investigations carried out by citizens. EPCRA had its first success: it scared companies and governmental agencies into collaboration.

Another consequence of EPCRA was the expansion of a whole area of expertise in public relations. Because of the toughening of public attitudes on environmental problems, industry needed to deal with the situation in a different way.³⁰ Crisis management and risk communication became buzzwords as industry executives named liability and corporate responsibility as the forces behind the new approach.³¹

2. First Results from the Toxic Release Inventory

High expectations surrounded the results of the first TRI to be released in July 1988. The most important concept at stake was Florio's idea that the right to know would get people to act and do their part. 'The ultimate question is, will we achieve the Jeffersonian ideal of informed citizens who can take a responsible role in making public policy?' Michael S. Baram, professor of law at Boston University's Center for Law and Technology, summarized.³²

The answer to Baram's question came swiftly as companies in general were trying to adapt to the new requirements, which demanded almost twice as much work as EPA initially predicted, and were surprised by their own reports and afraid of the public's reaction:

The figures would come out as thousands of pounds' of chemicals a year, said Medhat Reiser, Nespera's environmental affairs director. 'When people see big figures like that, they are always immediately scared.'³³

However, industry, government, and citizens noted a difference in how the roles of industry in communities changed as a result of EPCRA. The results of the first TRI showed an amount of toxic chemicals much higher than anyone expected.³⁴ EPCRA, which required the creation of local emergency committees, forced industry to deal with the consequences of its production face-to-face with local communities for the first time.³⁵

Many corporations started immediate changes in their production systems aiming to reduce the use of toxic and hazardous chemicals. In 1988, Garland Ross, a senior engineer at Yale Materials, told Charles L. Elkins, EPA's director of the Office of Toxic Substances that his company already had started to change the chemicals it used for the next year. He added, 'I hope we can [then] report that Yale has no toxic chemicals to report.'³⁶

After a few years TRI brought the confirmation that EPCRA was, at least in part, a success. 'The total releases in 1989 were 1.3 billion pounds less than that reported in 1987, and 723 million pounds less than industries released in 1988,' reported *The New York Times*.³⁷ Nonetheless 22,650 industrial plants were still releasing 5.7 billion pounds of toxic chemicals into the environment, which added to the cumulative effects and the spreading of contaminated sites. The public wanted more and faster remedies, the story asserted: 'Today a coalition of 16 national environmental groups and 80 state and community organizations released its own report that said the Toxic Release Inventory does not go far enough in accounting for pollution.'³⁸

EPA would respond in part by doubling the list of chemicals in 1994, during the administration of Bill Clinton, who openly defended EPCRA's right-to-know provisions against a legislative attempt to weaken EPCRA that failed to pass in the Senate in 1995.³⁹ By 1995, TRI reported total releases of 2.8 billion pounds, a 43% drop in releases since the first TRI in 1988. The attempt followed an industry reaction against EPA expansion of the TRI with the Chemical Manufacturers Association (CMA) filing a lawsuit against EPA, which was decided in the agency's favor in 1996.⁴⁰

In 1997, EPA finally published the expanded TRI adding analytical tools for its interpretation, making it easier on the general public, especially environmental justice organizations, to understand its reports.

3. Communication Solutions for Legal Limitations

Unfortunately, a new law in 1999 stopped the improved TRI information from being published because Congress thought such information might be used by

terrorists in planning attacks. OMB Watch,⁴¹ a watchdog organization for open government and the right to know in environmental issues, took on the responsibility predicted by Florio and published on their website what EPA was forbidden to publish.⁴² OMB later created the 'Right-to-know Network' based on that report.

Advocates of releasing the information say the compilation of the summaries could show the public that the information was kept off the Internet more to avoid embarrassing chemical companies than to impede terrorists. They say that hundreds of accidents occur at plants each year, although the Federal Bureau of Investigation has acknowledged only a single thwarted act of sabotage, against a chemical plant in 1997.⁴³

From that point on, and over and over again, the 'terrorism argument' would come back, made either by industry or government, only to be disproved, especially after the attacks on the World Trade Center and Pentagon in 2001. However, the work of environmental justice, anti-toxic groups, and some sectors of the news media and citizens' organizations would make sure that much environmental awareness information would be 'available to the public.'⁴⁴

Notes

¹ M. Mowrey & T. Redmond, *Not in Our Backyard: The People and Events that Shaped America's Modern Environmental Movement*, William Morrow and Company, New York, 1993.

² *Ibid.*, p. 211.

³ D.M. Costle, EPA 202-K-01-002, January 2001. Interview conducted by D. Williams on August 4-5, 1996, at the Ritz-Carlton Hotel, McLean, Virginia, and at Douglas M. Costle's home in Vermont, Viewed on 15 February 2009, <http://www.epa.gov/history/publications/print/costle.htm>.

⁴ Florio was born in Brooklyn, NY, in 1937, but moved to New Jersey where he attended Trento State College (The College of New Jersey), went to Rutgers School of Law, and became assistant city attorney for Camden City and, later, a solicitor for the New Jersey towns of Runnemede, Woodlyne, and Somerdale from 1969 to 1974. In 1974 he was elected for the U.S. House of Representatives at age 37, where he served until 1990. From 1979 to 1990, Florio chaired the House Commerce and Consumer Protection Competitiveness Subcommittee, which had jurisdiction over environmental matters. Congressional Biographies viewed on 15 Feb. 2009, <http://bioguide.congress.gov/scripts/biodisplay.pl?index=F000215>,

See also Florio's website: http://florioperrucci.com/attorneys_james.html, M. Aron, *Governor's Race: A TV Reporter's Chronicle of the 1993 Florio/Whitman Campaign*, Rutgers University Press, New Brunswick, NJ, 1994.

⁵ Mowrey & Redmond, loc. cit.

⁶ G.J. Mitchell, Quoted in Mowrey & Redmond, op. cit., pp. 211-212.

⁷ Mowrey & Redmond, op. cit., p. 274.

⁸ Other accusations against Gorsuch included refusing to provide information to the Congressional Public Works Committee investigating Superfund enforcement, lifting the Carter administration's ban on the disposal of a number of liquid chemicals in hazardous-waste landfills, the severe cuts on EPA's enforcement staff, placing Rita Lavelle – a former public relations for Aerojet-General Corporation, a chemical manufacturer and third worst polluter in California – in charge of the Superfund program, and hiring lawyer James W. Sanderson as part-time advisor while he was still representing private clients – including a Chemical Waste Management, Inc. Lavelle was arrested and other ten EPA officers lost their jobs in the scandal.

⁹ 'City's disclosure bill nears a final vote,' *Chemical Week*, October 15, 1980, Top of the News, p. 24.

¹⁰ Ibid.

¹¹ Ibid.

¹² 'Workers' Right-to-Know Moves into Town,' *Chemical Week*, May 26, 1982, Top of the News, p. 13. Philadelphia's regulation was considered a step up as it included residents, and not only workers, in its right-to-know provisions as part of their disaster management plan.

¹³ Congress created OSHA under the Occupational Safety and Health Act, signed by President Richard M. Nixon on December 29, 1970.

¹⁴ 'OSHA Tries to Settle Workers' Right-to-Know', *Chemical Week*, August 19, 1981, Top of the News, p. 18.

¹⁵ OSHA's previous rules permitted workers to examine and copy only their own workplace medical and toxic-exposure records. It is important to keep in mind that, before EPCRA, there were no formal standards for measuring toxic chemicals and each facility had their own standards. Sometimes they could be very low, as reactions from the industry revealed after EPCRA's standards, far from ideal, started to be applied.

¹⁶ 'Workers' Right-to-Know Moves into Town,' *Chemical Week*, May 26, 1982, Top of the News, p. 13; 'Florida's Right-to-Know Push,' *Chemical Week*, May 11, 1983, Top of the News, p. 16.

¹⁷ L.H. Carney, 'Putnam Accused of a Conflict', *The New York Times*, April 24, 1983, Section 11, New Jersey, p. 9.

¹⁸ Mikulski, Quoted in Mowrey & Redmond, op. cit., p. 305.

¹⁹ Amnesty International counted 7,000 deaths immediately after the release and another 15,000 due to associated illnesses in the following years. More than 100,000 still suffer from diseases associated with the toxic gases. 'A Bitter Wind in Bhopal,' Viewed 28 June 2007, <http://web.amnesty.org/wire/December2004/Bhopal>. The official numbers vary from agency to agency and from country to country. The number of immediate deaths varies from 2,000 to 15,000 and the illness linked to the disaster from 50,000 to 550,000. Amnesty International's numbers were a conservative average of the official tolls and were cited by a number of publications.

²⁰ M. Wines, 'U.S. Rebukes, Fines Union Carbide Corp. - \$1.4 Million Penalty Cites Safety Violations in W. Virginia Plant', *The Los Angeles Times*, April 02, 1986, Viewed 6 August, 2009, http://articles.latimes.com/1986-04-02/news/mn-2257_1_union-carbide.

²¹ J.J. Florio, 'Chemical Russian Roulette', *The New York Times*, June 2, 1985, New Jersey Opinion, p. 26. See also: J.C. Bolstridge, *EPCRA Data on Chemical Releases, Inventories, and Emergency Planning: A Guide to the Information on Industrial Facilities and Chemical Available Under the Emergency Planning and Community Right-To-Know Act*, Van Nostrand Reinhold, New York, 1992; S.G. Hadden, *A Citizen's Right to Know: Risk Communication and Public Policy*, Westview Press, Boulder, Col., 1989; J.T. Hamilton, *Regulation through Revelation: The Origins, Politics, and Impacts of the Toxic Release Inventory Program*, Cambridge University Press, New York, 2005.

²² EPCRA, 1986. 42 U.S.C. 11001 et seq.

²³ EPCRA, section 302.

²⁴ Hadden, op. cit., p. 217.

²⁵ D. Melamed, 'EPA's Right-to-Know Net Widens', *Chemical Week*, Top of the News, p. 16.

²⁶ 'States Get Back in the Act on Right-to-Know', *Chemical Week*, October 22, 1986, Washington Newsletter, p. 86.

²⁷ P. Shabecoff, 'Industry and Consumer Groups Join to Ask Pesticide Law Changes', *The New York Times*, March 11, 1986, Section A, p. 23.

²⁸ 'States Get Back in the Act on Right-to-Know', *Chemical Week*, October 22, 1986, Washington Newsletter, p. 86.

²⁹ Unsuccessful lawsuits are not the same as frivolous lawsuits (without just cause). Lawsuits failed for different reasons; among them the results of research would prove that the contamination came from other sources or that the contaminant was not listed in any of the anti-toxic laws.

³⁰ J.O. Cox, Quoted in P.H. Dougherty, 'Environmental Specialty is Booming', January 14, 1988, Section D, p. 23.

³¹ 'For corporations today, a prime concern is the potential liability they face from the abandoned dumps, according to Lloyd N. Newman, executive vice president of

Manning, Selvage & Lee, a subsidiary of D'Arcy Masius Benton & Bowles. He added that a number of companies also feel some moral responsibility.' Newman, quoted in P.H. Dougherty, op. cit., p. 23.

³² Baram, quoted in P.H. Dougherty, op. cit., p. 23.

³³ Reiser, Quoted in E. Grillo Olson, 'When a Chemical Company is Forced to Tell All', *The New York Times*, July 3, 1988, Section 3, p. 8.

³⁴ A report showed, among other unexpected results, that even the Capitol and the White House were threatened by poor storage of chlorine in the water treatment plant for the District of Columbia. P. Shabecoff, 'The Early Returns of a Toxic Poll', *The New York Times*, November 20, 1988, Section 3, p. 10.

³⁵ Ibid.; C.L. Elkins, 'Toxic Chemicals, the Right Response', *The New York Times*, November 13, 1988, Business Forum, Corporate Citizenship, Section 3, p. 3.

³⁶ G. Ross, Quoted in Elkins, op. cit., p. 3.

³⁷ Ibid.

³⁸ Ibid.

³⁹ A group of Senators headed by J. Bennet Johnston and Trent Lott wanted to reduce the list of toxic chemicals in TRI and include a list of exceptions to EPCRA.

⁴⁰ P. Fairley, 'Right-to-Know Knocks', *Chemical Week*, August 20, 1997, Cover Story, p. 19; J.H. Cushman, 'Court Backs E.P.A. Authority on Disclosure of Toxic Agents', *The New York Times*, May 2, 1996, Section A, p. 20.

⁴¹ The acronym comes from the White House Office of Management and Budget (OMB).

⁴² C. Hulse, 'Group Puts Disaster Data on Internet', *The New York Times*, September 12, 1999, Section 1, p. 32.

⁴³ Ibid.

⁴⁵ By the end of President George W. Bush's Administration on January 20, 2009, EPCRA still remained the most comprehensive example of a right-to-know approach in the United States. Environmental justice and anti-toxic groups were still pushing for new laws that include reports of toxic and hazardous materials used in manufactured products using a right-to-know approach. Similar laws, using the right-to-know principle, have been implemented in more than 88 countries by the end of 2009.

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The Role of Citizenship Responsibility for Environment within Individualized Society

Lukas Kala

Abstract

Environmental responsibility is among the most urgent societal challenges of our times. In the following article I discuss the problematic nature of civic responsibility adequately dealing with environmental issues. I posed the questions: ‘Can individual citizens bear responsibility for global environmental problems?’ ‘Should everyone be held responsible for environmental degradation?’ This chapter aims to clarify the meaning of the term individualization of environmental responsibility, and presents opposing approaches to the process of privatization of environmental responsibility. I incline to the opinion that that activities such as green consumerism, passive membership of environmental groups, and domestic recycling cannot be taken as the sole way of responsible behaviour. From the literature, I deduce that environmental responsibility is a form of virtue, and can be developed only if certain prerequisites are fulfilled. This chapter describes the necessity of an interdisciplinary approach to responsibility understanding, while presenting ideas on how individual civic responsibility relates to individualization process.

Key Words: Individualization of environmental responsibility, citizenship, virtues, justice, boundaries of responsibility.

1. The Privatisation of Responsibility: New Trend?

In today’s society we can observe big change of public opinion about the question ‘who is responsible for the environmental degradation’. It was once believed that responsibility for environment is borne primarily by politicians. I presume that this attitude is not prevailing in western society anymore. While searching the internet I found countless blogs describing lifestyle changes for a more environmentally responsible way of life.

Internet blog No Impact Man edited by Colin Beavan is one example.¹ Readers of this site are provoked to stop using paper cups, plastic forks, fluorescent light bulbs or inefficient transportation, like car. Readers are encouraged to take personal responsibility for climate change and environmental degradation by making life style changes.² Beavan admits that his political views had too often been about changing other people and too seldom about changing himself. So, he started to change his life. His action illustrates great social change, when responsibility is delegated from the powerful actors (politicians, corporations) to individual citizens.³

I maintain that this trend we can identify crosswise whole society. It seems to me that even non-government organizations have focused their campaigns to individual citizens or households. The vote with purse started to be rightful way how to 'save the planet'. There is a significant transfer of responsibility from politicians to consumers. In my opinion, it is proofed by increasing number of certified products and by eco-labeling.

Bauman conceives that responsibility, like so many others aspects of contemporary society, has been privatized.⁴ I would say that this privatization of the environmental responsibility is welcomed both by governments and corporations. In my opinion, trade solutions are less 'painful' for everybody. Politics and powerful public agents recede from their socially responsible role.⁵ It is up to free will of citizens to choose the right way. One can hear from various institutions that it is '*everyone's responsibility*' to act to combat climate change,⁶ environmental degradation etc.

The shift in discussion from rights to responsibilities is supported by the existence of Charter of Human Responsibilities, which was issued by Canadian Charter Committee in 2007. The Charter preamble states: 'New possibilities are opening up to play a role in the new challenges that face humankind: every human being has a role to play in redefining responsibility and has responsibilities to assume. 'This chapter agrees with generally accepted fact that awareness can help people to act. In my opinion I doubt that awareness plays key role in adoption of environmental responsibility. Can a well-informed person with little power take responsibility for the environment? What factors are essential for determination of responsibility?

2. Individualization of Environmental Responsibility: Opportunities and Threats

Before I start the discussion about individualization of environmental responsibility, I would like clarify, what individualization means. Neil Nevitte and Christopher Cochrane conceptualized individualization as a process where individuals are constantly less regulated by traditional institutions, but then necessity for individual decision is rising up.⁷ Individualization was enabled by economic prosperity, and the financial emancipation of individuals. Growing freedom of individuals, and the loss of traditional social networks lead to situation where systematic problems are seen as problem of individuum.⁸ I assume that due to the emergence of individualization a new kind of responsibility and a new kind of guilt appeared.

New guilt and risks describes Beck's in his concept of risk society.⁹ Beck considers 'health and responsibility as two basic values of individualized society.'¹⁰ Living in a polluted area, eating poisoned food and refusing medicines are understood as one's own fault.¹¹ 'Responsibility is presented as meaning

greater autonomy, ‘... anyone who did not take responsibility counted as irresponsible; any dereliction counted as guilt.’¹²

Modern science provides us with information (sometimes inconsistent), but it is our own judgement how to deal with it. I deduce from Baumann that the responsibility for environment cannot be viewed as a construct of our time; it rises from delay, from inaction of institutions. ‘Political institution stays local – while the real powers which decide shape of things are global.’¹³ Incidences of elusive power fall down to shoulders of an individual. When powerful actors (business corporations, state) leave the stage, local citizens have to re-take their responsibility. ‘Instead, the serious work of confronting the threatening socio-environmental processes... (responsibility) falls to individuals, acting alone, usually as consumers’,¹⁴ noted professor of political and environmental science Michael Maniates.

The process of individualization is generally understood as a driving force of growing consumption. Individualization directed people’s desires to express themselves. ‘...people use goods as one of the means to define themselves, as goods transmit messages to others.’¹⁵ Self-identity becomes a project where individual feels responsible and where consumption plays an important role. Consumption helps an individual integrate into society, while expressing their identity as a ‘responsible citizen’.¹⁶

Environmental commerce is a growing trend and individualization of environmental responsibility is a part of it. ‘Doing the right thing for Mother Earth’ becomes a common part of consumer behaviour. ‘Individual shopping and consumption behaviour are increasingly seen as a public arena of activism, and environmentalists are encouraged to put their money where their mouth is and ‘do their bit’ by buying ‘green’ or ‘ethical’ goods – a strategy for sustainable consumption.’¹⁷ There is accordance among social scientists about that fact. The discrepancy occurs between positive and negative evaluation. Seyfang is obviously against the narrowing of lifestyle changes to green marketing. She derisively denotes green consumers as eco-warriors from supermarket. Muray Bookchin pointed one, still topical, thing: ‘This privatization of the environmental crisis... has reduced many environmental movements to utter ineffectiveness and threatens to diminish their credibility with the public.’¹⁸

As for green consumerism Seyfang would agree with Maniates that it does not change institutional framework of our society and simply cannot threaten political and commercial status quo. According to Burgess ‘it is too much of the consumer to adopt a green lifestyle unless there is a social context which gives green consumerism greater meaning.’¹⁹ Maniates would agree. In his text ‘Individualization: Plant a Tree, Buy a Bike, Save the World?’ warns us that the ‘individualization of responsibility’ depoliticizes environmental degradation and creates disjunction between our morals and our practices.²⁰

Maniates maintains that people can reach real sustainability just through collective citizen action as opposed to individual consumer behaviour.' He says with Seyfang that is not possible ask individual to be responsible for uncertain environmental risks in our global society. 'Within this context, responsibility for creating and fixing environmental problems was radically reassigned, from government, corporations, and the environmentally short-sighted policies they were thought to have together fostered, to individual consumers and their decisions in the marketplace.'²¹

Why be concerned with individualization of environmental responsibility, when the process of individualization is generally understood as source of environmental crisis? I see same reason as Norgaard, who replies: 'because the possibilities that political and economic structure that have been set in place are inadequate to handle the problem with global environmental problems such as global warming.'²² Where somebody sees a threat, others can see opportunity. While Maniates, Seyfang or Bookchin²³ would be against individualization of responsibility, Dobson and Smith would stay in hope to this process.

Individualization opens the possibility for individuals to extend their citizenship power. This process is sometimes associated with deliberative process. There is common consensus among Barry, Smith and Christoff that deliberative democracy and public deliberation, which is now in advance on West, helps citizens to internalize environmental responsibility. Such a responsibility is active involvement in environmental decision-making, not-just within framework of public institutions. Civic focus to the political systems and institutions decline and a new kind of citizenship come to emerge - the citizenship which adopts private realm.²⁴

Dobson considers private activity as the key element of citizenship. He formulated the idea of ecological citizenship, which is associated with the private sphere rather than public institutions. According to his opinion every single act has public implications. Dobson maintains that citizenship is about everyday living, which is why citizenship cannot be reduce just to political acts as it used to be.²⁵ Smith supports this idea and the extension of private activity into 'areas currently dominated by public bureaucracies and capitalist firms' takes as expression of green citizenship.²⁶

The concept of ecological citizenship, well described by Dobson, is fundamental to the discussion about responsibility of individual citizens, and other scientists felt obligated to react. Dobson derives individual responsibility from the ecological footprint of individual citizens within global context. According to his opinion, everybody should use an appropriate (sustainable) amount of environmental space. 'The principal ecological citizenship obligation is to ensure that ecological footprints make a sustainable, rather than an unsustainable, impact.'²⁷ When a person is occupying ecological space larger than the sustainable objective, and destroys the environment, his duty is to abate any related damage.

The justice is the appropriate response to suffering for which individual is responsible.

The ecological footprint brings a different type of moral response when compared to compassion or charity. The former are adequate when individuals react to suffering (damage) for which they are not personally responsible, like tsunami or earthquake.²⁸ When life chances of somebody are both directly and non-directly threatened by someone's action, the justice is in place, maintains Dobson. '... the idea of the ecological footprint converts relationship we had thought to be Samaritan into relationship of citizenship.'²⁹

Ecological citizenship transforms the community of citizenship, not the moral community.³⁰ However the human community is based on compassion, a community of ecological citizenship is established by environmental injustice, maintains Dobson. He founds material defining of ecological citizenship community by ecological footprint as advantage, because we haven't to operate in realm of meta-argument following from ethics.³¹

Justice is a key component of ecological citizenship for Dobson. Individuals who occupy too much ecological space have a responsibility to reduce their negative impact for the sake of those who occupy less space. This responsibility is both transnational and perhaps intergenerational, maintains Dobson. It is obvious that individual ecological footprint is not located neither in place nor time. Environmental resources are drawn beyond national boundaries and ecological risk follows it. That's why we should again over-thing ideas of republican citizenship and cosmopolitanism, conceives Dobson. Ecological justice, or rather global ecological injustice, opens way to ecological citizenship, which supposed to be citizenship of strangers.

The concept of republican citizenship could be helpful, according to Dobson, because it deals with citizenship responsibilities to the community, and less with citizen rights. Globalization broadens this community, and that is why we should reconsider cosmopolitanism, claims Dobson. 'The effects that give a rise to ecological citizenship are best captured in terms of action at distance.'³² Environmental problems are mostly global and for that reason non-territoriality and horizontal relationship within global civil society is needed.

How would Dobson reach ecological citizenship? He believes in the cultivation of ecological virtues through education. As was mentioned above, the first virtue of ecological citizenship is justice, and Dobson postulates that people can learn to be virtuous. Dobson also speaks about feminization of citizenship which entails 'establishing of caring, compassion and responsibility for the vulnerable as citizenship virtues.'³³ He described secondary virtues, which are implied from vulnerability of others.

3. Boundaries of Environmental Responsibility for Individual Citizens

Is it really so easy and painless to adopt behavior of ecological citizens? Can we believe the presumption: if environmental problems become everyone's responsibility does it end up being no-one's? Can we consider activities such as sorting waste, driving less, green consumption, walking or composting as civilly responsible behavior? Hannah Arendt would not think so. She maintains that responsibility is coeval with individual political action. According to her opinion, activities, mentioned above, are apolitical and cannot be connected with responsibility. They usually do not initiate anything new, or offer any real possibility for the individual to change the world; rather they become a means for ameliorating some of modernity's excesses',³⁴ explains Mick Smith. From Arendt's perspective we can change the world only through action. That's why environmental citizenship must be active towards society.³⁵

In spite of society present willingness to reduce negative impacts on nature among citizens, there is a lack of action. This inconsistency between stated intentions and actions has been called the 'value-action' gap.³⁶ There is a range of barriers contributing to the gap, explaining why individuals are failing to find effective forms of social action.

I focus my concern to ethic attributes of responsibility. I deduce from Jonas's, Lévinas and Sartre's conceptions of responsibility a few conditions which should be fulfilled, if we would like to speak about responsibility. There has to be a subject of responsibility, an object of responsible behavior and somebody, who calls the individual to respond reasons of the behavior. The subject of responsibility (acting citizen) has to be free, powerful in realm of acting, in relationship with object and able to continue with responsible activity for long period.

In my opinion, contemporary discussion about environmental responsibility stems from modern technocratic thinking, where each problem is solvable. The problem of responsibility is usually just the problem of right choice in dimension of individualistic ethic. The question of individual power is not spoken³⁷ and individual freedom is exaggerated. Attitudes presented by theoreticians of ecological citizenships are from an ethical perspective close to Sartre's conception of responsibility.

Within the discussion about responsibility Jonas and Weber focus on power, this allows us reasoning about responsibility *ex-ante* (precautionary) and not just *ex-post*. Individual responsibility is bounded by the ability to take action.³⁸ The power of modern technology creates situations with irreversible consequences. These are beyond individual capacity to control. It may often require acting in a way which individuals cannot warrant. Somebody empowered by others must be set in place and that is why the political dimension of responsibility is still needed.

Individuals are responsible for the infinite effects of their actions in today's society. The market place (trade dimension of responsibility) should not be only

place where people practice civic freedom, power and responsibility. People have to act in other dimensions on behalf of society, environment and future generations. Otherwise they can fall into traps of trade solutions, and the whole concept of responsible citizenship will be depleted. I hope for localization of civic responsibility and for global responsibility of politicians.

4. Discussion

I have adumbrated social situation of responsibility transmission from politicians to individual citizens. The exploration of conceptions of responsibility yielded three main findings. Civic environmental responsibility supposed to be concrete (to have a subject), feasible (in realm of individual power) and sustainable (in realm of continuity). It is debatable if an individual should be responsible for environmental crisis. Dobson presented great concepts of ecological citizenship. Unfortunately he did not describe how an individual should confront their ecological footprint in practice. I would be sceptical to individual (carbon-) offsetting and to market mechanisms offered by institutions. Is it the right way to reach sustainability?

Notes

¹ C. Beavan, *No Impact Man Blog*, July 2010, Viewed on 26 July 2010, <http://noimpactman.typepad.com/>.

² See C. Beavan, *No Impact Man: The Adventures of a Guilty Liberal Who Attempts to Save the Planet, and the Discoveries He Makes about Himself and Our Way of Life in the Process*, Farrar, Straus and Giroux, New York, 2009.

³ Melo-Escrihuela calls this trend as privatization of individual responsibility. C. Melo-Escrihuela, 'Promoting Ecological Citizenship: Rights, Duties and Political Agency', ACME Editorial Collective, Keele University, 2008, pp. 113-134.

⁴ Z. Bauman, *The Individualized Society*, Polity, Oxford, 2005, p. 69.

⁵ European council calls on citizens to retake responsibility for climate change by practicing simple activities like a walking, a recycling and a switching of equipments. Corporate citizenship program of Credit Suisse encourages individuals to take responsibility for the environment by investing in companies that practice environmental responsibility.

⁶ Jenifer Kent finds other interesting examples of growing rhetoric concerning individual as responsible for environmental crises or climate change. J. Kent, 'Individualized Responsibility and Climate Change: If Climate Protection becomes Everyone's Responsibility, Does it End up Being No-One's?' *Cosmopolitan Civil Societies Journal*, Vol. 1, 2009, pp. 132-149.

⁷ N. Nevitte & C. Cochran, 'Individualization in Europe and America: Connecting Religious and Moral Values, *Comparative Sociology*, Vol. 2-3, 2006, pp. 203-230.

⁸ U. Beck and E. Beck-Gernsheim, *Individualization: Institutionalized Individualism and Its Social and Political Consequences*, Sage Publications, London, 2002, pp. 22-24.

⁹ Cf. U. Beck, *Risk Society*, Sage Publications, London, 1992.

¹⁰ Beck and Beck-Gernsheim, op. cit., p. 139.

¹¹ Ivan Illich object to that stance in his article I. Illich, 'Health as One's Own Responsibility: No, Thank You!', *Journal of Consciousness Studies*, Vol. 1, 1994, pp. 25-31.

¹² Beck, Beck-Gernsheim, op. cit., p. 146.

¹³ Z. Bauman, op. cit., p. 188.

¹⁴ M. Maniates, 'Individualization: Plant a Tree, Buy a Bike, Save the World?', *Global Environmental Politics*, Vol. 1, 2001, p. 33.

¹⁵ I. Ropke, 'The Dynamics of Willingness to Consume', *Ecological Economics*, Vol. 28, 1999, p. 410.

¹⁶ This cannot be understood as forms of Weber's heroic individuum, who define own identity by self-sacrificing acting for the benefit of common good.

¹⁷ G. Seyfang, 'Eco-Warriors in the Supermarket? Evaluating the UK Sustainable Consumption Strategy as a Tool for Ecological Citizenship', CSERGE, July 2010, Viewed on 21 July 2010, http://www.uea.ac.uk/env/cserge/pub/wp/edm/edm_2004_07.htm.

¹⁸ M. Bookchin, 'Death of a Small Planet', *The Progressive*, August, 1989, p. 22.

¹⁹ J. Burgess, '(Un)Sustainable Consumption', *Negotiating Environmental Change: New Perspectives from Social Science*, F. Berkhout, M. Leach and I. Scoones (eds), Edward Elgar, Cheltenham, 2003, p. 285.

²⁰ People usually act as consumers 'rather than as citizens who might come together and develop political muscle sufficient to alter institutional arrangements that drive a pervasive consumerism.' M. Maniates, op. cit., p. 37.

²¹ Ibid., p. 39.

²² K. Norgaard, *Cognitive and Behavioural Challenges in Responding to Climate Change: Background Paper to the 2010 World Development Report*, The World Bank, 2009, p. 30.

²³ 'It is unfair to coerce people into believing they are personally responsible for the crisis. 'Simple living' and militant recycling will not solve it.' Bookchin, op. cit., p. 23.

²⁴ It can be proved by survey of Carter a Huby, which shows accruing willingness among citizens to ethical investing etc.

²⁵ A. Dobson, *Citizenship and Environment*, Oxford Univ. Press, Oxford, 2003, p. 281.

²⁶ G. Smith, *Green Citizenship and the Social Economy*, *Environmental Politics*, Vol. 14, 2005, p. 275.

²⁷ A Dobson. 'Ecological Citizenship' *Paper Presented at the Annual Meeting of the Western Political Science Association, Marriott Hotel, Portland, Oregon Online*, 2009, Viewed on 15 December 2009, http://www.allacademic.com/meta/p87792_index.html.

²⁸ Dobson uses example of Good Samaritan who is not responsible for the plight of the other and still feel obliged to act.

²⁹ A. Dobson, *Citizenship and Environment*, p. 105.

³⁰ The responsibility to environment means the responsibility from one to another person. *Cf.* with Apel's 'discursive macroethic of responsibility'.

³¹ A. Dobson, *Citizenship and Environment*, p. 110.

³² *Ibid.*, p. 105.

³³ *Ibid.*, p. 63.

³⁴ M. Smith, 'Ecological Citizenship and Ethical Responsibility: Arendt, Benjamin and Political Activism', *Environments*, 2005, Viewed on 26th April 2010, <http://www.entrepreneur.com/tradejournals/article/160322574.html>.

³⁵ The survey *Attitudes of European Citizens Towards the Environment* ordered by European Commission shows that EU citizens undertake usually 'passive' actions in relation to the environment.

³⁶ *Cf.* F. Kaiser, et Al., 'Ecological Behavior, Environmental Attitude, and Feelings of Responsibility for the Environment', *European Psychologist*, Vol. 4, 1999, pp. 59-74.

³⁷ *Cf.* Dobson.

³⁸ H. Jonas, *The Imperative of Responsibility: In Search of Ethics for the Technological Age*, University of Chicago Press, Chicago, 1979, p. 128.

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Agent Orange and its Victims: A Neglected Warning

Vu Le Thao Chi

Abstract

The purpose of the chapter is to examine the basis for the unchanged behaviour among the farmers in Vietnam even when confronted by drastic, and threatening, changes in their living and natural environment. They do not change even their reproductive behaviour despite the lessons of negative impacts on health from their dioxin-contaminated living environment and from their personal encounters with other toxic chemicals. The research reveals that the farmers are not short of expert opinions and information offered by various ‘specialists’ of medicine, forestry and water management, agricultural products and agrochemicals. It also reveals that the critical responsibility of putting together and processing all the disparate information provided by these ‘specialists’ rests solely with the farmers. The farmers are confronted by an alternative that nothing short of a drastic transformation of life can satisfy the needs hinted by the information, leaving them with the more plausible choice that they live as they have lived in the past. The need for a civil community is apparent, where its members, the specialists of various kinds, would shift their loyalty from their narrowly-defined expertise to a common goal of providing the basis for sustainable life for the majority of the community, the farmers.

Key Words: Dioxin, Agent Orange, agrochemicals, reproductive behaviour, farmers, expertise.

1. Introduction

Contaminant carriers travel not only through the air, the water or the soil, but also through human bodies across generations. Air, water, soil and human bodies need to be synchronically treated if the living environment were to be protected. This is easier to be said than done. When the air is contaminated, people are advised to stop breathing it and move out. *But move to where?* When the water is contaminated, people are advised to stop drinking it. *But where can they find cleaner water?* When the soil is contaminated, people are advised to stop cultivating it. *But where can they get a piece of better land within their reach?* When the human bodies are contaminated, what choice do they have? Stop the travelling contaminants by not having children?

It is always easy to warn people of whereabouts of the threat to life. It is a task of an entirely different magnitude to protect life in the face of it. After all, protection of life requires profound changes in what makes up that life which is to be protected. The purpose of this chapter is to illustrate this problem—the almost

impossible task for ordinary citizens to change their life in the face of environmental threats to it.

2. Vietnam: Between Wealth and Health

Vietnam is a model of economic development with the annual GNP growth rate always around 10% since early 1990s. Land reforms and the corresponding decline of the cooperatives since 1986 Doi Moi have given incentives for the farmers to produce more for profit. Gradual integration into regional (ASEAN) and international trade (WTO) regimes has stimulated freer moves of capital goods and agricultural products in and out of Vietnam.¹

There are other corresponding increases, however. Imported pesticides increased from around 15,000 tons in 1990 to more than 36,000 tons in 2002. The average volume of pesticides used per hectare of agricultural crops increased more than 100% from 1990 to 1999. On average 41 new pesticides were registered per year in the period 1997-2001, and this figure jumped to 110 in the period 2002-2006. There are some staggering figures conveying the serious consequences of these increases: WHO estimated the rate of acute food poisoning in Vietnam to be 80/100,000 and added that there are 50 unreported cases to 1 reported case. Pesticides use also endangers water and ecosystems. For example, the quantity of pesticides in improperly treated wastewater in major industrial sectors discharged to rivers amounted to 25 tons per year. The World Bank estimated in 2006 that the impacts on domestic human health affected by contaminated food and loss from forgone markets, together, cost Vietnam \$70,000,000 seriously undermining the gains.²

These figures become more striking when the historical background of recent Vietnam is taken into a consideration. Vietnam is a home to millions of the victims of the wartime use of herbicides, Agent Orange. The victims, including the third generation after the end of the war, exhibit all sorts of signs of abnormality from deformed bodies to mental disorder, from cancers of all kinds to learning disability. That not all who were exposed to the herbicides have developed ailments is no relief for anyone. The ailments could strike years after the exposure for the wartime generation, or after the birth for the second or third generation. Nearly all who were directly or indirectly exposed through mothers or through food chains are the victims of a different kind – the debilitating uncertainty.

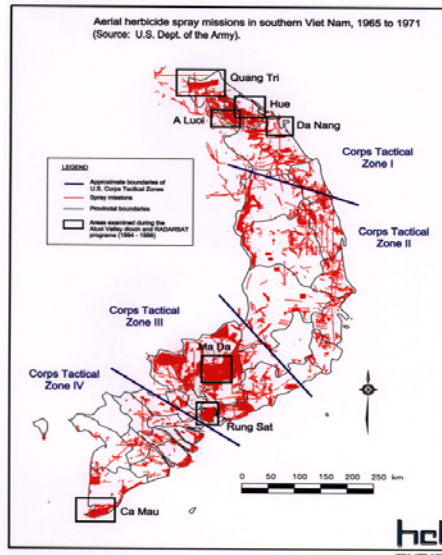
Between 1962 and 1973, the United States sprayed a large quantity (21 million gallons) of the herbicides, known as Agent Orange, named after the colour of the containers. Small amount of its by-product, dioxin, less than 100 grams, is said to kill the entire residents of New York if poured into its water system. The estimates of the dioxin actually produced in Vietnam vary from 170kg to well over 600kg, depending on, for example, how to count the Agent Orange that remained unused and stored beyond the duration of its official use.³

As the map below shows, the spray was concentrated in the south around the important military installations such as airbases. The spraying was also intense along the border with Cambodia and Laos where Ho Chi Minh Trail ran. Many members of the North Vietnamese regular units were exposed along this trail, and then brought home in the north the contaminant dioxin.

In 2004, a group of Agent Orange victims filed a lawsuit against several American manufacturers of Dioxin-producing chemicals. The lawsuit was eventually thrown out of court in 2007.⁴ The efforts, however, acquired a renewed ground at rallying the support for the Agent Orange victims and their families.

What escapes these developments is the absence of any indication that the well-learned consequences of the wartime use of Dioxin-producing chemicals should become a lesson for the current use of agro-chemicals.

Figure 1. Map of Dioxin Sprayed Areas in Vietnam⁵



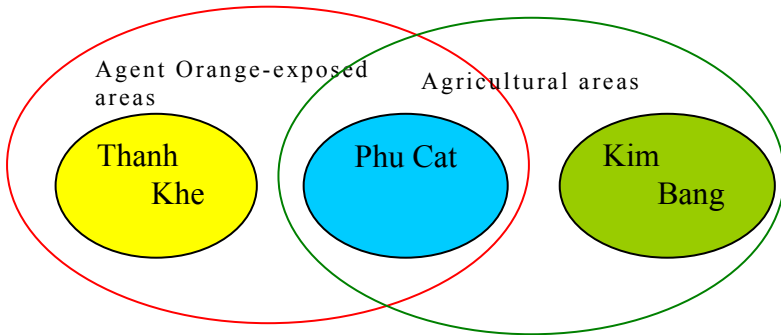
A. The Families of Agent Orange Victims: Living No Differently

Our 4-year intensive research (2004-2008) on 93 families of the Agent Orange victims in Vietnam reveals one striking finding: they do not exhibit the behaviour expected of having had painful encounters with Agent Orange.⁶ They live no differently from anybody else in the communities.

Of the three research sites, Phu Cat and Thanh Khe (Da Nang) are in the south of the former DMZ and Kim Bang in the north as shown below. The first two have

two important military installations whereas the third is a home to many former North Vietnamese army regulars.

Figure 2. Research Sites



The most striking finding is the fact that the perception of Agent Orange-Dioxin as a threat to life did not multiply even as the realization of its disruptive consequences deepened. The families of the Agent Orange victims do not exhibit any significant change even in the reproductive behaviour. Having a child with birth defects is no deterrence against having more. Neither does having even a second child severely affected. They act quietly as if nothing should change their behaviour. The only conceivable limit to the reproductive activities was set by their meagre income as many of them had already three or more children. (See Tables 1.1 and 1.2 below.)

Table 1.1. Effect of Birth Defects
(The number of children after the *first* handicapped child)

	0	1 child	2 or more	NA	Total
Phu Cat	11	14	19	4	48
Thanh Khe	3	7	5	0	15
Kim Bang	4	4	19	1	28
Total families	18	25	43	5	91

Table 1.2. Effect of Birth Defects (The number of children after the *second* handicapped child)

	0	1 child	2 or more	NA	Total
PhuCat	5	4	1	0	10
ThanhKhe	3	1	1	0	5
Kim Bang	2	7	8	0	17
Total families	10	12	10	0	32

Source: Umegaki, Vu and Phan (2009)

Beyond the reproductive activities, too, there is no sign of recognition that Agent Orange (dioxin) contamination meant something in conducting life. These families and their neighbours still continue to rely on the local resources – food, irrigation water and others in the areas which still show a high level of Dioxin. The narrow paths winding through the rice paddies and peanut farms are littered with the empty chemicals bags. ‘I don’t have money to buy these things,’ a farmer in Phu Cat uttered, while pointing his fingers at the pictures of the gloves, a mask, and a protective garment in the label of one of the bags as part of visual instruction for the proper use of its content.

3. Living Not Differently: An ‘Informed Choice’?

Robert Chambers’ *Whose Reality Counts*⁷ illuminates how the reality as perceived by the would-be ‘beneficiaries’ of a given policy is lost in the complex process of policy making. By implication, the farmers in Vietnam, or elsewhere for that matter, are the victims of misconceived policies. My observation places the issue elsewhere. The behaviour of the farmers, as dramatically exemplified by the families of the Agent Orange victims, may represent the best choice of action, given the limited resources and alternatives at their disposal, and the information suggesting the change in their behaviour. It is an ‘informed choice’ on their part. The problem is that there may not be one ‘informed choice’ in addressing all of the complex problems confronting life.

In the eyes of an economist, the choices of having more children or continuing to rely on chemicals for high productivity are rational since their behaviours are derived from the desire to secure economic gains, to insure healthy and sufficient labour force, and to insure them future economic security. In the eyes of health experts, the farmers are rational if they give up on reproductive activities, on the probability—no higher than fifty-fifty chance-- of having another child with a birth defect. In the eyes of environmental experts, they are rational if they forgo economic gains while shouldering all the costs of shifting to an organic farming or of adhering to the instructions for proper use of and disposal of chemicals. Life of a

farmer, as reconstructed through these demands by experts, is a life that is entirely alien to the great majority of the farmers.

Each expert may offer his/her own rationale for arriving at his/her conclusions about the behaviours of these farmers. Each assumes the farmers to be the central target of his/her concerns and expects the farmers to act upon his/her recommendation. An economist would tell the farmers to increase productivity by increasing the input. In the meantime, a health expert would tell farmers to use chemicals properly to protect health and the environment. Each expert assumes these farmers to be the 'final consumers' of all the information he/she prepares. In other words, the farmers are not short of information. Instead, the farmers are given all the responsibilities of collecting and processing incoming information. As they do so, however, the cost of each information becomes prohibitively high in the sense that it demands conflicting behaviour.

For the farmers to overcome conflict within their own behaviour, the calculation of its costs and benefits must be derived from their own local knowledge. The limited financial resources even to obtain the protective garments or build safe storage facilities for the agrochemicals must be examined against the need for enough food to feed, or for money for medical and other emergencies. The chances of having the damaged health would have to be calculated against the risks which may not materialize within a foreseeable future. Besides, chemicals-induced ailments are not always or necessarily fatal. The loss of market for their products may be much too remote an incident.

Given these, the frequent reference by the farmers to 'fate' is a profound challenge to the experts' 'scientific' argument that given certain conditions, the damage to health or to the environment is *likely* to occur. The fate, as the farmers see it, may have it that the damage *may not* occur. An ironic evidence informing the farmers, especially the families of the Agent Orange victims, is that there are many more others who escaped the devastating consequences of dioxin contamination under the same living conditions. Asking them not to have more children is an equivalent of foreclosing the future, or of depriving themselves of precious labour force, on the basis of a risk whose chances of realization is fifty-fifty or *empirically speaking* much less than fifty-fifty.

4. In Lieu of a Conclusion

What can be drawn from these observations that people are provided with enough expert information and still it is their choice not to change the way they live accordingly, i.e., living 'non-differently'. It is an 'informed choice' within the context of competition between the information provided by the experts presenting 'realities' in a probabilistic world and the information the farmers have presenting 'realities' with empirical evidence. I am aware that these observations suggest an impossible task of asking farmers to become an expert who could somehow

integrate scientific and disparate information with their own local knowledge in his or her behaviour.

However, the communities I observed during the research are not without a possible step to initiate. In Phu Cat, clinic workers in each village are health experts with only limited medical knowledge and skills. Their strength lies elsewhere: their constant and predictable presence among the villagers. They pay frequent visits to the villagers and naturally include the health-related topics in the daily conversation. Their limited medical training and thus also qualifications may limit what he can tell the villagers and often spread the misplaced belief that Agent Orange means incurable ailments. Nonetheless, the merit of their presence in the villages can be immense with a slight shift in his role. A civic society may be constructed across the villages in which these clinic workers play as key agents of ‘filtering’ information from all sources and making them less competing with each other. Their role may be to reduce the farmers’ reliance on ‘fate.’ Their role is also to filter through local information which underlies the farmers’ behaviour, and helps experts of other areas such as environmental protection who usually stay away from the villages. Coordination between these ‘experts’ may help reduce the prohibitively high cost of information each of them usually impart.

Notes

¹ For a general discussion of Vietnam’s recent economic development and its impact on various aspects of society, see, the essays collected in P. Glewwe, et Al. (eds), *Economic Growth, Poverty and Household Welfare in Vietnam*, The World Bank, 2004.

² For the time being, consult T.D. Vien and P. Van Hoi, ‘Pesticide Dependence in Agriculture: Policy for Productivity and Policy for Security in Vietnam’, *Human Insecurity in East Asia*, M. Umegaki, et Al. (eds), United Nations University Press, 2009, pp. 191-210.

³ On Agent Orange and its impact in Vietnam, see M. Umegaki, V.L. Thao Chi, and T.D. Phan, ‘Embracing Human Insecurity: Agent Orange-Dioxin and the Legacies of the War In Viet Nam’, in *Ibid.*, pp. 21-46.

⁴ Briefly, on March 10, 2005, Judge Jack B. Weinstein of New York District court dismissed the suit on a technical basis, arguing that Agent Orange could not be considered as a weapon and that the companies who produced the substance could not be held liable for the way it was used by the US government. After a few more years of legal manoeuvres, the US Supreme Court basically sided with Judge Weinstein on March 2, 2009.

⁵ Source: Forward Air Controllers (FACs), ‘Operation Ranch Hand,’ <http://www.cc.gatech.edu/fac/Thomas.Pilsch/AirOps/ranch.html>.

⁶ See for other findings, Umegaki, et Al., 2009.

⁷ R. Chamber, *Whose Reality Counts? Putting the First Last*, ITDG Publishing, 1997.

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PART II

Education and Environmental Transformation

Environmental Justice and Education: Transformative Perspectives

Silvia Pierosara

Abstract

This chapter points out that the claim to environmental justice can be spread out only by rethinking the role of education in childhood. This main hypothesis is demonstrated in three steps. First of all, according to two main examples, namely taken from the Maori and Alaskan communities, education can be defined as a practice of responsibility for the environment. The development of the child is closely connected with the ability to take care of other beings and of the earth, and its starting point consists of teaching (and learning) to recognize oneself as a part of the environment. Secondly, it is shown that, according to this view, there can be no difference between justice towards humankind and environmental justice, as far as they share the same domain. This standpoint is a crucial one, and it brings with itself, as a consequence, that learning how to be careful towards other beings is the condition of possibility of educative relationships. Thirdly, the definition of education as the development of responsibility towards the other beings has an almost implicit transformative power, whose main features are: the transformative potential of the practices of care and the transformative potential of thinking oneself (even as a child) not as the master, but as part of the environment. According to the first feature, it must be pointed out that the only way to teach to take care is to practice care that is to take care of the learner; according to the second one, thinking oneself as a part of the environment means that each gesture of care is both directed to oneself and to the other beings.

Key Words: Environmental justice, education, childhood, responsibility, practices of care, humankind, environment, transformative power, self-recognition.

1. Environmental Education as a Practice of Responsibility

The starting point of this chapter is the hypothesis of a strict connection between educational practices and environmental justice. This main hypothesis can be confirmed through two examples taken from the Maori and Alaskan Natives as well. The task of these two examples is to demonstrate that there is a way to decline education, according to which responsibility for the environment is unavoidable: it is a necessary condition rather than an accidental one. If we start from the Maori example, firstly, it can be emblematic to briefly narrate a Maori myth and, secondly, to make an attempt to explain the contemporary educational context in which attention to the environment shapes itself. According to the first point, a meaningful legend in the Maori mythology perfectly exemplifies the

belonging of human beings to the environment which precedes their even necessary distinction; it narrates that the sky and the earth (husband and wife) were originally attached and not distinct, and only after the rebellion of one of their sons they were detached. After this detachment humanity became visible:

Then *Tane-mahuta*, the father of forests and of everything inhabitant in them and made out of tree, so spoke: «No, not so. It is better to separate, and let the sky go far away from us and over us, and let the earth stand under our feet» [...] Finally, *Tane-mahuta*, the father of forests, birds and insects, stands up, starts fighting against his parents; in vain he tries to detach them with his hands and his arms [...] In this way *Rangi* and *Papa* are separated [...] As far as the sky and the earth have been separated, a multitude of human beings was discovered.¹

According to the second point, in the last decade very much attention has been paid to the practices of Native education, particularly to the so called *Kaupapa Maori*:

Kaupapa Maori as an educational resistance strategy has grown out of an ongoing struggle that occurred within both Maori communities and Pakeha dominant institutional contexts. The notion of struggle is important in the overall development of *Kaupapa Maori* theory in that it connotes the thinking, commitment, and political conscientization of Maori with regard to the critical issues and understandings that needed to occur in order to make the theoretical components both robust and effective.²

Kaupapa Maori has been widespread since the 1980s; it is articulated in six principles of Praxis, and its essential task is to autonomize the Maori education perspectives from that of the Pakeha views; Pakeha is the Maori name for the white and postcolonial community in New Zealand. The six principles of Praxis precisely show the re-subjectivation of this community, and an in depth attention to the environment is given in each of them. These principles are: 1. Self-Determination or Relative Autonomy; 2. Validating and Legitimizing Cultural Aspirations and Identity; 3. Incorporating Culturally Preferred Pedagogy; 4. Mediating Socioeconomic and Home Difficulties; 5. Incorporating Cultural Structures which Emphasize the Collective Rather than the Individual; 6. Shared and Collective Vision.³

It can be the case to strongly stress the fifth point: it deals with the necessity to incorporate cultural visions which privilege the Collective more than the Individual. The first and most important Collective goodness which we are part of is the environment. In this sense Kaupapa Maori is a way to widespread a different relationship with the environment, and subsequently, to stress the redistributive feature of environmental justice. In fact, one of the most relevant meanings of the expression 'environmental justice' sounds as follows: 'It refers to policies and practices by which existing environmental inequities can be corrected and prevented in the future. It focuses on research programs that attempt to detect the existence of environmental racism and environmental discrimination'.⁴ Another fitting definition of environmental justice is: 'Poors ecologism, popular ecologism, survival and maintenance ecologism and the movement for environmental justice (both local and global), which indicate all the same thing, raise up from the protests against the appropriation of environmental resources by the State or by privates and against the disproportioned loads of pollution'.⁵

The Kaupapa Maori has been entering in the educational and scholastic programs since the last decade, because since the 1980s environmental education was totally based on an European model, which was purely imposed on the Maori people. On the contrary, in the last years, the processes of re-subjectivation and autonomization have been making the intrinsically environmental attention within the Maori culture and cosmology explicit; for these reasons the new programs for sustainable education have been integrated with the Kaupapa Maori, and the reason sounds as follows:

Kaupapa Maori provides a framework for education in sustainable development. Within Kaupapa Maori, environmental awareness has a distinctive cosmological basis [...] The central elements are the roles of *Rangimui* (the sky father) and *Papatuanuku* (the Earth mother) and a pantheon of familial *atua* (gods) associated with environments and processes associated with them. For Maori, the earth and the sky and everything in between are considered *tapu* (sacred).⁶

To integrate perspectives on sustainability education means to redistribute benefits and risks, and to re-make people responsible towards the environment, which they are part of. Alaska Natives pay a particular attention to environmental education as well, and for this reason they can contribute to prove our starting hypothesis, by constituting our second example. An interesting document is the *Alaska Standards for Culturally Responsive Schools*: its standpoint is quite similar to that of the Kaupapa Maori, but, while in the latter the attention paid to the environment is an implicit background, in the former this kind of attention is explicit. In particular, it is worth to mention the following statements: 'Students

who meet this cultural standard [...] practice their traditional responsibilities to the surrounding environment; [...] Make appropriate choices regarding the long-term consequences of their actions; [...] understand the ecology and geography of the bioregion they inhabit; [...] identify and appreciate who they are and their place in the world'.⁷

The perspective described above is useful to explain the relationship between identity, environment and education. In fact, the key point of the alternative Alaska Natives model in education is the notion of identity, which is determined by the surrounding environment, towards which a relation of care is established. Taking care of the surrounding environment is part of the Alaska Natives identity; the word 'identity' has often signified enclosure or, at worst, exclusion; on the contrary, if identity is moulded on the concept and the practices of care towards the environment, exclusion and enclosure are *a priori* impossible. The kind of subjectivity that is implicit here is a relational and dialogical one; openness prevails on enclosure; identity can't become identitarianism. The relationship with the environment is not a mastering one; it is, rather, a participative one, whose task is to protect the radical otherness of the nature, together with its close similarity with us; in other words, it deals with the recognition of the otherness in us.

2. Environmental Justice and Care

Environmental education has been widely spread in the last years; moreover, the actual decade is the decade of sustainable development. Taking into account other perspectives that focus on environmental education is fundamental; two steps could be distinguished in environmental education: the first one is environmental consciousness, and the second one is educational practice. A possible strategy to unify these two tendencies is the notion of care, which can be articulated with the help of the following quotation:

Though the phrase 'culturally-conscious environmental' is a cumbersome modifier, we want to emphasize the relationship between students, schools and their local communities through the themes of 1) a sense of place and care, 2) conceptual knowledge about the environment, 3) the school environment, 4) practical skills, 5) citizen involvement and activism, and 6) moral/ethical perspectives.⁸

The quotation below is extracted from the Earth Charter, which is the outcome of the World Summit on Sustainable Development, whose attempt is to establish relationships between local and global standpoints on environmental justice. Among the other things, a series of queries has been drawn up in order to indicate the method of teaching environmental education: the cultural bond is considered a way to make possible the practice of care, that is, to connect the environmental

consciousness aspect with educational practice. The first list of queries is entitled *Development of Sense of Place and Care*; addressees of the queries are students, schools, communities. In the first case one relevant question is ‘Do students develop a personal affinity with the natural world and the human community in which they live?’⁹ Another one is: ‘Does the school ground learning in a sense of place i. e., connection and care for local environment, community and habitat?’¹⁰ Last, but not least: ‘Do students develop a clear understanding that humanity is an inseparable part of a system consisting of human beings, culture, animals, and the biophysical environment, and that humans have the ability to alter the interrelationships of this system?’¹¹

A conceptual frame can be underlined in the quotations below: first of all, it can be the case to stress the *personal affinity with the natural world*; secondly, the *connection and care for the local environment* is fundamental; thirdly, the fact that *humanity is an inseparable part of a system* must be taken into account. There is a common element in each expression: it is the consciousness of the participative nature of human beings. We are similar to the environment because we are part of it, and not its master; it is thus necessary to recognize and interrupt the master-slave dialectic between us and the environment, as far as our relationship with the environment must rather resemble our relation with ourselves. Only by changing this kind of dialectic, we will be able to perceive the otherness of nature, which is the same otherness we have inside. The right attitude towards this kind of otherness, which is also ours, is the attitude of care, and it is legitimated by the fact that we are an inseparable part of a system. Exactly for this reason the distinction between nature and culture is often put into discussion.

3. Transformative Perspectives on Environmental Education and Care

It is time to make the connection between education and care explicit, by focusing on the peculiar kind of educative relationships. In a nutshell, one could say that in the educational field coherence is exemplified through the impossibility of performative contradiction: the educator can teach care only practicing care toward the child; vice versa, it could be impossible to teach care without taking care of the child. Environmental education is not simply an application of pedagogical assumptions in a particular field. Rather, it can be considered as the privileged feature of educative relationships, because in that field the care relation is evident and unavoidable. Moreover, this kind of relationship calls for responsibility.

To teach care means to teach responsibility, in the sense of responsiveness; in other words, responsibility is *prima facie* a capacity, whose existence can be testified only by trusting the child, by promising her that she will be able to take care. Taking care of the environment means in fact recognizing oneself as an inseparable part of a living whole, which claims responsibility that is the capacity to respond, to ascribe actions to oneself. Moreover, to learn to read the book of

nature, or of the environment, is a constant training for co-living, co-housing with the diversity, by respecting it. One of the most recent directions of development of this research is the Interspecies Education, which could be defined as follows:

Through various cultural, religious, and philosophical traditions, most educational institutions teach the position that human beings are the highest, most advanced species on earth. Depending upon the particular tradition, the earth and other species are commonly viewed as existing for human use, control, domination, or 'stewardship'. Even though people are aware that humans are biologically animals too, non-human animals are viewed as 'other' in the most profound sense.¹²

Despite of the negative and relativistic consequences of an extreme version of this position, it is worth to note that the Archimedean point is the notion of 'other' and 'otherness', together with its connection with the notion of participation; once again, the practice of care bridges the gap between sameness and otherness, between participation and detachment. If otherness is intended as the *absolute other*, then it is impossible to interact with it and to recognize oneself as an inseparable part of the whole. On the contrary, if otherness, though respected as 'really other' and not completely assimilated to the sameness, is thought to be recognized in analogy with the life of human beings, then the practices of care are a very fitting way to take care both of oneself and of otherness.

What do we intend with the word 'care'? It is an expression which comprehends at least three elements: the first one is the series of performances which are requested to maintain beings in life; the second one is the attitude towards any growth process; the third one is the attention towards the fragility of beings, especially the suffering ones or the victims of injustice. According to this last point, the educational relationship of care aims primarily to develop since early childhood a critical attitude towards injustice and domination in order to recognize them all around the world. This sort of recognition is not secondary with regard to environment, because, as previously stated, the claim for distributive (or redistributive) justice concerns also the environment, not only because it is the inescapable place of this redistribution, but also because everyone is embedded in it as part of an interaction. In conclusion, to practice care means thus to be able to engage oneself and to discover oneself as a situated co-subject of the environment.

Notes

¹ A. Corteggiani, *I figli di Maui. Saggio etnologico sui Maori della Nuova Zelanda*, Bulzoni, Roma, 2002, p. 78.

² G.H. Smith, 'Mai i te Maramatanga, kit e Putanga Mai o te Tahuritanga. From Conscientization to Transformation', *Social Justice, Peace, and Environmental Education: Transformative Standards*, J. Andrzejewski, M.P. Baldotano, L. Symcox (eds), Routledge, New York and London, 2009, p. 19.

³ See *Ibid.*, pp. 24-25.

⁴ D.E. Newton, *Environmental Justice*, Abc-Clio, Santa Barbara, 2009, pp. 4-5.

⁵ J. Martínez Alier, *Ecologia dei poveri. La lotta per la giustizia ambientale*, Jaca Book, Milan, 2009, p. 382.

⁶ L. Chalmers, 'Sustainability, Curriculum Development and Kaupapa Maori', *Geographical Views on Education for Sustainable Development*, S. Reinfried, Y. Schleicher, A. Rempfler (eds), Selbstverlag des Hochschulverbandes für Geographie und ihre Didaktik, Nürnberg, 2007, p. 226.

⁷ R. Barnhardt, 'Culturally Responsive Schools for Alaska Native Students: A Model for Social Justice, Peace, and Environmental Education', in J. Andrzejewski, et Al. (eds), *op. cit.*, pp. 39-41.

⁸ D. Greenwood, B.O. Manteaw, G.A. Smith, 'Environmental Education: From International Resolve to Local Experience and Inquiry', *Social Justice, Peace, and Environmental Education: Transformative Standards*, J. Andrzejewski, M.P. Baldotano, L. Symcox (eds), Routledge, New York and London, 2009, p. 90.

⁹ *Ibid.*, p. 92.

¹⁰ *Ibid.*

¹¹ *Ibid.*, p. 95.

¹² J. Andrzejewski, H. Pedersen and F. Wicklund, 'Interspecies Education for Humans, Animals, and the Earth', in *Ibid.*, p. 136.

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Exploring the Impact of Higher Education Experiences on Students' Ecological Worldviews

Kerry Shephard

Abstract

For higher education to participate in 'education for sustainability' it needs to better understand the nature of change that the agenda seeks and develop approaches suitable to monitor this change. This chapter discusses the problem within the context of higher education and identifies theoretical models within which analysis can occur. It describes some research instruments and summarises some early results. The chapter ends with an exploration of the possible consequences to higher education of knowledge in this domain.

Key Words: Education for sustainability, higher education, research instruments, students values and attitudes.

1. A Problem to Address

Sustainability, conservation, global citizenship and ethical practice are common themes in life nowadays. All enterprises are under pressure to behave ethically and responsibly, but some groups are urged to not only behave in these ways themselves but also to encourage others to do so. Businesses are encouraged to commit to sustainable causes and to promote environmentally responsible purchasing by their customers. All branches of education are currently being challenged to 'educate for sustainability'. Indeed, groups that traditionally conceptualized their roles in a restricted way are increasingly considering their global responsibilities. Many of these trends have been recently reviewed or described by Stibbe and Luna in relation to the broad umbrella term 'sustainability literacy'.¹

Links between society's quest for sustainability and education have been with us for some time. The Brundtland Report suggested that '*the world's teachers . . . have a crucial role to play*' in helping to bring about the '*the extensive social changes*' needed for sustainable development.² Many universities responded to this and related challenges. Two elements of the Talloires Declaration relate most directly to the teaching activities that occur within institutions.³ These are to *Educate for Environmentally Responsible Citizenship* and to *Foster Environmental Literacy for All*. In some respects these are modest expectations. Much depends on how signatories understand terms such as awareness, understanding and capability and perhaps environmental-literacy is itself a most hopeful but ill-defined phrase. Many studies, particularly within the environmental education literature, address the 'education for sustainability' status of higher education, how it might be

responding to increasingly bleak environmental and global messages but also illustrating innovative and successful educational programmes (see for example recent special issues of Environmental Education Research that focus on higher education). These and similar studies paint a picture of great variability. At an institutional level some are highly proactive, others less so. One recent research report emphasises the considerable variation in how even the most proactive higher education institutions around the world, in the USA and in Germany, go about addressing sustainability.⁴ The situation in Australia and New Zealand was recently summarised by Shephard.⁵ And in the UK by Sterling and Scott,

... if we examine the extent to which HEIs [higher education institutions] have actually reoriented themselves such that environmental and sustainability issues now pervade the vision, ethos, thinking and work of the institution, then the conclusion probably has to be that very little has happened in most cases.⁶

If we look more particularly at university lecturers' understanding of sustainability and of their role in relation to sustainability, perhaps with a view to explaining this situation, recent research from Australia is notable. Reid and Petocz used a phenomenographic methodology to identify that while many higher education teachers are aware that sustainability has some role to play in their teaching, some of them view that role in quite limiting ways.⁷ It seems that many higher education institutions and many lecturers in higher education have not yet committed themselves to the concept of higher education for sustainability.

We are forced to ask what impact this highly-variable response to calls for education for sustainability has on our students. Are we achieving, for example, the *environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development* that Agenda 21 called for?⁸

2. Some Educational Models

Two in particular are relevant to this discourse. My own approach to analysis is essentially reductionist and seeks to divide complex phenomena into simpler subsets that better support scrutiny. A model that describes higher education *activities* suggest that students may be registered for programmes of study that directly involve environmental knowledge, generally within the sciences, while for others the topic may be more peripheral to their main programme of study, and may be more interdisciplinary in nature. The educational processes involved may be formal, with assessments and qualifications (generally subject-based education but 'greening of the curriculum' initiatives may fit here), non-formal (without assessments and qualifications, often occurring in the community, but generally with objectives; community engagement fits here) or even in-formal (without clearly stated objectives and possibly incidental to other intentions; campus

sustainability initiatives often fit this category). Many of these initiatives lack formal processes to identify the impacts that they have on students as they experience higher education. It may not be possible to identify how an individual's sustainability learning is influenced by their total HE experience or by components of it. It may never be possible to separate the impact of broader life experiences from those of specific educational experiences. In addition there is no clear understanding, in an educational context, of what changes or which learning experiences are most relevant to this discourse.⁹

Our second educational model addresses this need by focusing on the *consequences* of education. Many educators focus on facets of learning such as knowledge and skills but some argue that education *for* sustainability substantially addresses affective attributes of values, attitudes, dispositions and behaviours; in that it relates to what students may choose to do with the knowledge and skills that they acquire. These aspects of learning are amongst the most difficult to formally assess. Key educational questions include whether it is possible, and reasonable, to monitor changes in students' affective attributes relating to sustainability as separate from formal assessment of students' attainment of knowledge-based and skills-based intended learning outcomes. By no means is the caucus of higher education in agreement that it is the role of higher education to teach undergraduates what values and attitudes to hold or how to behave, but there may be some common ground in exploring notions of evaluating outcomes in cohorts of students rather than assessment of individuals.¹⁰

These models enable us to see that education for sustainability is highly dispersed throughout the great diversity of higher education activities and that its consequences are greatly contested by practitioners of higher education. This latter issue is developed further in the next section.

3. Roles, Responsibilities and Capabilities of Higher Education

Historically, university academics have accepted responsibilities to think critically about, and to comment on, issues that they think are important for their sponsoring societies to consider. These responsibilities are in turn, and again historically, dependent upon the protection of academic freedom. In some countries (for example in New Zealand) both concepts are laid down in statutes (in the 1989 Education Act in New Zealand) and higher education institutions, and their members, possibly even their students and graduates, are expected to be 'critic and conscience of society'. There is no doubt that academics based in environmentally-focussed disciplines within universities continue to contribute their views to wider debates on environmental issues. What may be in doubt in the minds of some is higher education's responsibility to internalise the views and values of just some of its academic members in deciding what and how to teach, but I am not sure why this should be so. In New Zealand academic freedom includes '*The freedom of the institution and its staff to regulate the subject-matter of courses taught at the*

institution' (1989 Education Act in New Zealand) and in my experience this freedom is anticipated in many developed countries even where not laid down in statutes. 'Greening the curriculum' should be a voluntary activity and it is irrational to expect higher education to respond to government steering on this, or on any other value-laden societal issue. Some academics go further and regard the education for sustainability agenda as an attack on the values of higher education. Reacting to a circular on education for sustainable development from the UK University funding council, Knight wrote

The issue here is not whether sustainable development is a good or bad idea. It is about the basic rights and responsibilities of universities and the need to safeguard academic freedom. It is not the job of universities to promote a particular political orthodoxy; it is their role to educate students to examine critically policies, ideas, concepts and systems, then to make up their own mind.¹¹

And there are some more pragmatic issues to address. Brew, in developing an argument for increased scholarship by university teachers, identifies an impressive array of other change agendas currently in operation.¹² University teachers are expected to cope with more students, to evaluate their activities in new ways, to embrace internationalisation, to adopt newer and more flexible ways to support learning and to contribute to student employability and national prosperity. The literature on change in higher education emphasises increased levels of accountability and the monetary value of educational experiences, with links to notions of 'student as consumer' and higher education as 'preparation for employment'. Addressing the imperatives of education for sustainability was not explicitly included but of course could have been. From the perspective of many academics in higher education, calls for education for sustainability just add to an impenetrable backlog of change.

We are clearly in contested territory.

4. Research Instruments and Approaches

Whatever the rights and wrongs of the education for sustainability agenda, as it applies to higher education, it is clear that learning *for* sustainability involves change. Monitoring the extent to which change is occurring becomes an obligation and a priority. Common sense suggests that only one measurement is definitive; changing behaviour of the population towards more sustainable practices. Several disciplines, however, focus on creating a more complete understanding of the relationships between knowledge about sustainability and behaviour towards sustainability. Environmental psychology, for example, explores psycho-social determinants of pro-environmental behaviours; particularly emphasising the role of behavioural intention (Bamberg and Moser¹³) and personal responsibility (Kaiser

and Shimoda¹⁴) as mediator between pro-environmental attitudes and pro-environmental behaviour. In the field of environmental education Shephard emphasises the affective nature of this linkage.¹⁵ In this model affective attributes of values, attitudes and dispositions mediate between knowledge and behaviour. Jensen and Schnack use the term ‘action competence’ to make this link.¹⁶ While it might be desirable to focus our attention only on sustainability behaviours, there are other relevant attributes; measurement of which may provide us with valuable insights into the sustainability characteristics of populations.

This chapter discusses research conducted in higher education settings in Dunedin, South Island, New Zealand in two tertiary institutions with very different perspectives; Otago Polytechnic, with its sustainability-oriented mission to create ‘sustainable practitioners’ and the University of Otago, with more traditional emphases. The use of five different research instruments is described in this chapter, used at different times and different places within the Polytechnic and University. The instruments depended on respondents self-reporting in the absence of researchers or interviewers, but they vary greatly in the extent to which they result in quantitative or qualitative data and in the degree to which responses are prescribed, by limited choice, or open-ended. A key element of the research was that the instruments included a request for a unique identifier that would enable each participant’s second survey to be matched to their first, whilst maintaining their anonymity.

The Revised New Ecological Paradigm Scale (NEP) was developed by Dunlap and Van Liere.¹⁷ The NEP includes 15 statements that relate to limits to growth, the position of humans in the environment, the fragility of nature and the imminence of ecocrisis. Respondents are asked to record their agreement with these items on a five point Likert scale. The NEP/Revised NEP Scale has been extensively validated as measuring ‘worldview’ level beliefs.

A *self-analysis NEP* was developed based on the NEP but including the option for respondents to add up their own score and to reflect on its interpretation of their own ecological worldview and its contributory tendencies.

Partial scenario setting encourages reflective and personal appraisal in an open-ended written response to a partially-developed scenario. We asked: if in your first position/job after you graduate you are asked by your supervisor to perform a task that you consider to be unsustainable practice, what would you do?

Personal Meaning Mapping was developed by Storksdieck, Ellenbogen and Heimlich, as an open-ended, broadly qualitative, approach that asks respondents to write down words or phrases, or to draw images of thoughts, that come to mind when prompted by a trigger word or phrase.¹⁸ We asked participants to write down words, ideas, thoughts or images that came to mind from two presented captions ‘*I can think and act as a sustainable practitioner*’ and ‘*Otago Polytechnic is a Living Campus*’.

5. Testing the Research Instruments

The Polytechnic survey was first used in 2008. There were 540 respondents to the survey instrument which included *The Revised New Ecological Paradigm Scale* (NEP), *Partial scenario setting* and both versions of the *Personal Meaning Mapping*. The *self-analysis NEP* has been used extensively within the University in 2009 and 2010 within the departments of Mathematics & Statistics, Zoology, Tourism and Surveying with several hundred students completing it either once or twice (at the start and end of a semester course). The NEP data has been analysed using principal components analysis as described by Shephard et al.¹⁹ Responses to the NEP and the *self-analysis NEP* were recorded as mean NEP scores subsets of item scores. Responses to the *Partial scenario setting* and *Personal Meaning Mapping* instruments included text and images. All responses were copied into an Excel spreadsheet; with images described by a few words (such as ‘trees and stick people’). The researchers deliberated over a long period on how best to analyse this varied data and attempted several iterations of analysis. Eventually coding produced a two-level categorical code of either Strong pro-environmental stance or Weak pro-environmental stance, with another category of missing data that included responses that could not be coded. Humorous responses were particularly difficult to categorise. Responses to the *self-analysis NEP* were recorded as mean NEP scores and scores for the four contributory tendencies.

Research outputs have been analysed in a range of ways. We were interested in establishing the internal consistency of the NEP in an Otago, New Zealand context and in determining if it addresses a single construct, such as ‘ecological worldview’ or if its outputs can reliably be used to describe subsets of this construct. Our results demonstrate that the NEP does have high internal consistency but also that it produces scores with adequate internal consistency to describe four contributory tendencies of recycling, conservation, supporting animal and plant rights and being cautious about the future.²⁰

We were interested to determine how the other instruments classified respondents and whether or not they did so with similar efficacy and with similar results, on average for individuals, to the NEP. Statistical analysis demonstrates that all non-NEP instruments are capable of distinguishing groups with strong and weak pro-environmental stances with individuals within each group having, on average different NEP scores from individuals in the other. All instruments demonstrate equivalent gender differences; females in all groups tested demonstrating more pro-environmental worldviews than males with all instruments.²¹

We were also interested in exploring change, and whether the *self-analysis NEP* in particular was a useful tool to detect how change over time periods. The instrument does indeed record statistically significant changes, both positive and negative, with respect to ecological worldviews. In one group of third year students, studying conservation, changes were restricted to individual NEP items or

worldview tendencies and there was a similarity between the nature of the change and the content of the third-year programme. In a large first year course on statistics, changes in overall NEP scores were apparent and both the level of NEP score and the nature of change were related to the majors of the student groups concerned.

These results suggest that each of these four instruments reported here may measure the same characteristics (sustainability literacy, action competence or pro-sustainability attitude) or that varying characteristics (such as possessing an ecological worldview, expressing a pro-environmental response to an ethical work-related dilemma, or having a sophisticated understanding of sustainable practice or of a sustainable campus) on average co-locate within individuals in this student population. Either rational provides encouragement for continued use of any of these four instruments. A related question is whether in the future only one of these questions needs to be asked to monitor change in this population.

6. Where to Next

How confident are we that we have correctly addressed the quality of being pro-environmental (or other terms that may or may not be more applicable)? And if we have, can these research instruments actually monitor changes in this quality? And if they do and we discover that higher education experiences have the wrong effect on students what should we do with this information? And what would be wrong, or right, in this context?

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*All of the research described here has been conducted by a team, variously comprising Sam Mann, Nell Smith, Lynley Deaker, John Harraway and Freya Broughton-Ansin.

Social Learning: Towards Sustainable Waste Management in Tongatapu

Nina Šrot

Abstract

In the debate on sustainability many scholars are advocating for wider use of social learning models in order to successfully address complex challenges. Waste management is one example of complexity that our societies need to deal with and that increasingly calls for a broader approach, rather than focusing on narrow technical solutions only. This chapter is part of a broader study of limitations to social learning that focuses on area of waste management in Tongatapu, the main island of the Kingdom of Tonga. It contains an analysis of a number of limitations at different levels of social interaction that affect the success of social learning in waste management. The study indicates that an emphasis on social learning through participatory problem solving is unlikely to be sufficient, without a broader awareness of the socio-cultural context and subsequent local understanding of the problem itself. It also suggests there is a need to integrate the limiting effects of more permanent cultural characteristics when advocating for a social learning approach. Although the challenges may then appear to be considerably harder to overcome, the efforts will probably turn out to be more sustainable in the long term. Indeed such changes represent social learning by themselves. This study helps to inform future efforts towards enabling and strengthening social learning in waste management on Tongatapu, as well as in Tongan environmental resource management in general.

Key Words: Social learning, waste management, sustainability, culture, participation, education.

1. Introduction

The Kingdom of Tonga lies in the South Pacific. It consists of about 170 islands, 35 of which are inhabited. About 60% of the total resident population (approx. 100,000) lives on Tongatapu, and about 40,000 of those live in the urban area of Nuku'alofa.¹

A range of environmental problems have arisen in Tonga in recent decades, the majority of them related to modern development. Along with improvements in living standards, came also the undesirable consequences of modernization, such as increasing consumption, waste generation and pollution, causing problems that were previously unknown, placing unsustainable demands on natural resources and causing social tensions.²

Until recently Tongatapu had a generally inadequate waste collection and management system, with very limited waste minimization activities. A report commissioned by the South Pacific Regional Environment Programme (SPREP) in 1999, concluded that solid waste management in Tonga had a low priority, was under-resourced and ineffective and there was little enforcement of the waste related regulations that were being administered by a number of Ministries and Departments.³ Another problem outlined was poor understanding of human impacts on the environment and a general lack of data on state of environment.⁴

A 2002 report on 'Priority Environmental Concerns' found that pollution from solid and liquid waste was the biggest environmental problem facing the country. The report recommended immediate measures to be taken to minimize the impacts of waste in order to protect natural and human resources.⁵

In 2004 the Australian Agency for International Development (AusAID) agreed to fund the Tongan Solid Waste Management Project.⁶ While the Tongatapu waste management facility has been technically upgraded into one of the most advanced in Polynesia, numerous challenges remain for maintaining the waste management facility beyond the project phase as well as protecting Tonga's environment and people's health and well-being.

2. Theoretical Framework

Like sustainable development, the concept of social learning does not have a unified theory. The diverse conceptualizations are found in various scientific fields from psychology to political science, social organization and increasingly in the problem solving fields of science such as resource assessment and management.⁷

In the problem solving dimension scholarly approaches refer to social learning as a collective process with emphasis on learning *with* each other, thus requiring communication and participatory interaction of different actors. These interactions then foster development of social, technical skills and trust, which potentially forms the base for a common understanding of the problems concerned, creation of new ideas, and a sufficient level of consensus for subsequent collective action to solve problems. The implication suggested is that societies can learn to change to address socio-environmental problems, thus such learning is often referred to as transformative learning.⁸ Accordingly the experts advocate for establishment of participatory learning environments and platforms, where people can meet, interact, learn collaboratively and take collective decisions.⁹

The psychological dimension refers to social learning as learning of individuals *from* the social environment that surrounds them, or formative learning. 'Social cognitive theory' by Bandura discusses social learning in terms of observation and imitation of behaviours, attitudes and emotional reactions of others. The theory emphasizes the interaction between the cultural environment and the individual as a cause of his/her own behaviour.¹⁰ Individuals are seen as both products and re-producers of their own cultural environments and of their social systems.¹¹

3. Analytical Framework

This study follows the idea that social learning involves different processes of learning (formative, transformative) and occurs on different levels of social interaction.¹²

The distinction between the two dimensions of social learning coincides with distinction between two main streams of cultural theories. The discussion in this chapter focuses on culture because it represents an important part of the social context influencing and being influenced by social learning.¹³

Culture can be conceptualized as a reference system based around core values, beliefs, perceptions and ideals within which reality is perceived and conveyed so that one can make sense of one's actions. This 'ideational' culture then triggers certain general types of social manifestation and practices and can be linked to formative social learning that emphasizes the interaction between the cultural environment and the individual as a cause of one's own behaviour.¹⁴ On the other hand culture can be conceptualized as a social arena of constant dynamic interaction and confrontation (often termed the adaptive socio-cultural system) of various smaller group cultures and can as such be modified in an active and conscious way by interacting social agents.¹⁵ Such an understanding of culture links well with assumptions on social learning common in problem solving academic fields.

Embracing rather than ignoring the above mentioned dichotomy provides a useful platform for analysing limitations to social learning processes at different levels. The more 'dynamic' cultural view is important since it acknowledges that social contacts are real and effective, leading to modifications of culture over time and expresses the bi-directionality of influence between individuals/groups and broader cultural environment.¹⁶ The more 'stable' or 'static' view is important since it emphasizes the need for awareness of the specific historical and current social contexts, which pose limitations and express resilience to modifications and fluidity of behaviours, values and norms.¹⁷

Participatory problem solving processes (including waste management) exist within, and are affected by a given 'stable' cultural framework, yet at the same time they influence this 'stable' culture through the cultural dynamics ignited by social interactions within participatory processes through social learning.

4. Discussion

Tongan society is very hierarchical in its character. This is not only reflected in the hierarchical social orientation but it is also embedded in political system itself, where king still holds the ultimate authority. The political system is thus very centralized and autocratic, with very limited public participation in decision making.¹⁸

Although Tongan culture is usually characterized by a strong reciprocity in relationships, its interpretation and manifestation can be quite confusing, especially

between different social strata. In practice it often divides into authoritative and submissive roles where high ranking people control the direction and meaning of discussion and guide the communication by advising and teaching. Meanwhile lower ranking people must listen and obey.¹⁹ For example *fono*, a traditional and still active forum of communication between people and the government or nobles, holds a close resemblance to this dichotomous understanding of reciprocity since it is instructive and not discussion oriented in nature.

This power imbalance in interrelations disables equal representation of opinions and affects group dynamics in participatory processes that aim to cut across social stratification, turning them into non-representative forums.²⁰

In Tonga formal institutions and governmental interventions are 'turning the wheel of development' and as such are also perceived as being responsible to tackle the problems that come along with it. Civil society is generally rather non-reactive and used to having decisions made for them at higher levels; although at the time of writing a political reform is already under way, representing an important opportunity for social learning since it could trigger emergence of more participatory oriented decision-making processes. However, even with good ambitions it might take some time for people to get used to new rules and realise what their role is in the process in order to really start to actively participate.²¹

Furthermore the tendency to follow the authoritative ideal of one's person-hood whenever situation permits, within a complex range of social hierarchies, makes the hope of more democratic and balanced communication in participation processes in Tonga seem fairly distant. This is an interesting feature of Tongan society, whereby their hierarchical system is not only perpetuated through status hierarchies, but also hierarchical differentiation between age groups and gender.²²

In terms of communication and informal participation spaces Tongan society holds some important advantages to atomised western societies. Tongan people are generally very social and communicative. Socialising and social gatherings still represent a major part of their lives. People tend to gather in groups on a daily basis to talk, discuss, and do various activities together. However these participatory spaces are more often than not segmented in nature, with men gathering around *kava*-bowl (*kava* is a traditional Tongan drink), women in women's groups and youth in their own groups again, all of which are generally exclusive of the other groups. These groups are also much localized in character.

Furthermore the existence of such participation processes and spaces does not necessarily imply that social learning will eventuate and contribute positively to a better waste management.²³ The critical question is how well these spaces and participation processes cater for social learning to occur. In Tonga the segmented nature of communications spaces can represent a problem, since discussions remain ineffective where age, gender, rural/urban, status difference and even geography create communication barriers and asymmetries between different groups of people who are each an essential part of problem solving through social

learning. This has negative effects for more sustainable waste management, which needs to occur with cross-sectorial participation involving all relevant stakeholders.²⁴

Tongan culture can also play a positive role in a complex problem solving context, since it emphasizes the importance and value of relational interdependencies and emphasizes seeing oneself always against the collective backdrop.²⁵

Palmer for example demonstrates that one of the most fundamental features of the social learning approach is a shift from multiple to collective cognition. Multiple cognition prevails when actors maintain mutual isolation from one another. The one of the aims within social learning is therefore to enable participants to define their stand more with regard to others and therefore the collective good, rather than just within their distinct group identity.²⁶

Orientation towards a western style of development and education in Tonga as well as a high level of migration is influencing new ideas that play their part in shaping a social plurality of opinions. New values and priorities are entering the everyday system of Tongan lives, encouraging individualism and freedom of choice.²⁷

There are two sides to the rise of individualism in relation to social learning. A negative one signifies the move from a collectively oriented society towards a more individualistic one, where acceptance of shared goals and collective action will be more difficult to achieve due to high diversity of views and interests. However a move towards individualism in Tonga also symbolises a push for changes in politics and social organisation towards a more democratic structure of relations and participatory processes in the society. While this shift represents an important opportunity for participation in decision making, the underlying question for social learning in this socio-political transition seems to be on whether Tongan society's capacities to think, reason, learn and act as collective citizens will prevail over the growing self-interest and individualism.

5. Conclusions

This study has identified various limitations to social learning in relation to a more sustainable waste management on Tongatapu.

A multitude of factors might affect the success of social learning processes and the willingness of social actors to cooperate and learn with each other in order to create new ideas or collectively agree on ways of tackling the complex problems they are faced with. Tongan culture holds many asymmetries in power distribution that have an important influence on communication, participation, and not least on social learning.

There are also limitations deriving from a more dynamic, interactive level of participatory problem solving such as the segmented nature of otherwise vibrant

informal social communication spaces and over reliance on governmental institutions to deal with occurring problems.

Despite the barriers identified, social learning in Tongan participatory problem solving arena has a lot of potential to evolve through time, especially since major political changes are on the way. While this study identified a number of limitations to social learning, it is not arguing that social learning should be overridden by other problem solving approaches be it regulatory, technical or market, although these could potentially play a complementary role in addressing the problem.

This study does however indicate the need for thoughtful preparation and organization of participatory problem solving processes in Tongatapu. It suggests that the emphasis on social learning in participatory problem solving is likely to be insufficient without a broader awareness of the socio-cultural context and awareness about local understanding of the problem itself. The study suggests there is a need to integrate the limiting effects of more permanent cultural characteristics when advocating for a social learning approach. Although the challenges may then appear to be considerably harder to overcome, the efforts will probably turn out to be more sustainable in the long term. Indeed such changes represent social learning by themselves.

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A Study of Sustainable Social Progress in the Kingdom of Tonga

Tim Taylor

Abstract

This chapter describes a preliminary study of sustainable social progress in the Kingdom of Tonga conducted following the 2009 report and recommendations of the Commission on the Measurement of Economic Performance and Social Progress (CMEPSP). Tonga appears to be making reasonable social progress according to GDP, the Human Development Index and Millennium Development Goals metrics. However, closer examination shows that hardship, inequality and other social problems are actually increasing in Tonga. Tonga's progress to date has also been socially and ecologically unsustainable in many ways. Future challenges to sustainable social progress will require social change to address these socio-ecological sustainability challenges. Examining different perspectives on eight key dimensions of wellbeing indicates that social progress has been uneven across different dimensions of Tongan's wellbeing. From these different perspectives an estimation is made of a plausible 'shared view' of Tongan priorities for social progress. The findings of this study indicate the importance of broadening a society's concept of 'development' into one of sustainable social progress. Such a transition needs to be far more comprehensively integrated into Tongan national development priorities and initiatives. However, this pilot study would need to be repeated on a much larger scale to produce sufficiently robust findings to guide policy making for sustainable social progress in Tonga. The general approach taken in this study is transferable to other social contexts to build a wider understanding of how sustainable social progress can be approached and ideally achieved around the world.

Key Words: Sustainability, social progress, progress indicators, Tonga, development objectives.

1. Introduction

In this chapter I present a preliminary examination of the extent to which the Kingdom of Tonga is achieving sustainable social progress. The study was based on the recent reports of the Commission on the Measurement of Economic Performance and Social Progress (CMEPSP), and their recommendation that societies need to shift how they conceptualise and measure social progress.¹ It is also informed by the work of the Commission's advisor Amartya Sen.²

The Kingdom of Tonga is a Polynesian island nation with a land area of 650 km² and an Exclusive Economic Zone that covers 700,000 km² of the Pacific Ocean. There is a resident population of approximately 100,000 people but it is

estimated that at least the same number of Tongans live overseas.³ Tonga has a relatively homogenous society, in which tradition and culture remain central to people's identity.⁴ It is also on island nations like Tonga that global sustainability challenges are often most apparent.⁵

In the first section of this chapter, Tonga's social progress to date is discussed using the established metrics of the Human Development Index and Millennium Development Goals, but supplemented with reports on trends in inequality, social problems and hardship. Secondly, ten significant socio-ecological challenges are examined, allowing for an assessment of the sustainability of Tonga's social progress to date and the difficulty of sustainably achieving future social progress. In the third part of this study different perspectives on eight key dimensions of wellbeing were examined in order to identify a plausible shared Tongan view of wellbeing and priorities for social progress.

The research was designed as a pilot study that could inform further research and debate on sustainable social progress priorities and measures in Tonga. It is also a contribution to the global discussion on measuring social progress that is being informed by the CMEPSP report.

2. Sustainable Social Progress

The CMEPSP was established to identify the limitations of Gross Domestic Product (GDP) as an indicator of economic performance and social progress, and to investigate alternative ways to measure social progress. The CMEPSP has recommended a shift in progress measures to focus on people's wellbeing, starting with eight wellbeing dimensions of universal importance.⁶ This approach follows Sen's arguments for the universal importance of instrumental freedoms as both the primary ends and means of development, and the inescapable need for public valuational judgements on what a society cares about and strives for.⁷ The CMEPSP suggests that countries need to identify a socially 'shared view' of wellbeing, and priorities for social progress that emphasise the importance of instrumental freedoms.⁸

The CMEPSP also distinguishes between assessing current levels of wellbeing and evaluating whether current levels of wellbeing can be sustained into the future, recommending use of a 'dashboard' of ecological sustainability indicators. However, consistency demands that such universal concerns for a fair distribution of wellbeing into the future must equally be applied to the poverty and inequality of wellbeing that exists today.⁹ Sustainable social progress can thus be achieved by reducing inequality and improving people's wellbeing in the present, as well as sustaining and improving wellbeing into the future within the world's ecological limits.

3. Methodology

This research was conducted for my Master's Thesis in sustainability science. Fieldwork was conducted over 10 weeks in Tonga from January to April 2010. Most of fieldwork was done around the capital Nuku'alofa on the main island of Tongatapu. A short visit was made to the outer island 'Eua'.

The *talanoa* technique was used to gather information through semi-structured and unstructured interviews, and focus-groups. *Talanoa* means collective discussion in which ideas are debated and knowledge is created, and such an approach is essential to gain meaningful knowledge in the Tongan social context.¹⁰ These findings were then developed through comparison with supporting literature sources of information. A descriptive approach was taken to analysing the information gathered, with the goal of reaching a useful understanding of the different parts of the study.

Identification of a plausible 'shared view' of priorities for social progress required an imaginative analytical step to consider how tensions between the different perspectives found during the study could be resolved through reasoned social choice. In doing so, Sen's reasoning was followed by assuming that instrumentally important capability and freedom dimensions of wellbeing must triumph through a reasoned social choice process. Subjective aspects of wellbeing are thus integrated in a way that should not conflict with instrumentally important aspects. This of course remains a somewhat broad estimation but it is sufficient for this preliminary investigation.¹¹

More research is certainly needed to expand this pilot study to establish detailed sustainable social progress indicators and policy objectives for Tonga. The ranking of wellbeing priorities was beyond the scope of this study, but this would be an important next step.

4. Measuring Tonga's Social Progress

The first part of this study examined Tonga's progress to date using the metrics of GDP, the Human Development Index and the Millennium Development Goals. The first impression given by these measures is that Tonga has been making reasonable social progress. Despite these indications, other studies show that that hardship and inequality are actually increasing and that wellbeing may overall be on the decline.

Tonga's real GDP growth rate over the last decade has averaged 2.5%. This economic progress is described in Tonga's *Strategic Development Plan Eight* (SDP8) as 'modest' but also characterised by rising inflation and continued dependence on aid and remittances.¹²

Tonga ranks reasonably well on the Human Development Index (HDI) at 99th of 182 countries. However, Tonga's HDI score has risen little in the last ten years meaning that Tonga has actually slipped from 54th place and from 'high' to 'medium' human development category since the 2005 HDI report.¹³

While an improvement on GDP alone, the HDI still misses many important dimensions of wellbeing. There is an acknowledged increase in social problems in Tonga such as crime, youth unemployment, income inequality, environmental degradation and cultural erosion. These trends are hard to reconcile with the ‘substantial’ social progress that is reported in SDP8 based on the 2005 HDI report, though they are difficult to quantify given the lack of relevant data. This reinforces the CMEPSP’s recommendation that countries need to significantly broaden their statistical information as the basis for more representative assessments of progress.¹⁴

Tonga reports ‘good and steady’ progress towards poverty reduction and achieving the Millennium Development Goals. But when poverty is more appropriately conceptualised for Tonga as ‘hardship’ or difficulty in meeting one’s social obligations, hardship is actually increasing for many Tongans as the shift to a cash economy continues.¹⁵

5. Sustainability Challenges in Tonga

The second part of the study was to examine a set of ten significant socio-ecological challenges to the sustainability of Tonga’s social progress: land, freshwater, oceans and fisheries, waste and pollution, geography and climate change, energy, a Migration, Remittances and Bureaucracy (MIRAB) economy, culture and tradition, governance and democracy, and social learning. Though this is by no means a complete set, it provided a useful overview of the sustainability of Tonga’s progress in two ways.

Firstly, even the partial information available on trends in Tonga’s ecological systems indicates that a heavy price has been paid for progress achieved to date. Resource degradation and pollution of land and coastal marine systems are already starting to impact on the health and wellbeing of Tongan people.¹⁶ This suggests that the ecological sustainability indicators proposed by the CMEPSP would already be showing yellow and red warning lights.

Secondly, these challenges illustrate the difficulty of sustainably making social progress in the future. Tonga has limited land and marine resources to utilise fairly and it is clear that existing degradation needs to be remedied. The effects of the current economic crisis appear to be validating long-held fears about the sustainability of Tonga’s MIRAB economy. Fossil fuel dependency and the expected effects of climate change are likely to exacerbate these existing economic and ecological challenges.¹⁷ On top of these risks, the greatest challenges are likely to be the social changes needed to achieve future sustainable social progress.

The immense challenge of social change is illustrated by the political reforms that are now underway in Tonga. Tongans are demanding greater accountability and reciprocity from their government, but by articulating these demands they are directly challenging the social system that is central to Tongan identity and wellbeing.¹⁸ At the same time, the hierarchy inherent to traditional Tongan society

is still used by those in power to defend a political system that restricts people's freedoms and impacts on their wellbeing.¹⁹

This leads to the paradoxical situation where culture and tradition are both barriers to and fundamental to making sustainable social progress. The South Pacific Commission (SPC) identifies this need for negotiated social change by suggesting that, 'the single greatest issue that must be solved for successful social development [in the Pacific] is how to reconcile the best of both traditional and modern worlds.'²⁰

6. A 'Shared View' of Wellbeing

The discussion so far has indicated that a broader assessment of wellbeing in Tonga is likely to show that social progress has stagnated or is even declining in some areas. Tonga's progress to date has also been ecologically unsustainable, and the sustainability of future social progress will be dependent on making challenging social changes. This supports that CMEPSP case that current approaches to 'development' are not sufficient and their recommendation that countries should work to identify a new 'shared view' of priorities for social progress.

As the SPC notes, in Tonga this means finding a reasoned balance between what are often competing traditional and modern values and perspectives. Tradition is seen as an important foundation for a distinctly Tongan concept of progress, but the need for aspects of Tongan culture to evolve is also acknowledged.²¹

Using the eight key dimensions of wellbeing highlighted by the CMEPSP as a starting point, I examined eight important dimensions of Tongan wellbeing: material living standards, health, education, the personal activities of work and church-going, political voice, social connections and land. Sure enough, this highlighted a number of tensions between different people's perspectives, but also between wellbeing dimensions. This is predicted by the CMEPSP and they emphasise the need to examine the complex interactions between dimensions. Priorities for social progress thus depend not only on *what* dimensions are important, but also *how* they are important.

This analysis can then be used in two ways. To further consider the extent of Tonga's social progress to date, and also plausible priorities for future progress. This will be discussed with the following three examples of social connections, land and education.

Family is fundamental to social connections within Tongan society. Over recent decades the dislocation of family ties has had a major impact on Tongan society. This has primarily been caused by migration in search of work and wages. Perhaps it could be argued that family is a relatively subjective dimension of wellbeing, but given the instrumentally important social security role of family in Tonga the weakening of family is hard to dismiss as an acceptable trade-off against other

dimensions of wellbeing. It is widely regarded as a key indicator of declining wellbeing that is missed by any conventional measure of progress.²²

Land demonstrates the importance of examining how key dimensions of wellbeing interact. The shortage of land, issues of gender equality and increasing landlessness indicate that some reform of the land tenure system is required, but land is of universal importance to Tongan's identity and economic security.²³ The reconciliation of competing perspectives would most likely prioritise reforms that ensure universal land entitlement.²⁴ This raises serious questions about past reform proposals to create freehold land with the sole aim of increasing wealth and material living standards. The limited trading of land leases presently allowed appears to have increased inequality, caused many breakdowns of family relations and reduced people's security and sense of identity in the process.

Education is another dimension of wellbeing that is universally regarded as being of utmost importance, but one that is not adequately measured. Tonga's high HDI score for literacy and school enrolment misses important failures of the Tongan education system to support social progress by providing youth with practical skills, traditional knowledge and encouragement to think critically. These are priorities for education and social progress that are not currently integrated into current measures of the education system.²⁵

These examples illustrate how taking the broader view of social progress advocated by the CMEPSP raises fundamental questions about the positive social progress being reported using GDP, the HDI or the MDG metrics. Recent progress in some wellbeing dimensions such as the economy appears to have come at the expense of other dimensions.

These examples also illustrate the complexity of reconciling different perspectives to reach a 'shared view' of priorities for social progress. However, as Sen argues, complete reconciliation of different perspectives is not necessary for making reasoned social judgements.²⁶ Bearing this in mind an estimation was made of plausible priorities for social progress in Tonga across the eight key dimensions of wellbeing. They are as follows:

- i. Raising material living standards while reemphasising the importance of collective wealth.
- ii. Improving public healthcare and reducing lifestyle diseases.
- iii. Emphasising practical skills, critical thinking and traditional knowledge in education.
- iv. Engaging youth into socially valuable work.
- v. Encouraging church-led community projects and rationalisation of church financial obligations.
- vi. Increasing accountability and moral responsibility of government.
- vii. Finding ways to restore and strengthen families.

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- viii. Pursuing land reforms that ensure universal entitlement to land to meet a family's basic-needs.

Integrating these priorities with the sustainability challenges described in section five provides a preliminary framework for sustainable social progress planning and measurement in Tonga.

It should be noted that there are parallels between the strategic objectives contained in the current Tongan *National Strategic Planning Framework* (NSPF) and the priorities for social progress suggested above.²⁷ This is an encouraging finding, but some substantial variations also exist and the NSPF does not comprehensively address most of the sustainability challenges discussed. Much remains to be integrated into current planning if sustainable social progress is to become a serious strategic vision, achievable through initiatives that tackle necessary but challenging social change.

7. Conclusions

The three parts of this study combine to indicate that social progress in Tonga has slowed and may well be declining, while it has been generally unsustainable and also uneven between different dimensions of Tongan's wellbeing. Tonga now faces significant challenges to making future sustainable social progress.

Many important priorities for social progress remain overlooked in current national planning and policymaking. There is also no indication that the extent of social change required is understood, or being integrated into a social or political vision for change. Much needs to be done to integrate priorities and initiatives for sustainable social progress into the national planning approach. Most importantly the need for social change to achieve sustainable social progress needs to be accepted, embraced and made the subject of reasoned social discussion and political debate.

As has been highlighted already, this study was only intended as a pilot study. More comprehensive fieldwork is required to expand on these preliminary findings and produce a robust enough report for policy making. Nevertheless, it is hoped that this study provides a useful starting point for such research as well as public discussion.

This study also highlights the importance of the CMEPSP report. By using the Commission's recommendations this study illustrates how progress metrics such as GDP, the Human Development Index and the Millennium Development Goals measure only the 'bare bones' of progress. This supports the CMEPSP case for a broader concept of progress in order to adequately measure and guide a society's sustainable social progress.

Given the theoretical weight behind the CMEPSP report and recommendations, these findings for Tonga are likely to have useful implications for other social contexts. There is likely to be value in conducting similar studies in other societies

as a step towards developing a ‘shared view’ of priorities for sustainable social progress.

Notes

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⁵ G. Baldacchino (ed), *A World of Islands: An Island Studies Reader*, Institute of Island Studies, University of Prince Edward Island, Charlottetown, 2007.

⁶ CMEPSP, p. 14.

⁷ Sen, *Development as Freedom*.

⁸ Sen, *Development as Freedom*, p. 75; CMEPSP, p. 18.

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¹⁰ S. Fua, ‘Ko Hota Fa’ungamotu’a Ko Jota Kaha’u - A Knowledge System for Redesigning Tongan Curriculum’, *Re-thinking Education Curricula in the Pacific: Challenges and Prospects*, Victoria University, Wellington, 2009, p. 209.

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¹³ CPD, pp. 1 & 33; UNDP, *Human Development Report 2009 - Country Fact Sheet for Tonga*; UNDP, *Human Development Report 2009 - HDI Rankings*, 2009.

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Achieving Environmental Literacy through Educational Outreach in an Undergraduate Environmental Science Program

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Abstract

Environmental Literacy is a key component in the development of progress toward a sustainable earth, and the education of our youth is essential in solving our future environmental challenges. The Waynesburg University Department of Environmental Science (Waynesburg, PA, USA) has developed a sustainable educational outreach program which focuses on the environmental literacy of local primary and secondary school students. The service learning model was used to develop a unique way for students in the field of environmental science to apply the knowledge gained in the classroom to educate the youth of the community about environmental issues. Our University is located in the heart of Southwestern Pennsylvania coal mining country, where the importance of the preservation of natural habitats has largely been displaced by the economic benefits of coal mining for over two centuries. Educating the next generation of society to appreciate and respect local natural habitats, the role of fossil fuels in climate change, and sustainable energy alternatives has been at the forefront of our current goals. The framework used to develop the outreach program will be discussed, as well as its application to various projects which have been completed. Our program has experienced measured success for over 4 years, and has allowed our students to establish a deeper understanding of their roles as 'Environmental Ambassadors.' Their positive impact on Environmental Literacy has reached far beyond the University community.

Key Words: Community Outreach, Environmental Literacy, Environmental Science, Service-Learning.

1. Introduction

As an educator for five years in an undergraduate degree program in Environmental Science, I have learned some important lessons. I arrived at the position of a university professor circuitously after travelling along a diverse path of careers, from research scientist, to environmental consultant, to government policy writer, to middle school science and math teacher. I elected to become a college professor in order to share all of the real-world knowledge that I gained along the way, and to fulfil my desire to help students develop the professional skills and values which will be required to address the environmental issues that our society is facing now and in the future.

My first realization as a professor was that my vision of what it would be like to work with college students was somewhat obsolete, and that these were not the students that I sat with in the classroom ‘back in the day.’ The present day average American college student is not interested in learning from books, is bored with lectures and PowerPoint slides, and for the most part, feels that they are entitled to an ‘A’ because they paid for it. I began to explore this dilemma with the realization that the classroom is no longer a room in a building, but the earth at large, consisting of complex interrelationships between human society and ecosystems. Interactive educational approaches, which would help students realize that what they are learning could be used to understand these relationships and to address real-world environmental problems, were necessary. Incorporating service-learning into the environmental science curriculum provided a successful way to develop meaningful approaches to educating this new American college student, and has become the keystone of a successful outreach program in the K-12 classroom.

Service-learning (SL) ‘is an educational method, in which students perform meaningful service to meet community-identified needs while reflecting on their actions in a way that allows them to better understand course concepts, the role their discipline plays in society, and their civic identity.’¹ The ‘service’ component of SL is different than conventional volunteerism, because it provides the student the opportunity to incorporate what they are learning in their coursework into community action. I teach at Waynesburg University in Southwestern Pennsylvania, a small Christian university with an enrolment of 1300 undergraduates and a student/faculty ratio of 13:1. One of most distinguishing components of the education at Waynesburg is the commitment to SL, which strives to connect high-quality academic programs in all fields of study to the service of others, and provides funding to incorporate SL initiatives in all disciplines. I approached the challenge of using SL as an educational tool in my program enthusiastically, sensing the existence of a mutually beneficial relationship between SL and environmental studies which could promote environmental education on the college campus and in the community. I began to envision using this approach to accomplish two important goals: 1) to successfully prepare students enrolled in environmental science a deeper understanding of their academic content and how their education can be applied to solving real-world problems, and 2) providing the community with a sustainable approach to environmental literacy.

2. Adoption and Implementation of an Educational Outreach Program for Environmental Sustainability

Because of my past experience as a middle school educator, I recalled the important need to address the inadequacies of the K-12 science curriculum in helping students to understand and recognize local environmental problems, and providing students with a knowledge and appreciation of natural environments.

Questions like ‘why do we need nature?’, ‘are we environmental stewards?’, and ‘is more always better?’ are questions which should be investigated at all education levels. Environmental education has been promoted by US institutions for many years, as evidenced by this statement in a National Education Advisory Council Report to Congress in the year 2000:

Our nation’s future relies on a well-educated public to be wise stewards of the very environment that sustains us, our families and communities, and future generations. It is environmental education which can best help us as individuals make the complex, conceptual connections between economic prosperity, benefits to society, environmental health, and our own well being. Ultimately, the collective wisdom of our citizens, gained through education, will be the most compelling and most successful strategy for environmental management.²

Similar statements were echoed by the Nation Science Teachers Association in their Position Policy regarding environmental education for K-12 in 2003:

Environmental education should be a part of the school curriculum because student knowledge of environmental concepts establishes a foundation for their future understandings and actions as citizens. Central to environmental literacy is the ability of students to master critical-thinking skills that will prepare them to evaluate issues and make informed decisions regarding stewardship of the planet. The environment also offers a relevant context for the learning and integration of core content knowledge, making it an essential component of a comprehensive science education program.³

These noble declarations with good intentions compelled our US federal and state governments to appropriate funding to provide environmental education grants for K-12 schools. These appropriations were included in the ‘No Child Left Inside Act’ of 2009⁴, and even more recently the ‘Well Rounded Education’ program in the FY2011 budget.⁵ However, there are roadblocks between available funding and acquiring these funds to advance environmental programs in many American schools. Grants offered by these programs are not typically applied for by many K-12 schools because of a lack of information regarding these opportunities, a lack of time and intellectual resources to write grants, or a lack of enthusiasm and knowledge on the part of the administration or teachers. I have observed this situation in the locality of the USA in which I live. Waynesburg University is in Southwestern Pennsylvania, and I reside forty miles south in the

State of West Virginia. A significant portion of the community in this region of the country are economically dependent on the coal mining industry, with a blind eye or ignorance to the relationship of fossil fuels to climate change, and to the destruction of the land and watersheds associated with our oldest mountain range, the Appalachian Mountains. West Virginia ranks last among America's greenest states at no. 50, because of pollution and toxic waste resulting from coal mining and mountain top removal, with no clear plans to do anything about it.⁶

I envisioned the role of undergraduate students as providing a resource for teachers at the local level to address these gaps in environmental literacy using the concepts learned in their course content. College-level science curriculum is often complex and difficult to comprehend without interactive approaches to learning. Developing lesson plans to teach science concepts to children reinforces an understanding of their coursework, while addressing the vital need to provide environmental education to the community at large.

3. Components and Implementation of a Model for SL-Based Environmental Outreach Program

Initiation and efforts to promote environmental literacy in local communities are at the very foundation of achieving a sustainable earth, and the achieving a relationship among individuals at all levels of environmental education will help to accomplish these goals. Components of our model for the development of a SL based Environmental Outreach Program for implementation in the K-12 classroom by undergraduate students are as follows:

A. Identify Courses and Content which can Incorporate Discipline-Based SL

Science courses with enrolments of 12-15 undergraduate students are most appropriate for the application of this type of SL-type program. Students are provided with and tested on the majority of academic content in the course before the development of the lesson plans for the primary and secondary level schools. Then students are asked to engage students in reflective discussions and writing assignments on how what they are learning in the classroom is related to local environmental problems. Environmental science course content is highly applicable to the development of 'place-based' lesson plans which address local environmental problems.

B. Select a Target Audience to Deliver the Information

We propose that the education of a new generation of environmentally conscientious individuals is key to the formation of ecologically sustainable communities, who will possess an intricate knowledge of the important relationships which must be developed between human societies and natural systems. Targeting local area schools helps children to develop a long-term perspective for restoring and preserving our natural environment. Addressing

controversial issues in our community such the impact of fossil fuel extraction on our land and water resources promotes critical thinking skills to address conflicting economic and environmental values, and promotes the development of individual perspectives.

C. Create a Framework to Communicate the Information to the Target Audience

Undergraduate students are divided into teams to create age appropriate lesson plans to communicate different environmental issues to the audience. Include in all lesson plans is a sustainable component which can be carried forward by the K-12 class in order to apply the knowledge which has been provided to address a local environmental issue. A student project leader oversees the process, to insure that all timelines are met and that all materials that are required for the lesson plans are obtained. Student teams develop an appropriate environmental unit, coordinate with teachers and schedule visits. Coordination efforts will require out-of-classroom commitments to insure successful execution of the program, and consideration of policies and procedures of individual partnering schools.

D. Present the Program to the Target Audience

Programs have been presented to both large and small groups of students on the university campus, in public and private schools, and on field trip excursions. A small group format is the most successful, with subject matter presented in a 'round robin' fashion, with students moving from station to station. Interactive lesson plans have been the most effective with all age groups.

E. Reflect upon the Value and Success of the Project

Both the presenters and the audience are asked to reflect upon the value of the learning experience. This information has been used to further enhance subsequent discipline-based service learning ventures, which has lead to our successful environmental outreach program. Reflection has been a key component in making our program sustainable for over 4 years.

4. Undergraduate Science Courses for which Model was Successfully Applied

We have applied this framework successfully at all levels of primary and secondary education, and examples of undergraduate courses and projects which were created using this model are listed below. In terms of affectively interacting with the community, approximately 300 students from 4 different local schools have benefited from these projects.

A. Environmental Science

- Students presented a program concerning local and global environmental issues to high school students. Topics included

interactive lessons concerning the global availability of clean water and food, and controversial issues such as the impacts of coal mining, natural gas extraction and investments in green energy alternatives. High school students were invited to actively participate in debates and discussions of issues.

- Students created and presented lesson plans for the local elementary school entitled ‘How To Be More Environmentally Friendly.’ Issues included deforestation, recycling, and growing their own plants. Students wrote and were awarded their own Community Impact Grant from Waynesburg University to carry out this project.
- Students developed a program for middle school students concerning climate change, and how these problems may be associated with human activities in their community.

B. Botany

- Students developed a program for local middle school students entitled ‘How Plants are Like People’ to explore and understand the anatomy and physiology of plants. This project helped middle school students prepare for the State of Pennsylvania environmental competition.
- Students developed a program to relay the importance of preserving local pollinators and native plants to middle school students, and created a pollinator garden at a local middle school.

C. Ecology

- Students developed a program to take local middle school students on a field trip to a local lake in WV to discuss lake ecology and local environmental pollution from the surrounding watershed.

5. Outcomes

Discipline-based SL greatly enhances the education of students in the Environmental Science program at Waynesburg University, and provides them with a reinforcement of curriculum and professional skills that are not as readily available in the traditional classroom. SL takes students out of their academic shelter and helps them to develop an understanding of how what they are learning in the classroom can be of benefit to the community. Developing lesson plans to teach environmental science concepts to younger students reinforces an

understanding of undergraduate coursework, while providing an engaging and relevant learning experience for the audience. Performing environmental outreach to local schools confirms to college students that their ability to teach is an important component of learning to communicate with people. In many facets of life, we are expected to teach something to someone else, whether it be to our own children or as the CEO of a high-powered organization. Students surprise themselves regarding their ability to relay complex information to children in an understandable way. The program also helps to promote feelings of self-worth and pride for the service mission of our university. Student reflections indicative of our success included the following:

After participating in such a service to the community, I have truly learned to a whole new perspective. I have learned to apply the knowledge I have learned thus far in my environmental science courses and teach it to a younger generation. My skills in environmental education have only improved since participating in this project.

Dorothy Rurak, Class of 2011

Service Learning in Botany was one of the most meaningful experiences I had in the Department of Biology. It not only help me to learn the course materials but it defines what Waynesburg is all about – which is service to the community.

Stephanie Gumina, Class of 2008

Undergraduates also learn to organize and present information to individuals at various levels of education, and the importance of establishing relationships that will enhance the ability of communities to ‘act locally’ in order to make a difference in the world. The SL-based framework can be applied by university educators in a variety of disciplines to promote environmental literacy across the curriculum and across the community. Establishing an interconnectedness of local educational institutions promotes a greater responsibility for the local environmental issues in the region. School children appreciate their learning interactions with college students and are attentive to their presentations. Children can be observed engaged in critical thinking during the program, helping them to establish their sense of place in the community and formulating the actions that it will take to sustain it. Many teachers who initially exhibited cynicism and weariness regarding the idea allowing undergraduates who ‘weren’t even education majors’ to be permitted to present a program in their classroom often inquire at the end, ‘when can you come back?’

Profound changes in values will be necessary in order to sustain our civilization, and environmental education with a firm sense of purpose is required

to assist in these changes. The need to create a community which is bonded in a knowledge of sustainability and ecological systems is echoed by the words of the renowned earth scholar Thomas Berry:

From here on, the primary judgment of all human institutions, professions, programs and activities will be determined by the extent to which they inhibit, ignore, or foster a mutually-enhancing human – Earth relationship.⁷

Environmental programs in higher education need to focus on motivating students to promote human-earth relationships, where efforts can lead to the community embracement of sustainable values. Adopting a SL-based outreach program in my classroom has helped me to kindle ingenuity, drive and intellectual power in my students, and to prepare them for their roles as our environmental leaders of the future.

Notes

¹ Spring Service Learning Network, ‘Definition of Service Learning’, Accessed May 21, 2010, <http://www.duq.edu/service-learning/spring>.

² Chesapeake Bay Foundation, excerpt from National Environmental Education Advisory Council, Report to Congress, September 2000, Date Accessed August 1, 2010, <http://www.cbf.org/Page.aspx?pid=947>.

³ National Science Teachers Association, excerpt from Policy Position of the National Teachers Association, (Pub. 2003) Date Accessed, May 21, 2010, <http://www.nsta.org/about/positions/environmental.aspx>.

⁴ J. Reed, No Child Left inside Act of 2009. (H.R. 2054/S. 866), Accessed, May 17, 2010, <http://www.opencongress.org/bill/111-h2054/show>.

⁵ US Department of Education, Fiscal Year 2011 Budget Summary – February 1st 2010, Section 1: Summary of the 2011 Budget, Updated May 28th 2010, Accessed May 28th, 2010, <http://www2.ed.gov/about/overview/budget/budget11/summary/edlite-section1.html>.

⁶ B. Wingfield and M. Marcus, *America’s Greenest States*, Forbes Magazine Online, October 10, 2007, Updated May 15, 2011, Accessed May 15, 2011, http://www.forbes.com/2007/10/16/environment-energy-vermont-biz-beltway-cx_bw_mm_1017greenstates.html.

⁷ T. Berry, Transcription of Video shot by Caroline Webb with Thomas Berry in February 2006, Website created in 2007, Date Accessed May 6, 2010, <http://www.earth-community.org/quotes.htm>.

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PART III

Environmental Justice and the Law

Hunting Laws and the Animals

Christos Tsaitouridis

Abstract

It seems that there was never a dispute about a right to violence and a right to carry arms, when the issue was hunting wild birds and other animals. Maybe that's why audiences were shocked by Alfred Hitchcock's *The Birds*, which reversed the familiar representations of the hunter and the prey. However, things seem to have changed and this kind of intervention in the forest and wetland ecosystems is no longer considered a kind of a 'natural' right. Instead, we seem gradually to realize that the privilege of the hunter risks the rights of every citizen to enjoy a world of biodiversity. Maybe we should ask the question on animal rights starting from the regulation of hunting – a matter both of good environmental governance and of justice to wildlife. Drawing examples from the hunting laws and the legislation on the protection of wild birds in Greece and Cyprus, the chapter focuses on controversial issues concerning a right to hunt, hunting as a kind of sport, the abolition of hunting and the role of the state in the legal regulation of hunting. In the end, the chapter definitely argues that the treatment of animals as game should be an absolute exception and proposes a conception of environmental law mainly as a law of ecosystems aiming to improve the quality of life.

Key Words: Hunting, game laws, biodiversity, animal rights, cruel sports, Natura 2000 Network, endangered species.

1. Introduction

It seems that there was never a dispute about a right to violence and a right to carry arms, when the issue was hunting wild birds and mammals. Maybe that's why audiences were shocked by Alfred Hitchcock's *The Birds*, which reversed the familiar representations of the 'game'. What is the cause of the terror that even nowadays this movie brings upon our hearts and minds? What is shockingly awkward is most probably the reversal of the 'natural' order in the relation between the hunter and the prey. One should also note that in the same movie the images of wild birds attacking humans, even children, are juxtaposed to the one of the 'lovebirds', the parrots born and raised in cages, which not for a minute do they show signs of aggressiveness towards humans.

The use of animals for food or for scientific purposes and experimentation raise often many questions of morality and reformation of the law. Let us not forget animals as game; the laws on hunting (the *game laws*),¹ up until recently provided mostly for the formal presuppositions for one to become a hunter and knew very few prohibitions. However, hunting is surely one important aspect of the man –

animal relation that civilization and law have built. Yet, it seems that one crucial part of hunting laws evaded legal theory: the law is about a power (or is it a right?) to carry arms and, even more, it's about a license to kill – animals, or rather wildlife. How come the laws on hunting are not mentioned as one instance of the law's bond with force? Why is legal lethal force against wildlife not considered to be a part of law's violence?² Probably because the power of men over animals is in general not considered to be an aspect of the law's violence.

2. Hunting vs. Biodiversity

This essay aims to present some of the theoretical issues that derive from game laws, explain their place in public law and question their integration in modern environmental law. Is there a right to kill wild animals, to be a hunter, that has a constitutional basis – some kind of peculiar civil right? Does the relevant permit not conflict everyone's right to enjoy the natural environment and a nature of biodiversity? Should wild animals be considered legally as things, on the threshold of private property, or common goods?

We could agree that things seem to have changed and that hunting, as a form of radical intervention, in the forest and wetland ecosystems no longer has the status of a 'natural' right. Instead, we seem to realize that the privileges the hunter enjoyed up until recently now risk the rights of every citizen to enjoy a natural world of ecosystems rich in biodiversity. My argument is that hunting laws are but *a relic in public law*, slowly but steadily covered with the dust of modern environmental law, which focused on the preservation of biodiversity and provides the basis for a right to the environment.

In European Law the *Natura 2000* (92/43/EC) and the *Birds* (72/49/EC and recently 2009/147/EC) *Directives*, which form the basis for the creation of the Natura 2000 network, changed the scene, first and foremost by introducing a major change: hunting becomes the exception and not the rule in these protected areas.³ It has been the protection of wild birds, not just as endangered species, which brought a whole new conception of environmental law and initiated the most extensive restrictions on hunting. It is true that it is not a priori forbidden to hunt in the protected areas of the Natura 2000 sites and obviously there is no such rule. However, the limits to hunting are crucial and transform the 'core' of the hunting activity. The Directives set time and space limits to hunting, as also limitations to the methods of hunting. The purpose is to protect the ecological balance and integrity of the ecosystems and also to preserve the biodiversity of the sites, which are considered as a *natural heritage* for all Europe.

Furthermore, the law imposes limits concerning the object of this controversial activity: the game is reduced to species which – as proven by environmental studies - are in, a relative or not, abundance. Undoubtedly, environmental law values biodiversity⁴ more than the enjoyment of hunting and fishing (let us not forget wildlife under water) which are considered as a source of threat to the

balance of ecosystems and habitats. In fact, we should view the restrictions on hunting as part of a wider system of legal rules aiming to protect endangered species, which number million in the form of toys and dolls but very few as actual animals. We refer to legislation on the protection e.g. of bear and wolf in Greece, agrino (wild goat) in Cyprus, and of course species in national parks in Africa and Asia (let us mention only the Panda bear in China and we would definitely need to devote a full essay on the prohibitions concerning whale hunting).⁵

These laws, part of the core of modern environmental law, aim also to unify the formal and substantial criteria concerning hunting in the member states of European Union. This comes not only from the nature of European Law, but also from the fundamental rules of the relevant legislation, which prioritize the value of preserving important ecosystems according to their aesthetic importance, as also their importance as habitats of wildlife. I believe this is one instance when environmental justice and global citizenship bond: the creation of a new normativity, of inter – national legal rules for the protection of biodiversity, so as to overcome the pressures from the normality of hunting at the local level.

Greece and Cyprus have integrated the above E.E.C. Directives in their national legal system, although great delays concerning the inclusion of major areas in the Natura 2000 network are characteristic for both countries, partly because of the hunters' associations' reactions. On the one hand, the Supreme Courts of Greece and Cyprus have both underlined the significance of environmental law so as to impose specific limitations to hunting; on the other the administration of both countries (especially of Greece) 'bends' crucial regulations or tolerates breaches of law so as to minimize the above mentioned limits on hunting. It is worth noting that the competent authorities tolerate and leave unpunished certain 'customary' practices of hunting in specific areas of Greece and Cyprus concerning certain sites and species.

3. The Right to Hunt vs. the Right to the Environment

Having in mind the above, it is no wonder that the national legislator and the administration face great difficulties when trying to satisfy the contradictory demands of the hunters and of environmental NGOs. Usually the outcome is in favor of those who, due to the size of their unions, influence most politics, economy and society. For example, after the devastating forest fires in Greece in the years 2007 and 2009, most local administrations and forest authorities refused or delayed the issue of administrative acts prohibiting hunting in the areas affected by the fires.

Animals as 'game' - when they can only be the losers! So, we have to face the question: is there a legal right to hunt?⁶ We will argue that the protection of the public or general interest, as also the right to the environment,⁷ entail the state's duty to treat hunting as *prima facie* incompatible or hardly compatible with the protection of wildlife and biodiversity in fauna. Undoubtedly, there is hardly a

connection between hunting and the fulfillment of the need for food, at least in western and in all developed countries. Therefore, a right to hunt is associated by lawyer with the right to privacy and the general right to personal freedom as a form of choosing a type of sport and recreation. Subsequently, a right to hunt is associated with economic freedom at least from the part of those who profit from the business of hunting.

However, a ‘right’ to hunt can hardly be considered as a form of a fundamental (civil) right, since it involves expression with armed lethal violence. I believe that this characteristic makes hunting, in a strictly legal sense, not qualified as a sport activity. Furthermore, the view of hunting as a right, e.g. under the premises of sport or, in general, recreational activities, suggests the treatment of wild species only as ‘things’ and more or less equates them legally with domestic and farm animals. Such a treatment of wild animals cannot be accepted and contradicts environmental and public law, which define wildlife as ‘heritage’ and therefore as a common good.

Apparently in European societies the moral and legal treatment of animals gradually changes. As it well known Germany revised its constitution and specifically Article 20A in 2004, so that animals, a part of the environment of humans, enjoy constitutional protection. In a way Germany became the first country to guarantee constitutional protection and some kind of animal rights in its *Grundgesetz*. According to this provision on the *Protection of Natural Resources*:

The state, also in its responsibility for future generations protects the natural foundations of life *and the animals* in the framework of the constitutional order, by legislation and, according to law and justice, by executive and judiciary.⁸

The state’s duty to protect animals must unavoidably be weighed with the liberties and rights of those who involve animals in their activities. Obviously, the traditional man – animal relation needs to be changed and in fact it is constantly being transformed, whether it is legislation on the use of animals in laboratories or in farms or in sports. In the UK the legislation on fox hunting, the Hunting Act 2004 which provided for criminal offences concerning fox hunting and organized hare coursing, was the result of an intense debate on animal welfare standards and on cruel sports.

The law was challenged both in English courts and also in the European Court of Human Rights and was found in harmony with the European Treaty and the European Convention of Human Rights. The main legal arguments of the Countryside Alliance were that the Act breached their right to privacy, to property and to economic freedom. Interestingly, the House of Lords in 2007 and the European Court in 2009 agreed on crucial points of their legal judgments. First, that fox hunting is ‘a very public activity’ and the land on which the sport activity

takes place cannot be legally equated with 'home'. This means that there is no legitimate argument based on the right to privacy. Secondly, although the argument about the restriction to the free use of property of the landowners is considered valid and in entails certain economic rights, the judges found that there is no contradiction with the Treaty and the Convention, because in this case the protection of animal welfare and the abolition of a cruel sport are expressions of 'the general interest' and of the 'protection of morals', which are the legal basis for a legitimate restriction on these human rights.

There is of course an objection; it is argued that there 'sustainable hunting' is possible and it does conform to the prescriptions of environmental law. Indeed, the reorganization of hunting according to the principle of sustainability seems like a pragmatic approach to the problem and a logical consequence of environmental laws.⁹ The European Commission issued in 2007 the *Charter of Sustainable Hunting* in Natura 2000 areas, after an agreement between Birdlife International and FACE, the federation of hunters associations in Europe. The Charter emphasizes issues of proper education and scientific data on the population of the game, which have to be taken into account by the states and the hunters for the organization of the activity. Sustainable hunting also reveals the true nature of hunting today: an activity which very little has to do with the hunter's wish to enjoy nature and is closely connected with economic enterprises, tourism and entertainment. Under this light, there is definitely a need to restrict hunting according to environmental studies and the results of public deliberation among state officials, hunters association and environmental NGOs. However, the direction of legislation should stay on this course: hunting can only be exception.

4. Conclusion

Maybe we should start asking the questions on animal rights¹⁰ starting from the regulation of hunting – a matter both of good environmental governance and of justice to wildlife. The evaluation of wildlife in our civilization is also changing, gaining importance as a sine qua non element of well being, of our quality of life. As we implied above, the legal power of hunting is in fact that of a custom. The case of fox hunting, associated with strict rituals and traditions as also with the habits of a certain social class, comes as proof of the argument. Hunting owes it normative force to the its practice, however it seems that the time has come for this practice to obviously contradict the needs of the majority and the rights of everyone to enjoy a natural environment of biodiversity and of high aesthetic value.

The new laws on hunting, part of modern environmental and animal welfare standards legislation can be understood as a demand of justice, environmental justice, not only towards animals but also towards all those who wish to live in peace with nature. In this perspective, traditional game laws in principle contradict modern environmental law and what from a legal point of view at stake, as a matter

of environmental justice, is the antithesis of a general law to the local custom. The reevaluation of wildlife in our civilization calls for the preservation not of a custom but of life.

Notes

¹ For the purposes of this chapter and for some obvious legal and historical reasons, we shall not extend our reflections on fishing as a sport and a recreational activity.

² On the question of the law's bond with force and violence see, among others, C. Douzinas & A. Geary, *Critical Jurisprudence*, Hart Publishing, Oxford – Portland Oregon, 2005.

³ For an introduction to the principles of modern environmental law see, among others, D. Wilkinson, *Environment and Law*, Routledge, London, 2002.

⁴ An introduction to the notion and meanings of 'biodiversity' can be found in M. Stallworthy, *Understanding Environmental Law*, Sweet and Maxwell, 2008.

⁵ For the protection of endangered species in international law, especially the whale, see P. Birnie, A. Boyle and C. Redgwell, *International Law and the Environment*, Oxford University Press, Oxford, 2009.

⁶ For an introduction to the history and the modern conception of human rights see C. Douzinas, *The End of Human Rights*, Hart Publishing, Oxford, 2000.

⁷ The right to a healthy environment is provided either by the law or even by the constitution, e.g. the Greek constitution in Article 24.

⁸ See Article 20A of the German Constitution.

⁹ Andreas Philippopoulos – Michalopoulos explains in depth the notion of *sustainability* in A. Philippopoulos–Michalopoulos, *Absent Environments*, Routledge Cavedish, Abingdon / Oxon, 2007.

¹⁰ A great introduction to the problematic of the so called *animal rights* is C.R. Sunstein & M.C. Nussbaum, *Animal Rights*, Oxford University Press, New York, 2004.

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Inequality, Exclusion and Discrimination: The Mexican Biosafety Law

Wendy Cano and Andoni Ibarra

Abstract

The relationship between society and nature is clearly represented in the coevolution of maize and the Mesoamerican communities, a strong bond built ten thousand years ago due to the domestication of maize by the people and the domestication of the people by the maize. The hybridization of maize with nature and culture made unbearable the idea of thinking the possibilities and risks offered by the genetic modification as a simple scientific problem. In Mexico, the coexistence of multiple cultures and knowledge made almost impossible to regulate the genetic modified crops by a reductionist and monolithic law in transgenic matter. Using a social network analysis we studied the actors involved in the genetic modified debate. Surprisingly, the study revealed that Mexican Law on Biosafety excludes the plural composition of the Mexican culture and the participation of others knowledge besides science. This exclusion denies the potential of the non experts to change and transform the asymmetric conditions and inequality that have affected them for many decades. Moreover, the results indicate a clear concern on cultural changes with the release of GM maize, and also show a change in the original network structure which explains that the interactions connecting central actors affect perceptions, attitudes and actions. Nevertheless, in a conflictive, corrupt and demoralize country as Mexico, this change will not be significant until the state changes and allows the participation of a variety of actors with different institutional standings and diverse organizational forms (an active and real democracy).

Key Words: GM, maize, biosafety, law, social network analysis, Mexico.

1. Diversity of Landraces: The Result of a Diversity of Knowledge, Preferences and Practices

The relation between society and nature is clearly represented by the coevolution of the maize and the indigenous people as a result of a complex domestication process.¹ Arellano notes that there is interdependence between the nature of the maize and the Mesoamerican culture.² The maize diversity in Mexico results from the complex interaction between biological and sociocultural factors:

Mexico is a centre of diversity because farmers domesticated maize and since then have been able to diversify the crop through

constant divergent selection into many landraces and populations to fit their own needs, both cultural and agronomic.³

In traditional agriculture, indigenous farmers plant landraces and also improve varieties of plants through their knowledge, preferences and practices. They have also generated strategies to ensure self-sufficiency and beneficial synergisms that allow them to optimize their crops, pest control, soil fertility and productivity in an ecological and sustainable way.⁴ The current races of maize in Mexico⁵ reflect the diversity of indigenous groups⁶ with different needs, values and interests in a specific trait. They value these different traits because most indigenous farmers consume what they produce.⁷ Traditional agriculture allowed farmers to plant a heterogeneous landscape in which numerous maize populations coexist even in the same community.⁸ The trade of seeds is a very common practice among indigenous families and communities as well as the saving of seeds from one season to the next one.⁹ These practices that have been used since the domestication of the maize 9,000 years ago not only ensure the diversity of races of maize over time, but also ensure the diversification of cultural ways of living.

Over decades traditional practices and knowledge were (and still are) discriminated and underestimated. Moreover, the reports of transgenes in maize landraces have shown that the effects of scientific practices do have unpredictable consequences and even impacts on socio-cultural practices.¹⁰

Even though Mexico has a Biosafety Law (LBOGM), before 2005 there was only a fragmented legal framework for the regulations of biotechnological activities and biosafety.¹¹ Actors that participate in the creation, use, or regulation of this biotechnological process had their own interests and perspectives on the regulatory process. In this chapter we analyzed the actors involved before and after the creation of the LBOGM in order to identify their positions on the social networks of biosafety.

2. The Scene before the Mexican Biosafety Law

In 1988 the permits to release transgenic crops had been granted by the General Directorate of Plant Health (DGSV) of the Secretary of Agricultural, Livestock and Rural Development (SAGAR). At this stage, Mexico had some laws and norms to regulate the agricultural and environmental aspects of biotechnology and biosafety.¹² Apparently there were no problems for the organizations that wanted to test on field their crops. By 1999, there were 141 permits to release transgenic material in Mexico and test traits such as insect resistance, herbicide tolerance, or virus resistance.¹³ Academic and research institutions had also conducted field trials as a part of the development of socially oriented products, for example, the virus resistance potato variety developed by the Center for Research and Advanced Studies (CINVESTAV) in collaboration with Monsanto and the funding from the Rockefeller Foundation.¹⁴ However, these social technologies were thought to

The DGSV was in charge to approve the field trials, the exportations and importations of the GMOs. The consulting body of the DGSV was the National Biosafety Committee on Agriculture (CNBA). The CNBA reviewed the permits and the risk assessment. Both institutions had the most centrality in the network. They were in charge to check all the permits and to grant the biosafety in Mexico. Biosafety process at this stage involved scientific practices but did not consider the possible risks effects or even more, the socio cultural impacts that traditional farmers could have in case GMOs were used. It is important to remember that GMOs were created for specific farmers with specific problems mainly in developed countries, for example, the transgenic cotton that is used successfully by industrialized farmers in some countries. Actors involved in the legislative process were the same actors that had been developed and worked with GMOs since the beginning.

Mexico, as a member of international agreements needed to implement a biosafety law to comply with its international environmental and commercial commitments (e.g. the North American Free Trade Agreement (NAFTA)). Moreover, Mexico has the obligation to protect, conserve and preserve its biodiversity, and, needless to say, maize, since maize is the staple food of Mexican with cultural, nutritional, historical, environmental, symbolic, religious, social, and economic significance.

3. The Creation of the Inter-Secretarial Commission on Biosafety and Genetically Modified Organisms

On November 5, 1999 the Inter-Secretarial Commission on Biosafety and Genetically Modified Organisms (CIBIOGEM) was created to provide scientific advice regarding biosafety. Its main goal is to protect health and preserve Mexican biological resources. CIBIOGEM is composed by representatives from the Secretariat of Health (SSA), SAGARPA, Secretariat of Environment and Natural Resources (SEMARNAT), the Secretariat of Finance and Public Credit (SHCP), the Secretariat of Education (SEP), the Secretariat of Economy (SE) and the Mexican National Council of Science and Technology (CONACYT).

In 2002 the Mexican Congress created Committees for Science and Technology, Environment, Natural Resources and Fisheries to conduct an investigation that contemplate its international obligations to promote free trade and at the same time preserve its biological resources. They concluded that the use of GMOs could provide a venue for the country to develop economically.¹⁵ However, they did not take into consideration the importance of social and cultural implications in a diverse country such as Mexico.

Finally, the Mexican Biosafety Law (LBOGM) was published on March 18, 2005 and it was designed to comply with the provisions of the Cartagena Protocol on Biosafety. The LBOGM provides the guidelines for the release of GMO's into the environment. In all these processes there were actors that were totally excluded

indigenous communities can contribute to undertake a risk assessment and risk management of GMOs based on their knowledge, needs, practices and culture.

4. The Scene after the Mexican Biosafety Law

The Scientific Advisory Board (CCB) that supports CIBIOGEM is composed by 13 experts from research institutions, academic institutions, scientific societies and universities. They are consulted on issues of modern biotechnology and GMOs safety. CIBIOGEM has the responsibility to control the release of GMO's into the environment and to establish and coordinate biosafety measures in Mexico. The participation of the National Commission for the Use and Knowledge of Biodiversity (CONABIO) is just as a consultative body. It provides information on biodiversity, risk evaluation methodologies and database support. This commission could help CIBIOGEM to understand the importance of diversity in Mexico, not only the biological diversity, but also the cultural one. Unfortunately, the reports provided by CONABIO are only for informative purposes.

In the network structure represented in figure 3, there is a clear separation by groups. The first group is formed by private companies (blue) that have links with commercial organizations and farmers (purple) that used transgenic crops. This group is linked together by AGROBIO and has almost the same perspectives on import-export and the use of transgenic crops. CIBIOGEM group is divided in two. In the first subgroup, CIBIOGEM coordinates the participation of the main Mexican secretariats. The LBOGM establishes that CIBIOGEM must promote the participation of all sectors that have experience in issues directly related by biosafety, including the academic, scientific, technological, indigenous communities, social and productive sectors. But when we contrast the written law with reality, we can observe that there are no real or significant links between CIBIOGEM and its technical and advisory groups (CCB) with other sectors. Also, one condition to participate is to have previous experience in biosafety issues or related to it. This evidences that the LBOGM was conceived under scientific standards where only scientific knowledge and practices were adequate.

The participation of other actors is not directly within the LBOGM because the law does not mention them; it only specifies the participation of experts that are in charge of the biosafety of the Mexican population (in a paternalistic manner). On the other hand, NGOs such as Greenpeace have had a relevant participation in the GMOs debate, and since 1998 it has acquired great power to call different NGOs that were worried by the possible risks of the GMOs and the unequal participation on these issues.

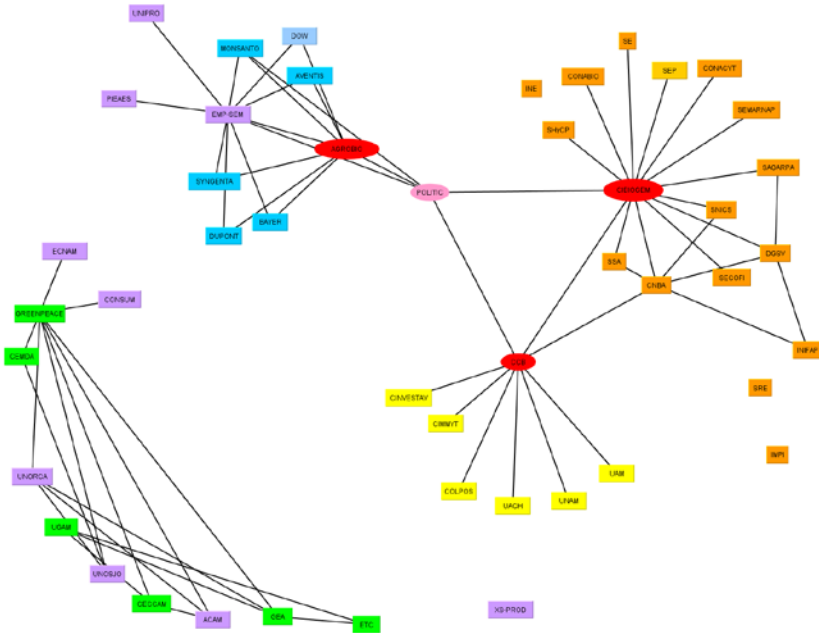


Figure 3.

The centrality of the network is in two main groups represented by CIBIOGEM with its advisors (CCB) and REDBIO (red). The creation of new actors only changes the structure of the network but does not incorporate new actors. NGOs started a mobilization and public campaigns to aware of the risks of GMOs. These organizations created strong links with farmers and indigenous associations that work together to defend their points of view.

5. Power Still Remains in the Same Actors

When analyzing the networks, in spite of the change of structure, we can see and identify that actors with more centrality (power) are still the same. It is clear that public participation is not relevant for scientific and technical decisions. There is no real contribution inside CIBIOGEM from NGOs or traditional farmers.

There are many problems with the Biosafety Law, mainly because it was developed under pressure, and scientific and political actors that supported law initiatives could not conceive a law that included the participation of those directly involved such as traditional farmers. There was a missing legislation regarding the experimental release and commercialization of GMOs. Also, a limited experience

with GMOs and of course limited scientific and technological capabilities to assess the risk of GMOs. We also have to consider that all the substantial areas rich in biodiversity and the indigenous populations that inhabit there need to be part of the legislative process. Additionally, Mexico has the extra-risk of the presence of wild relatives of one or more cultivated species for which a transgenic derivate exists.

All these problems from a philosophical point of view are part of the reductionist approach that scientists have, use and believe to interpret the world. Scientific practices consider that science can predict the cause and effect of any event. However, this reductionist view is not adequate to assess and understand the global and local context of the implications of the GMOs. Perhaps there is no adequate approach to understand all the impacts or benefits of the GMOs, but there are other models to improve the participation of more actors and have a better attitude to accept and deal with a diversity of knowledge, cultures and ways of living to understand the world. A dialectic conception of the living organisms can help to understand the existence of relations between all the organisms, from the simplest to the most complex ones. It is a view founded in relations which can help to develop the social cohesion that lacks our actual societies. Even more, it can reduce the inequality and strengthen the individual autonomy in a solidarity context and social implication. Relations help individuals to look after each other and to promote cultural, epistemological and axiological sides of diversity. Under this model, traditional farmers could be immerse in the legislative process on biosafety, all their knowledge and practices would be considered valuable and their participation and implication would be part of a real democratic process.

Public participation provides the means to make better decisions. The participatory process empowers citizens and reduces conflicts because it increases awareness, understanding and commitment. However, in Mexico, there are many personal, economical, and political interests that avoid having a real public participation. There is no ethical analysis on GMOs carried out by other actors besides experts. Moreover, it is clear that the same law denies the potential of non experts to change and transform the asymmetric conditions and inequality regarding the biosafety of their own crops. Monitoring is an important step on the biosafety process and in this stage participation of farmers is vital. Nevertheless, the LBOGM does not specify the way in which this process is carried out. The early detection of environmental damage or negative influence on the environment could be perceived easily by the farmers who have all the traditional knowledge and a close relationship with the environment.

The LBOGM exclude the participation of other knowledge besides science, and other actors besides experts. Doing so, it denies the existence of the diversity of the country. Mexico cannot be treated as a homogeneous entity, because it has a great diversity in cultures, knowledge, languages, problems, and realities.

It could be an improvement if governmental systems find a way to adapt themselves to the sociocultural characteristics of populations and answer the needs

and specific demands of every cultural community. Besides the active participation in all technological and social change there is a need to develop regulative and legal frameworks and institutions that in fact help to control and allow a major social participation in Mexico.

Notes

¹ M. Olivo, P. Alarcón-Chaires and L. Solís, 'Los pueblos del maíz. Nomenclatura Indígena de una planta sagrada', *Etnoecológica*, Vol. 6, 2001, pp. 103-106.

² A.H. Arellano, *La construcción social de los objetos técnicos agrícolas. Antropología de la hibridación del maíz y de los agricultores de los Valles Altos de México*, UAEM, Toluca, México, 1999, p. 33.

³ M.R. Bellon and J. Berthaud, 'Traditional Mexican Agricultural Systems and the Potential Impacts of Transgenic Varieties on Maize Diversity', *Agriculture and Human Values*, Vol. 23, 2006, pp. 3-14.

⁴ M.A. Altieri, *Agroecology: The Science of Sustainable Agriculture*, Westview Press, Boulder, CO, 1995, p. 125.

⁵ There are 59 races of maize in Mexico described by J.G. Sanchez, M.M. Goodman and C.W. Struber, 'Isoenzymatic and Morphological Diversity in the Races of Maize in Mexico', *Economic Botany*, Vol. 54, 2000, pp. 43-59. The races in maize are described at the level of phenotype, first proposed by E. Anderson and H. Cutler, 'Races of Zea Mays: I. Their Recognition and Classification', *Annals of the Missouri Botanical Garden*, Vol. 21, 1942, pp. 69-88.

⁶ In Mexico there are 61 indigenous groups with 291 dialects that represent the 12% of the current Mexican population.

⁷ M.R. Bellon, 'The Dynamics of Crop Intraspecific Diversity: A Conceptual Framework at the Farmer Level', *Economy Botany*, Vol. 50, 1996, pp. 26-39 & 125.

⁸ Mexico is also the primary centre of diversification of 130 plants and secondary centre of many crops such as potato, vanilla, and pines; for example, B.T. Styles, 'The Genus Pinus: A Mexican Purview', *Biological Diversity of Mexico: Origins and Distribution*, T.P. Ramamoorthy, R. Bye, A. Lot and J. Fa (eds), Oxford University Press, Oxford, 1993, pp. 397-420; K.C. Nixon, 'The Genus Quercus in Mexico', *Biological Diversity of Mexico: Origins and Distribution*, T.P. Ramamoorthy, R. Bye, A. Lot and J. Fa (eds), Oxford University Press, Oxford, 1993, pp. 447-458; E. Hernández-Xolocotzi, 'Aspectos de la domesticación de plantas en México: una apreciación personal', *Diversidad Biológica de México*, T. P. Ramamoorthy, R. Bye, A. Lot and J. Fa. (eds), Instituto de Biología. Universidad Autónoma de México, 1998, pp. 715-735.

⁹ E.J. Wellhausen, L.M. Roberts, E. Hernández-Xolocotzi and P.C. Mangelsdorf, *Races of Maize in Mexico: Their Origin, Characteristics, and Distribution*, The Bussey Institution, Harvard University, Cambridge Massachusetts, 1952, p. 75.

¹⁰ The pressure exerted by environmentalists, public and some scientists was increased with appearance of information concerning the safety of GMOs in scientific journals such as P. Christou, 'No Credible Scientific Evidence is Presented to Support Claims that Transgenic DNA was Introgressed into Traditional Maize Landraces in Oaxaca, Mexico', *Transgenic Research*, Vol. 11, 2002, pp. iii-v; N. Kaplinsky, D. Braun, D. Lisch, A. Hay, S. Hake and M. Freeling, 'Maize Transgene Results in Mexico are Artefacts', *Nature*, Vol. 416, 2002, pp. 601-602.; J.E. Losey, L.S. Rayor and M.E. Carter, 'Transgenic Pollen Harms Monarch Larvae', *Nature*, Vol. 399, 1999, p. 214; M. Metz and J. Fütterer, 'Suspect Evidence of Transgenic Contamination', *Nature*, Vol. 416, 2002, p. 600-601; and D. Quist and I.H. Chapela, 'Transgenic DNA Introgressed into Traditional Maize Landraces in Oaxaca, Mexico', *Nature*, Vol. 414, 2001, pp. 541-543.

¹¹ The Mexican Biosafety Law was published in the D.O.F. in March 18, 2005-Ley de Bioseguridad de Organismos Genéticamente Modificados (LBOGM).

¹² The NOM-056-FITO-1995 was the first Law governing GMO's in Mexico stated in 1996.

¹³ A. Álvarez-Morales, 'Mexico Ensuring Environmental Safety while Benefiting from Biotechnology', *Agricultural Biotechnology and the Poor*, Proceedings of an International Conference, G.J. Persley and M.M. Lantin (ed), Washington, D.C., 21-22 October 1999, p. 91.

¹⁴ M. Qaim, *Transgenic Virus Resistant Potatoes in Mexico: Potential Socioeconomic Implications of North-South Biotechnology Transfer*, Vol. 7, ISAAA Briefs, ISAAA, Ithaca, N.Y., 1998, p. 15.

¹⁵ A. Gutiérrez, *The Protection of Maize under the Mexican Biosafety Law: Environment and Trade*, Universitätsverlag Göttingen, 2010, p. 116.

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Rural Landholders in Queensland Australia: Legislation, Litigation and Litigants

Jo Kehoe

Abstract

The management of vegetation on rural land is a major law and policy issue not only within Queensland but also within Australia and globally. There has been limited scholarly research on this issue. Vegetation management legislation is essentially the regulation of land clearing and therefore has considerable implications for biodiversity and climate change. This is especially so for Queensland, where more than 141 million hectares of land is used for agriculture. The inevitable emergence of vegetation management as an environmental concern reflects, inter alia, growing environmental awareness and pressure for change from environmentalists. A primary focus of this chapter is the *Vegetation Management Act (1999)* (Qld), one of the most controversial pieces of legislation to be debated in the Queensland Parliament in the last decade. One particular area of contention following from this Act has been the litigation surrounding vegetation clearing offences. Consideration is therefore given to the complex web of state vegetation legislation and the attendant enforcement litigation of some clearing offences. The courts and judiciary present an important forum for testing the law and challenges to the Act may potentially provide practical precedent as evidenced in this chapter. Negotiating a proficient pathway through the justice system however requires competent legal representation; many perils await the injudicious litigant in person.

Key Words: Vegetation management, Queensland rural landholders, environmental litigation, environmental crime.

1. Introduction

Agriculture is one of the world's oldest industries. It is basic to human civilisation, fundamental to human survival and a major contributor to the economy of many nations. Yet it is also one of the principle causes of environmental degradation.¹

Rural landholders in Queensland have responsibility for 141.4 million hectares of land in the state.² In economic terms the total value of Queensland's primary industry commodities for 2008 to 2009 was just over \$13 billion with cattle being one of the highest value industries.³ Within Queensland much of this land is primarily used for livestock grazing.⁴ Predictably therefore the agricultural sector is one of the more significant contributors to greenhouse gas emissions in

Australia, accounting for 15.4 per cent of total greenhouse gas emissions.⁵ The exploitation and ultimate degradation of rural land has been generated and fostered by the ideologies of successive governmental policy and law. Growing environmental awareness and recognition of the devastating legacy of past rural land policy, together with political expediency, has rendered legislation regulating rural vegetation management in Queensland inevitable.

This chapter will explore the complex web of state vegetation legislation governing rural landholders and the particularly complicated legislative maze of vegetation clearing offences. Consideration is given to criminal responsibility for environmental crime and the stringent requirements and implications of vegetation clearing offences. The chapter then examines challenges to the legislation that have tested the law and provided precedent when the litigant landholder was legally represented. Finally, an appraisal is given to a perverse effect of vegetation clearing legislation in the ill-fated litigation challenges mounted without the benefit of legal advice.

2. A Complex Web of State Vegetation Legislation

The state vegetation regulatory regime for rural landholders in Queensland is complex and cumbersome. Although the management of vegetation on rural land is primarily dealt with under the *Vegetation Management Act 1999* (Qld) (VMA), the *Sustainable Planning Act 2009* (Qld) (SPA) and the *Land Act 1994* (Qld) (LA); a host of other statutes also have the potential to apply depending on the nature and geography of the land. Thus rural land may be impacted by:

- riparian vegetation which is protected by the *Water Act 2000* (Qld). Amendments to the VMA in 2004 led to a confusing overlap in jurisdiction between the *Water Act 2000* (Qld) and the VMA which necessitated further amendments to the VMA in 2005;⁶
- declared pests under the *Land Protection (Pest and Stock Route Management) Act 2002* (Qld) which provides for the management of declared pests, which include primarily feral animals and the clearing of certain plants or weeds;⁷
- fire management which is regulated under the *Fire and Rescue Service Act 1990* (Qld), necessary firebreak clearing is also covered in the VMA;⁸
- the *Coastal Protection and Management Act 1995* (Qld) which controls clearing in coastal districts;⁹
- the *Forestry Act 1959* (Qld) which regulates state forests;
- the *Nature Conservation Act 1992* (Qld) if the land adjoins a National Park;¹⁰ or

-
- the *Wet Tropics World Heritage Protection and Management Act 1993* (Qld) which protects tropical rainforests in the wet tropics of Queensland, an area of land situated along the north-east coast.¹¹

Such is the state legislation for the management for vegetation on rural land. These layers of legislation are added to by local government regulations and Commonwealth law. At the Federal level the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) regulates the clearing of vegetation with a significant impact on matters of national environmental significance, the objects of this Act include, inter alia, the conservation of biodiversity.¹² There is a general and well settled legal principle that ignorance of the law is no excuse. Rural landholders, like all citizens, cannot plead ignorance of the law but must abide the law if they wish to evade the further tangled web of vegetation clearing offences.

3. The Legislative Structure for Vegetation Clearing Offences

The legislative structure behind vegetation clearing offences is complicated and requires an understanding of the relevant provisions of the VMA and the SPA.¹³ Thus vegetation clearing offences are not included in the VMA but under the provisions of the SPA. The VMA makes no reference to clearing offences it simply defines a vegetation clearing offence as an offence against a vegetation clearing provision; and a vegetation clearing provision means the relevant provisions of the SPA as far as they relate to clearing vegetation.¹⁴

The provisions of the SPA relate to vegetation clearing as an aspect of development. For the purposes of this Act, development includes carrying out operational work that in turn includes clearing vegetation to which the VMA applies.¹⁵ Some clearing is regarded as exempt under the VMA if for a relevant purpose such as fodder harvesting, thinning or clearing for an encroachment.¹⁶ For regulatory purposes therefore, vegetation clearing is potentially an assessable development; and the SPA prohibits carrying out assessable development without a compliance permit, the maximum penalty for breach being 1665 penalty units or \$124,875 for an individual.¹⁷ For a corporation the maximum fine may be up to 5 times this maximum penalty or \$624,375.¹⁸

4. Criminal Responsibility for Environmental Crime

Criminal responsibility for an offence, following the traditional principles of common law, requires an act or omission (actus reus) together with a guilty mind (mens rea).¹⁹ As Queensland has a Criminal Code the common law doctrine of mens rea is replaced with the provisions of the Code which provides that a person is not criminally responsible for an act or omission that occurs independently of the exercise of the person's will; or an event that occurs by accident.²⁰ Judicial views differ as to the extent the Criminal Code mirrors the common law doctrines of

mens rea.²¹ Nonetheless, the sole test for Queensland remains with the code and this is particularly the case if a statute does not expressly include a mental element to a given offence.²²

There are generally different types of statutory environmental offences: those which require proof of a mental element or guilty mind; those that are offences of strict liability requiring the prosecution to prove only the act but not the state of mind of the accused; and offences of absolute liability for which no defence may be pleaded.²³ Absolute liability offences arise if it is not possible to plead the defence of honest and reasonable mistake. The defence of honest and reasonable mistake under the Queensland Criminal Code is, in essence, the same as the common law defence. The Code provides that:

A person who does or omits to do an act under an honest and reasonable, but mistaken, belief in the existence of any state of things is not criminally responsible for the act or omission to any greater extent than if the real state of things had been such as the person believed to exist.²⁴

The express or implied provisions of the law may exclude the operation of this defence.²⁵ This is the case for vegetation clearing offences as the VMA expressly excludes the defence of mistake of fact.²⁶ This then distinguishes a strict liability offence, in which it will be open to an accused to plead honest and reasonable mistake, from an absolute liability offence in which this defence is not available. Absolute liability offences are deemed rare in Australia.²⁷ Indeed the effect of absolute liability 'is to place on individuals engaged in potentially hazardous or harmful activity a legal obligation of extreme (not merely reasonable) care'.²⁸ The absence of the defence of honest and reasonable mistake is of most concern in light of the alleged regulatory mapping inaccuracies.²⁹ It is more typical within Australia for environmental crime to be an offence of strict liability; the justification being that such crime is against society as a whole and the foundation being the decisions of British cases.³⁰

Queensland and the VMA diverge from this trend and the defence avenues available to an accused landholder for a vegetation clearing offence are restricted. The rigidity of this law and the absence of the usual customary safeguards afforded to accused persons may be assuaged by discretion in prosecution and compliance policies that may 'ameliorate the coercive and potentially unjust nature of 'no-fault' liability'.³¹ Of the landholders who are charged most choose to plead guilty, either because they are guilty, or because these are absolute liability offences and possibly because of the daunting prospect of taking on the full weight of a government regulatory body. Vegetation clearing offences do not fall within the assistance provisions of legal aid. To engage in litigation therefore requires

substantial financial resources and a steadfast determination for a considerable period.

5. Litigation Challenges – A Queensland Precedent

Some landholders have this tenacity and, in challenging legislation and testing the law, provide useful precedent, which is beneficial in alleviating subsequent litigation. The case of *Bone v Mothershaw*, considered the application and validity of a local law prohibiting the clearing of vegetation without a permit.³² Robert Bone a freeholder and farmer cleared protected vegetation and refused to rehabilitate the land. He was convicted in the Magistrates Court and fined \$20,000 together with costs. Bone appealed to the District Court and subsequently the Supreme Court claiming the local laws were inconsistent, with the VMA and the IPA; and challenged the validity of laws to take an interest in land and not provide compensation. Both appeals were dismissed with costs. In the Supreme Court hearing McPherson JA noted that the VMA made provision for local laws to impose vegetation clearing restrictions on landholders and that the IPA was likewise not inconsistent with the local laws.³³ It was further held that there had been no acquisition of land but rather a valid statutory restriction and, whilst acknowledging the evidence submitted that the value of the land had been greatly reduced, McPherson JA concluded that Bone ...

...retains unimpaired, for what it is worth, his estate in fee simple absolute in the land. He has been stripped of virtually all the powers which make ownership of land of any practical utility or value...But the law provides no remedy for this action or its consequences when it is the result of legislation validly passed under law-making authority that by its terms or nature authorises or permits such an outcome'.³⁴

The appellant in *Bone v Mothershaw* challenged the law and two contentions are pertinent to this chapter: the validity of vegetation management legislation and the legitimacy of laws to take an interest in land and not provide compensation. The first contention is easily disposed of as the *Constitution of Queensland 2001* (Qld) provides power to the Queensland government 'to make laws for the peace welfare and good government ...in all cases whatsoever'.³⁵

The second contention is equally reliant on the *Constitution of Queensland 2001* (Qld) which contains no provision for compensation for the restriction of rights. It is only under the *Commonwealth of Australia Constitution Act (1977)* (Cth) s51 (xxxi) that the legislative powers of the Commonwealth Parliament may provide for the acquisition of property on just terms, that is with compensation. A key issue is the question of acquisition as compensation is only payable if property is acquired; generally, compensation is not available for legislative restrictions on

land. The just terms requirements of s51 (xxxii) do not apply to state laws such as the VMA.

Following the *Bone v Mothershaw* appeal in the Queensland Supreme Court a further application was made for special leave to appeal to the High Court, this application was denied and this Queensland precedent remains.³⁶ The *Bone* case reaffirmed the law in holding that a landholder is not entitled to compensation following legislative restrictions and in reasserting the authority of the Queensland Parliament to make laws. The landholder had legal representation. In the absence of legal representation, litigants may well follow an injudicious litigation route.

6. Litigation Challenges – A Misguided Journey

In the case of *Dore & Ors v Penny* [2004] QDC 364, the three Dore brothers initially pleaded guilty in the Magistrates Court to a vegetation clearing offence under the IPA and the LA. The land cleared was approximately 30 hectares of remnant endangered regional ecosystem. Each brother was fined \$15,000 for the IPA offence and \$3000 for the LA offence. Convictions were not recorded against them. The brothers had legal counsel to represent them in the Magistrates Court but acted on their own behalf thereafter. Their first appeal was to the District Court of Queensland.

In *Dore & Ors v Penny* [2005] QCA 150 the Dore brothers subsequently made an application for leave to appeal which was refused by the Court of Appeal in the Supreme Court of Queensland. The brothers were directed to apply to a single judge in the Supreme Court. Accordingly, in the subsequent case of *Dore & Ors v Penny* [2006] QSC 125 a n amended application was filed but was again unsuccessful. Jones J held: ‘... the applicants have acted upon advice by a person who has no legal qualifications but who holds views about land tenure and parliamentary sovereignty which are plainly misguided’.³⁷

Negotiating a proficient pathway through the justice system requires legal representation. The journey of the Dore brothers through the litigation maze should have ended after the hearing in the Magistrates Court in which they appear to have had competent legal representation. Their decision to pursue the matter as litigants in person and seek guidance from a non-lawyer placed them at a considerable and inequitable disadvantage. It was clear from the earlier precedent in *Bone v Mothershaw* that the rights of landholders, however restricted, were held to be determined by validly enacted statutes. And, moreover, that judicial opinion would likely follow earlier precedent and would hold that:

... ‘it cannot be the duty of the court to examine (at the instance of any litigant) the legislative and administrative acts of the administration and to consider in every case whether they are in accordance with the view held by the court as to the requirements of natural justice’.³⁸

One of the more perverse effects of vegetation clearing legislation has been a body of doomed litigation in which a non-lawyer has sometimes represented but more typically provided written submissions on the same misguided argument relied on in the *Dore* appeals. This has occurred in at least thirteen cases.³⁹ In the most recent 2009 case, the landholder was subjected to a considerable fine and costs order.⁴⁰ As noted in that case by Lloyd J the accused landholder faced criminal proceedings with potentially serious consequences but nonetheless chose to be represented, to his detriment, by a non-legal agent.⁴¹ In this bundle of cases, the Queensland courts have exercised considerable tolerance towards this particular non-lawyer even dismissing an application by the regulators for non-party costs.⁴²

7. Conclusion

This chapter highlights an intricate web of vegetation management legislation and a complex litigation process. It equally demonstrates how environmental law engages other areas of law. Consideration was given to the criminal law implications of vegetation clearing offences; and to questions of constitutional law when considering rights to compensation following land use restrictions. Equally, human rights and civil liberties law are pertinent to the absence of customary safeguards typically afforded to accused individuals and the ever-present issue of access to justice and legal representation. Environmental laws have burgeoned alongside environmental awareness, pressure from environmentalists and the antenna of political parties to capitalize on their electoral benefits. It is imperative for the environment that environmental laws should seek to include rather than alienate those most affected by them.

Notes

¹ N. Gunningham, P. Grabosky and D. Sinclair, *Smart Regulation: Designing Environmental Policy*, Clarendon Press, Oxford, 1998, p267.

² Australian Bureau of Statistics (ABS) Available at: <http://www.abs.gov.au/Ausstats/abs@.nsf/46d1bc47ac9d0c7bca256c470025ff87/F7635B38F792374BCA256DEA000539DA?opendocument>.

³ Queensland Government, Department of Employment, Economic Development and Innovation: *Forecasting, Analysis and Trends, Prospects*, Updated June 2009.

⁴ Australian Natural Resource Atlas: Available at: http://audit.deh.gov.au/anra/agriculture/gifs/ag_report/section_1/figure1_2.gif.

⁵ Australian Government, Department of Climate Change, *Agriculture Sector Greenhouse Gas Emissions Projections 2007* (Tracking to the Kyoto Target 2007), p 2-3. Available online at: <http://www.climatechange.gov.au/projections>.

⁶ *Vegetation Management and Other Legislation Amendment Bill 2005* (Qld), Explanatory Notes, <http://www.legislation.qld.gov.au/Bills/51PDF/2005/VegMan>

[OLAB05Exp.pdf](#). Declared pests are defined in Schedule 2 of the *Land Protection (Pest and Stock Route Management) Regulations 2003* (Qld), Class 1 pests list more than 40 plants and include plants such as acacias not indigenous to Australia, gorse and prickly pear; Class 2 pests include more than 12 species of animals including feral pigs, deer and goats.

⁷ ss 3 and 4 *Land Protection (Pest and Stock Route Management) Act 2002* (Qld).

⁸ s22A *Vegetation Management Act 1999* (Qld) defines firebreak as clearing that is necessary for a relevant purpose.

⁹ s3 *Coastal Protection and Management Act 1995* (Qld) defines the main objects of this Act are to (a) provide for the protection, conservation, rehabilitation and management of the coast, including its resources and biological diversity.

¹⁰ For example a rural landholder cleared an area of land adjoining a National Park to increase pasture and facilitate the movement of cattle between two of his properties. Vincent Thomas Boyle was prosecuted by the Queensland Environment Protection Agency under s62 of the *Nature Conservation Act 1992* (Qld).

¹¹ Wet Tropics of Queensland, Unesco World Heritage, ref 486. Available at: http://whc.unesco.org/pg.cfm?cid=31&id_site=486.

¹² s3(c) *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

¹³ The *Sustainable Planning Act 2009* (Qld) replaced the *Integrated Planning Act 1997* (Qld) see Sustainable Planning Bill, Explanatory Notes. Available at: <http://www.legislation.qld.gov.au/Bills/53PDF/2009/SusPlanB09Exp.pdf>.

¹⁴ The relevant sections are listed in the VMA Schedule e.g. .ss 578(1), 580(1), 581, 582 or 594(1).s578(1) provides that a person must not carry out assessable development unless there is an effective development permit for the development.

¹⁵ The *Sustainable Planning Act 2009* (Qld), Part 3, Division 2, s7(c) and Division 3,s 10,1(f).

¹⁶ s22A *Vegetation Management Act 1999* (Qld)

¹⁷ s578 (1) *Sustainable Planning Act 2009* (Qld), provides that a person must not carry out assessable development unless there is an effective development permit for the development. The *Penalties and Sentences Regulation 2005* (Qld) s2A prescribes the monetary value for each penalty unit, which is currently \$75.

¹⁸ s181B *Penalties and Sentences Act 1992* (Qld)

¹⁹ R.G. Kenny, *An Introduction to Criminal Law in Queensland and Western Australia*, 5th ed, Butterworths, 2000, p. 92.

²⁰ s23 (1) *Criminal Code Act 1899* (Qld) these provisions are primarily based on common law developments. The dominance of statute law is espoused in the frequently cited obiter of C.J. Griffith, *Widgee Shire Council v Bonney* (1907) 4 CLR at 981: ' Under the criminal law of Queensland as defined in the Criminal Code, it is never necessary to have recourse to the old doctrine of mens rea...'

²¹ M.J. Shanahan, M.P. Irwin & P.E. Smith, *Carter's Criminal Law of Queensland*, 12th ed, Butterworths, 2001, p. 255, cites a plethora of cases some supporting the

opinion that the common law doctrine is the same as the code, they include Griffith in his note on the Draft.

²² G. Bates, *Environmental Law in Australia*, 6th ed, Butterworths 2006, p. 236.

²³ *Ibid.*, p. 236.

²⁴ s24 (1) *Criminal Code Act 1899* (Qld).

²⁵ s24 (2) *Criminal Code Act 1899* (Qld).

²⁶ s67B *Vegetation Management Act 1999* (Qld).

²⁷ S. Bronitt & B. McSherry, *Principles of Criminal Law*, Law Book Company 2001, p. 346, cites a bundle of cases in support of this. See also Bates, *op. cit.*, p. 237.

²⁸ Bronitt et al., *op. cit.*, p. 192.

²⁹ J. Bredhauer, 'Can't See the Scrub for the Trees', *Environmental and Planning Law Journal*, Vol. 21, 2004, p. 44.

³⁰ Bates, *op. cit.*, p. 236 in which the following British cases are provided as examples: *Alphacell v Woodward* [1972] AC 824; *Environment Agency (Formerly National Rivers Authority v Empress Car Co (Abertillery) Ltd* [1999] 2 AC 22.

³¹ Bronitt, *op. cit.*, p. 192.

³² *Bone v Mothershaw* [2002] QCA 120.

³³ *Bone v Mothershaw* [2002] QCA 120 para 20-21.s7 of the *Vegetation Management Act 1999* (Qld) covers the application of the Act, s7(2) provides that the Act does not prevent a local law from imposing requirements on the clearing of vegetation in its local government area.

³⁴ *Bone v Mothershaw* [2002] QCA 120 para 25.

³⁵ s8 *The Constitution of Queensland 2001* (Qld) provides for the law-making power of the parliament as set down in s2 *Constitution Act 1867* (Qld).

³⁶ *Bone v Mothershaw* [2002] QCA 120 at the end of this case is an editor's note which provides that the High Court refused special leave to appeal on the 25th June 2003.

³⁷ *Dore & Ors v Penny* [2006] QSC 125 para 17.

³⁸ *Jerusalem Jaffa District Governor v Suleiman Murra* [1926] AC 321, per Viscount Cave LC at 328, quoted in *Bone v Mothershaw* [2002] QCA 120, para 25, per McPherson JA.

³⁹ For example: *Wilson v Raddatz* (unreported, Queensland District Court, 2005) and *Glasgow v Hall* [2006] QDC 42.

⁴⁰ *Director- General of the Department of Environment and Climate Change v Hudson* [2009] NSWLEC 4. This was a NSW case but the landholder and his non-legal agent are both based in Queensland.

⁴¹ *Director- General of the Department of Environment and Climate Change v Hudson* [2009] NSWLEC 4, per Lloyd J para [3].

⁴² *Burns v State of Queensland* [2007] QCA 240 para [13] - [20].

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The Rural Community in Queensland Australia: Political Systems and the Politicisation of Environmental Law

Jo Kehoe

Abstract

This chapter explores the complex relationship between the Queensland government and the agricultural community, with particular emphasis on the political context and systems within which environmental laws are made and shaped. What has happened on the land and, more recently environmental law and policy, has been dominated and fashioned by the political cycles, political systems and ideologies of successive governments. In the past the rural community in Queensland had an influential role within the state. More recently this has lessened to the status of a marginalised group struggling to find a voice and a genuine participatory place in policy decision making affecting rural land. Consideration is given to a particularly controversial environmental law: the *Vegetation Management Act 1999* (Qld). The Act has been contentious from its introduction in 1999. The controversy continued with the 2004 amendments, which heralded the phasing out of broadscale land clearing, and surfaced again with the most recent retrospective amendments in 2009. The reluctance of some sectors of the agricultural community to engage with the government is explicable in the light of Queensland's history and the underlying politicisation of the VMA.

Key Words: Environmental law, vegetation management, rural community, political systems, politicisation of environmental law.

1. Introduction

The state of Queensland cleared, and continues to clear, more land than the rest of the Australia combined.¹ Inevitably the natural balance of the land has degraded. The detrimental impacts of broadscale land clearing include the loss of biodiversity, destruction of habitat and native species, together with significant impacts on salinity, acidity, and greenhouse gases.² Recognition of the degradation of land was slow to emerge and even slower to materialize into policy and law. Initial concerns for the land came out of a review of land policy in 1990,³ but legislation specifically aimed at protecting biodiversity was not introduced until the *Vegetation Management Act 1999* (Qld), (VMA). Paradoxically, the initial effect of this law was devastating on the environment.⁴

The enactment and subsequent amendments of the VMA has done little to engage the rural community with the government. The Act was devastating to many rural landholders not least because of the imposition of statutory regulations on formerly unencumbered property rights. For landholders with a freehold title the

introduction of the VMA marked the first imposition of legislative controls. Traditionally Australian inheritance of the British political system and the primary sources of both common law and statute law have necessarily meant embracing the long-established sanctity of private property.⁵ In the past such rights have customarily been reflected and protected in environmental policy and law, more recent times have witnessed the gradual dissolution of those rights as typified by the VMA. Rather than protecting the property interests of private landholders the VMA has challenged and increasingly eroded them.

This chapter will initially explore the historical background of dominant one-party governments within Queensland. Consideration is given to the dramatic collapse of a prolonged conservative period followed by a time of reform when the electoral system changed. The chapter then examines the role of the Green Party, their part in recent elections and the politicization of the VMA. The chapter then explores the latest 2009 retrospective amendments to the VMA and the impact of these changes on rural landholders. Finally, consideration is given to the effect of this legislation on the complex relationship between the rural community and the government.

2. The Historical Context

When Queensland became an independent state and separated from New South Wales in 1859 the overriding ethos was to develop and populate the state. For much of the twentieth century:

...governments in Queensland were battling to maintain the state as a viable entity, administering what was in all important essentials a frontier society and one dependent entirely on the fruits of primary production for its economic prosperity. The state was underdeveloped and thinly populated, yet covering vast geographical areas. It lacked sufficient capital investment to shield the economy from the ill effects of droughts, floods and rural recessions...⁶

The overriding drive to develop and clear land, coupled with white settler yeomanry, fostered land polices and agricultural practices which were ultimately difficult to reconcile in a harsh and variable Australian climate.⁷

For Queensland, the management of land, and more recently environmental law and policy, has been dominated and fashioned by the political cycles, political systems and ideologies of successive governments. There is a long established tradition within Queensland of a dominant political party holding office for an extensive period. Thus the longest serving National or conservative party premier, Johannes Bjelke-Petersen, held office for almost twenty years from 1968 to 1987. Throughout this period the power of the agricultural lobby was at its height; and, as

premier, Bjelke-Petersen was obliged to leave his own broadscale land clearing business to meet the demands of parliamentary life. Rural landholders, particularly freeholders, enjoyed unfettered rights of ownership and engaged with an empathetic government. This particular conservative period, which ended with the demise of Bjelke-Petersen and subsequently the National Party, lasted for thirty – two years.⁸

The downfall of the Bjelke-Petersen administration followed an independent inquiry, undertaken by G E Fitzgerald, which found evidence of entrenched and widespread corruption within Queensland.⁹ The inquiry began in May 1987 and lasted until June 1989, at which time it was concluded a great deal remained to be done within the state. Charges against Bjelke-Petersen for official corruption and perjury during the inquiry were ultimately withdrawn following a trial and a hung jury. Clearly a great deal did remain to be done: the jury foreman at the trial was a branch secretary of Bjelke-Petersen's political party.¹⁰ Nevertheless, this period was described as a time of hope for Queensland '...as it began the Herculean task of cleaning its Augean stables'.¹¹

3. Reform of the Electoral System – Optional Preferential Voting

One essential task was reform of the electoral system. The longevity of the Bjelke-Petersen era owed much to the electoral system prevailing at that time. A prime area of concern for the Fitzgerald Inquiry was the issue of fairness of the electoral process, particularly electoral laws, zones and boundaries, which were challenged as biased in favour of the Bjelke-Petersen Government.¹² The challenges primarily concerned the unfair advantage given by both electoral gerrymander and malapportionment.¹³ One of the major recommendations of the Inquiry therefore was the formation of an independent Electoral and Administrative Review Commission charged with undertaking an extensive review of electoral and administrative processes.¹⁴

Following this wide-ranging review, in which submissions were made and public hearings held, the Electoral and Administrative Review Commission recommended electoral reform. The controversial issues of electoral boundaries and zones were to be addressed by independent bodies 'free from interference by the government of the day'.¹⁵ Change in the voting system was also recommended: from compulsory preferential voting to optional preferential voting.

For Queensland a very real concern is that 'the optional preferential system produces a less representative and less democratic outcome than the compulsory preferential system'.¹⁶ It is only under the latter system that 'elected representatives could genuinely claim to represent the electorate'.¹⁷ The irony is that this voting system was established in an apparently genuine bi-partisan attempt to adhere to the recommendations of the Fitzgerald Inquiry. It seems timely to revisit the Inquiry and note that: 'It is no solution to the deep-seated problems

which have occurred to simply replace one set of imposed ideas and approaches to administration with another'.¹⁸

4. The Role of the Greens in Queensland

The Greens first appeared upon the Queensland election scene in the 1995 election when they contested 28 seats and polled 2.87% of the vote.¹⁹ This voting percentage was reasonably consistent for the following two elections but increased to 6.76% in the 2004 election.²⁰ This increase has been attributed to the 'substantial interstate migration to the state's southeast, a pattern that has contributed to a partial transformation of Queensland's traditional political culture to one more disposed to Green support'. Such support translates for Queensland Labor into the electoral benefits of Green preference deals, particularly in marginal seats.

The impact of the Green Party within Queensland has been chequered. Indeed the degree to which the Green party allocates preferences and stands beneath the 'Labor umbrella' appears to vary with each Queensland election.²¹ It is apparent in the 2009 election. As a minority party preference deals for the Greens appear to be their only realistic chance of making an impact. Part of the payback for such deals comes in the form of controversial environmental laws such as the VMA.

5. The Vegetation Management Act 1999 (Qld)

The politicization of the VMA has a far-reaching potential to disengage the rural community and this is particularly so following the latest election. The Queensland Labor government returned to power for their fifth consecutive term in 2009. The Greens appear to have prompted the 2009 changes to the VMA even if not to the extent desired.

Queensland Labour were duly re-elected and returned to govern on 21 March 2009. The regrowth moratorium was announced in a ministerial release on the 7 April. It was to take effect from midnight of the same day. The ban on clearing covered endangered regrowth vegetation and the Minister for Natural Resources Mines and Energy instructed the regulator's 'compliance officers to actively monitor and investigate compliance with the moratorium'.²² On the 7 April the Labor Government thus announced a retrospective moratorium: this was a law yet to be made. Indeed the opening of the Queensland Parliament did not take place until the 21 April. The first parliamentary session was held on the 22 April at which time the *Vegetation Management (Regrowth Clearing Moratorium) Bill 2009* was introduced. The Act is now deemed to have started on the 8 April.²³

6. Retrospective Legislation and a Unique Parliamentary System

Parliaments within Australia have a general power to make retrospective legislation but are presumed to do so prospectively, there is a long held presumption against retrospective laws: against making acts which were formally lawful, unlawful.²⁴ The Queensland Government's legislative statutory standards

are provided for in the *Legislative Standards Act 1992* (Qld), they require that new laws are ‘consistent with the principles of natural justice’ and ‘do not adversely affect rights and liberties, or impose obligations, retrospectively’.²⁵

Legislation has a relatively unfettered route within the Queensland parliamentary system. Being a unicameral system it is unique amongst Australian states. The ALP abolished the Upper House in 1922. The effect of this, as shown by the VMA, is that a majority government may railroad through statutory reform without any heed to divergent interests either within or beyond the confines of the Lower House or Legislative Assembly. In the absence of an Upper House, a means of reviewing legislation in the Queensland parliamentary process falls upon the Scrutiny of Legislation Committee (SLC). In keeping with some of the earlier amendments to the VMA the SLC was not briefed on the 2009 moratorium: there was clearly insufficient time.²⁶ Yet the purpose, *inter alia*, of the SLC is to consider the application of fundamental legislative principles,²⁷ which are defined as those principles that ‘underlie a parliamentary democracy based on the rule of law’.²⁸

How then did the Queensland Government explain the retrospective moratorium? The Explanatory Notes which customarily accompany a new statute acknowledge that the retrospective application of the Act ‘arguably offends’ the government’s own legislative standards legislation.²⁹ The defence being that: ‘the Premier made an election commitment on the 15 March 2009 to a three month moratorium on endangered regrowth vegetation while consultation with stakeholders occurred to improve vegetation management laws’.³⁰ The retrospective moratorium was further explained as necessary to prevent pre-emptive clearing and ‘justified where the interest of the public as a whole outweigh the interests of an individual’.³¹

To pass the retrospective moratorium parliamentary debate was declared urgent. The Labor Government utilised a standing order, suspended normal parliamentary business and debated the legislation in one day’s sitting.³² It was noted by the ALP Leader of the House that the urgency was necessary ‘to protect the forests of Queensland’.³³ It was noted by opposition and independent members that the urgency was necessary to appease the Green Party for pre-election preference deals.³⁴

7. The Impact of Retrospective Legislation on Rural Landholders

For rural landholders there was opportunity to make submissions on the Act to the relevant regulators. In the past consultations surrounding amendments to the VMA have been initiated and subsequently disregarded by Queensland Labor.³⁵ It remains to be seen what credence will be afforded to individual landholders and their representative groups. In the meantime, a law promising certainty from the outset has generated yet more confusion. Regrowth vegetation affected by the moratorium is coloured blue on the mapping system adopted by the regulators. The areas coloured blue currently include pastures, crops and part of the township of

Dalby.³⁶ Rights of appeal on moratorium maps are suspended for the duration of the moratorium which is set to last for three months with the possibility of being extended an additional three months.³⁷

A further potential issue is that of compensation. The *Legislative Standards Act 1992* (Qld) requires fair compensation for the acquisition of property.³⁸ The 2009 amending VMA legislation stipulates that no compensation will be payable under the moratorium as this is an interim measure and a means of exploring 'longer term options'.³⁹ The moratorium however has the potential to last for six months. The VMA was initially passed in 1999 but it took the Labor Government until the contentious 2004 amendments to make a financial commitment to landholders affected by the legislation. Much of the earlier reticence on the part of the Queensland Government was attributed to the unwillingness of the Commonwealth Coalition Government to contribute to a financial assurance for affected landholders. With the latest amendments the government has stated their regulators 'will investigate the costs of any future regulation including potential cost to enterprises made unviable'.⁴⁰

8. The Rural Community and the Queensland Government

The political sensors of Queensland Labor in the 2009 state election may well have been attuned to the immediate requirements of an election; but there remain matters of critical importance to the environment for which cooperation with the rural community will be essential, for example emissions trading schemes. The government cannot ignore the rural community. In Queensland 141.4 million hectares is devoted to agriculture.⁴¹ Much of the agricultural activity in the state is centred on livestock grazing with relatively small pockets currently under nature conservation or managed resource protection.⁴² It is crucial for the environment that the Labor Government works with the rural community. It is clear this may be a problematic journey.

One difficulty for the government will be to establish credibility when the gulf between political rhetoric and political practice is so wide. It is imperative for all major parties to embrace environmental issues: the environment is a key electoral influence. Prior to the 2009 election a survey of attitudes of Queensland voters towards land clearing and the environment was undertaken on behalf of the World Wildlife Fund.⁴³ Almost three quarters of Queensland voters polled said that the environment would have a strong influence on their vote.⁴⁴ How then does the Labor Government measure up environmentally? Is there any parity between what is said and what is done?

The VMA brought an end to broadscale land clearing in Queensland in 2006. The long term environmental significance of this legislation cannot be underestimated.⁴⁵ The politicization of the VMA has however engendered alienation in the rural community. This estrangement is exacerbated by the government's support of the recent surge in mining and mineral exploration permits on rural land.

A total of \$563.3 million was invested in exploration permits between 2007 and 2008; this amount is double the previously assessed period.⁴⁶ In February 2009 the government amended the *Acquisition of Land Act 1967* (Qld) for those affected by land resumption. The potential advance of mining on prime agricultural land has caused alarm and anguish in the bush.⁴⁷ Not least because clearing for mining is not regulated under the VMA.⁴⁸

9. Conclusion

Ideally the environment should be beyond political expediency. The reality for Queensland however is that minority groups may from time to time find themselves in a position to influence and shape government environmental policy and law. The result, as demonstrated by the VMA, generates a lack of attention by a dominant majority government to basic legislative and scrutiny roles. A further outcome is the marginalisation of the rural community as those most affected by the VMA. Queensland may have moved on from the Fitzgerald Inquiry era. Nonetheless it is crucial to constantly review our parliamentary systems and political processes and question the degree to which they are truly representative and meets the needs of wider society.

Notes

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² Australian Conservation Foundation, 'Land clearing in Queensland: the problem and the solution.' A.K. Krockenberger, R.L. Kitching & S.M. Turton, 'Environmental Crisis: Climate Change and Terrestrial Biodiversity in Queensland', Cooperative Research Centre for Tropical Rainforest Ecology and Management, Rainforest CRC, Cairns. H. Cogger et al., 'Impacts of Land Clearing on Australian Wildlife in Queensland', WFF Australia Report in which clearing rates between 1997 and 1999 were used to calculate that approximately 100 million native mammals, birds and reptiles have died each year as a result of broadscale clearing of remnant vegetation, Viewed 4 June 2009: http://wwf.org.au/publications/qld_landclearing/.

³ P.M. Wolfe, D.G. Murphy & R.G. Wright, *Report of a Review of Land Policy and Administration in Queensland*, Land Policy and Administration Review Committee, Queensland, 1990.

⁴ J. Kehoe, 'Environmental Law Making in Queensland: The Vegetation Management Act 1999 (Qld)', *Environmental and Planning Law Journal*, Vol. 26, No. 5, September 2009, pp. 392-416.

⁵ G. Bates, *Environmental Law in Australia*, 6th edn, Butterworths, 2006, pp. 20-21.

⁶ D. Murphy, R. Joyce & M. Cribb (eds), *The Premiers of Queensland*, University of Queensland Press, Brisbane, 1990.

⁷ G Bates, op. cit.; N. Gunningham & P. Grabosky (eds), *Smart Regulation: Designing Environmental Policy*, Oxford, Clarendon Press, 1998, Ch 5.

⁸ Queensland Parliament, Précis of Results of Queensland State Elections 1932 to 2006, Viewed 4 June 2009: http://www.parliament.qld.gov.au/view/historical/electionsReferendums.asp?SubArea=electionsReferendums_electionDates.

⁹ G.E. Fitzgerald, *Report of a Commission of Inquiry Pursuant to Orders in Council*, Queensland Government Printer, Brisbane, 1989. viewed 4 June 2009:

<http://www.cmc.qld.gov.au/data/portal/00000005/content/81350001131406907822.pdf>. This Inquiry was announced by the acting premier at the time Bill Gunn whilst Bjelke - Petersen was overseas, the announcement followed the catalytic ABC Four Corners investigative Report 'The Moonlight State' which highlighted the systemic corruption within both the Queensland government and police.

¹⁰ R. Fitzgerald, L. Megarrity & D. Symons, *Made in Queensland: A New History*, University of Queensland Press, Brisbane, 2009, p. 185.

¹¹ R. Evans, *A History of Queensland*, Cambridge University Press, Cambridge, 2007, p. 249.

¹² G.E. Fitzgerald, op. cit., p. 127.

¹³ Electoral and Administrative Review Commission, *Report on Queensland Legislative Assembly Electoral System, Volume 1- The Report*, November 1990, defines gerrymander as drawing electoral boundaries to enhance the likelihood of election; and malapportionment as a term used to describe the existence of electoral districts which have significant difference in the number of electors, p. xiii.

¹⁴ G.E. Fitzgerald, op. cit., pp. 370-371.

¹⁵ Electoral and Administrative Review Commission, p. 232.

¹⁶ S. Stockwell, 'The Impact of Optional Preferential Voting on the 2001 Queensland State Election', *Queensland Review*, Vol. 10, No. 1, St. Lucia, Qld., May 2003, p. 155.

¹⁷ J. Wanna, 'Democratic and Electoral Shifts in Queensland: Back to First Past the Post Voting', Governance and Public Policy Research Centre, Griffith University, Brisbane, 2004, p. 2.

¹⁸ G.E. Fitzgerald, op. cit., p. 357.

¹⁹ Queensland Government, Comparison of Party Performance Queensland State Elections 1977-2001, Table 2B and 2A. Viewed 4 June 2009: <http://www.parliament.qld.gov.au/view/historical/documents/electionsReferendums/PartyPerformanceStateElections.pdf>.

²⁰ Ibid.

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- ²⁰ P.D. Williams, 'The Greening of the Queensland Electorate?' *Australian Journal of Political Science*, Vol. 41, No. 3, September 2006, pp. 325-337.
- ²⁰ *Ibid.*, p. 329, considers the arguments for and against preference allocation.
- ²¹ D. Hutton, 'The Greens and Electoral Politics,' *Arena Magazine*, No. 22, April/May 1996, pp. 14-16.
- ²² S. Robertson, '1,000,000 Hectares of Critical Regrowth under Moratorium,' 7 April 2009, Viewed 4 June 2009, <http://statements.cabinet.qld.gov.au>.
- ²³ *Vegetation Management (Regrowth Clearing Moratorium) Act 2009* (Qld) s2.
- ²⁴ The traditional presumption and fundamental rule of English law *nova constitutio futuris formam imponere debet, non praeteritis* meaning a new law should be prospective not retrospective is expounded in G. Granville Sharpe and B. Galpin, *Maxwell on The Interpretation of Statutes*, 10th edn, Sweet and Maxwell, London, 1953, pp. 213-215. The general legal presumption that parliament is presumed to legislate prospectively is considered in F.K.H. Maher, P. L. Waller & D.P. Derham, *Cases and Materials on the Legal Process*, Law Book Co, Melbourne, 1966, pp. 372-381. A general coverage of retrospectivity in Australia is provided in: A.I. MacAdam & T.M. Smith, *Statutes*, 3rd edn, Butterworths, Sydney, 1993, pp. 120-137, and D.C. Pearce & R.S. Geddes, *Statutory Interpretation in Australia*, 4th edn, Butterworths, Sydney, 1996, Chapter 10.
- ²⁵ s3 (b) and (g) *Legislative Standards Act 1992* (Qld).
- ²⁶ Kehoe, *op. cit.*, p. 392.
- ²⁷ *Parliament of Queensland Act 2001*(Qld) s103.
- ²⁸ *Legislative Standards Act 1992*(Qld) s4 (1).
- ²⁹ *Vegetation Management (Regrowth Clearing Moratorium) Bill 2009, Explanatory Notes*, p. 2, Viewed 4 June 2009, <http://www.legislation.qld.gov.au/Bills/53PDF/2009/VegMgtRCMB09Exp.pdf>.
- ³⁰ *Ibid.*, p. 3.
- ³¹ *Ibid.*, p. 3.
- ³² Queensland, Legislative Assembly, *Vegetation Management (Regrowth Clearing Moratorium) Bill 2009, Declared Urgent: Allocation of Time Order*, p. 156, April 2009, Viewed 4 June 2009, http://parlinfo.parliament.qld.gov.au/isyquery/09da03ca-b259-499a-bc7c-f5e6a1c3ca32/1/doc/2009_04_23_WEEKLY.pdf#xml=http://parlinfo.parliament.qld.gov.au/isyquery/09da03ca-b259-499a-bc7c-f5e6a1c3ca32/1/hilite/.
- ³³ *Ibid.*
- ³⁴ *Ibid.*
- ³⁵ Kehoe, *op. cit.*, pp. 394-397.
- ³⁶ M. Phelps, 'Regrowth Mapping Flawed', *Queensland Country Life*, 7 May 2009, p. 9.

³⁷ *Vegetation Management (Regrowth Clearing Moratorium) Act 2009* s7 provides for the moratorium period and s28 the removal of rights of appeal.

³⁸ Legislative Standards Act 1992 (Qld) s 4 (3) (i).

³⁹ *Vegetation Management (Regrowth Clearing Moratorium) Bill 2009*, *Explanatory Notes*, p. 8.

⁴⁰ *Ibid.*

⁴¹ Australian Bureau of Statistics, Viewed 4 June 2009, <http://www.abs.gov.au/Ausstats/abs@.nsf/46d1bc47ac9d0c7bca256c470025ff87/F7635B38F792374BCA256DEA000539DA?opendocument>.

⁴² See, for example, the national land use map in Australian Natural Resource Atlas. Viewed 4 June 2009, http://audit.deh.gov.au/anra/agriculture/gifs/ag_report/section_1/figure1_2.gif.

⁴³ Auspoll research report prepared for the World Wildlife Fund: 'Attitudes towards Land Clearing and Environmental Issues in Queensland' (2009). The survey of 1016 participants was conducted in February 2009 and included metropolitan and regional/rural residents.

⁴⁴ *Ibid.*, p. 6.

⁴⁵ The environmental significance of the end of broadscale clearing in Queensland is dealt with in: C. McGrath, 'Editorial Commentary: End of Broadscale Clearing in Queensland', *Environmental Planning and Law Journal*, 2004, pp. 5-13.

⁴⁶ Queensland Government, Department of Mines and Energy, Annual Report 2007-2008 in particular pp. 17-20 and the Queensland Government Mining Journal: Queensland's Resources Explosion (2008) which notes that resource exploration investment has doubled in the past three years from \$270 million in 2004-2005 to \$563.3 million. Viewed 4 June 2009, http://www.dme.qld.gov.au/mines/qgmj_spring_2008.cfm.

⁴⁷ G. Fuller, 'Coal vs. Cropping Fight Widens', *The Land*, 15 October 2008, Viewed 4 June 2009, <http://theland.farmonline.com.au/news/nationalrural/agribusiness-and-general/general/coal-vs-cropping-fight-widens/1333183.aspx>.

⁴⁸ Clearing for mining, or an 'extractive industry' is exempt under the regulatory provisions of both the VMA and the *Integrated Planning Act 1997* (Qld), under the *Environmental Protection Act 1994* (Qld) the conservation status of regional ecosystems may be taken into account if applicable.

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The Cultural Impacts of Climate Change

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Abstract

Climate change is probably the most important challenge of the 21st century. Yet consideration of climate change issues in recent years has tended to focus upon the physical impacts it will have and our need to adapt and mitigate our behaviour in that context. An issue that warrants some further attention is the cultural and spiritual impacts that those physical effects will have. This chapter seeks to fill that gap by focusing upon the issues faced by indigenous people and traditional communities who have particularly close cultural and spiritual connections with nature and natural resources. Climate change threatens indigenous and traditional communities just at the time when their heritage is receiving global recognition and their voice heard within the international community. This chapter will explore the cultural impacts of climate change on indigenous and traditional peoples of the South Pacific, the efforts being made to protect their culture in international law and the need for further action.

Key Words: Intangible heritage, cultural heritage, indigenous peoples, pacific, international heritage law, traditional knowledge, climate change.

1. Introduction

Climate change is one of the most urgent contemporary issues and possibly the hardest to tackle. Over the last 20 years considerable attention has been given to this issue at all levels of governance - international, regional, national and local. The result has been a plethora of reports, academic research, projects, plans and initiatives. However, whilst considerable attention has been paid to broad mitigation and adaptation issues, relatively little has considered the effect of climate change on culture, or indeed the impact of climate change responses on culture and cultural diversity. Nonetheless the impacts on culture and cultural diversity are likely to be just as catastrophic as those on biodiversity. And whilst some might argue that anthropogenic climate change should affect human societies just as it does other species, it is likely to be those that are least to blame that will bear the greatest burden.¹ It is clear that already some coastal communities are significantly affected by sea level rise² as are many polar societies.³ In the context of the South Pacific region, it is clear that the indigenous and traditional peoples are not large carbon emitters but will be directly affected by climate change.

Research on cultural heritage protection and climate change has centred upon impacts on tangible elements. For example, the World Heritage Committee has commissioned reports in this area⁴ and work has also been done by governments at

the national level.⁵ The focus has tended to be upon a narrow range of cultural heritage - buildings, buried archaeology, parks and gardens⁶ - and direct physical impacts from increased rainfall and extreme weather events, changes in soil moisture and chemistry, and new vectors for destructive pests.⁷

This chapter will explore the impacts of climate change in the context of a broader conception of cultural heritage including both tangible and intangible elements - lifestyles, language, customs, traditional knowledge and practices as well as associated spaces and tangible objects. As noted above, little attention has been given to the specific impacts of climate change on these cultural elements despite the fact that anthropologists 'fear a wave of cultural extinction for dozens of small indigenous groups - the loss of their traditions, their arts, their languages.'⁸

The focus upon indigenous and traditional communities is justified for a number of reasons. Firstly, the affects of climate change are likely to be felt by these people to a greater extent than others. They have close cultural and spiritual connections with nature both in terms of their lifestyles and their direct reliance upon natural resources for sustenance and livelihoods. The effects of climate change, including loss of land and biodiversity and displacement of people, will therefore impact heavily. Second, these communities are technically and financially poorly equipped to deal with these impacts. And third the pressures placed upon these cultures by climate change compounds existing socio-economic problems such as poverty and historical inequities resulting from political marginalisation and colonisation.

2. Cultural Impacts of Climate Change

The impacts of climate change are and will continue to be many and varied. Melting of polar ice and warming sea temperatures are anticipated to cause significant sea-level rise. Climate change threatens the survival of much biodiversity which in turn will affect the availability of traditional sources of food and the base material for many customary practices. Less directly rising temperatures are likely to affect rainfall, resulting in either more, in the northern countries, or, in tropical regions, less annual precipitation. This again will directly affect people, crops and food security. Similarly, predicted increases in extreme weather events will result in a multitude of impacts both direct and indirect.

All of these impacts threaten traditional lifestyles, cultures and heritage. Perhaps most significant would be the loss of customary lands that are the foundation of most traditional lifestyles; including sites for traditional agriculture as well as cultural spaces for ceremonies and other village proceedings. The loss of biodiversity would mean the loss of natural materials that form the foundation of much of the culture.

The physical impacts would be compounded by the loss of intangible heritage. For example, customs and traditional practices (including ceremonies, songs and

dances) would be directly affected by the loss of cultural spaces and sacred sites. With their demise the skills to make traditional instruments, ceremonial artefacts and tools would also be lost. The relocation or extinction of species could also result in loss of traditional knowledge in relation to arts and crafts (such as mats and baskets), weapons (clubs and spears) and tools (fishing rods and canoes).

Food security issues caused by increasing desertification and natural disasters put pressure on countries to modernise agricultural production. This can indirectly result in a loss of intangible heritage. International efforts to address food security in the face of climate change can tend to work against rather than for the protection of cultural heritage.⁹ For example, the solution to predicted declines in productivity is said to be ‘to educate and improve the skills of the farmers so that they could make use of modern and more sophisticated technology compared with the traditional ones they employ today’.¹⁰ Such approaches risk the loss of tangible heritage in the form of diversity of agricultural crop species as well as customary farming practices.

Traditional knowledge of weather and climate as well as plant and animal species will also be affected by climate change. For example, many traditional peoples have intimate knowledge of weather and climate.¹¹ Ultimately, this may be lost as key indicators, such as changes in plant and animal behaviour, are affected by climate change.¹² Furthermore, knowledge of highly localised species may vanish as people either move away or their customary lands are lost.

With the loss of land and sources of food there are few choices for affected communities. The likely result will be the relocation of communities. This displacement, at best, would involve the separation of people from traditional land and cultural spaces. At worst it may involve the disaggregation of the community, damaging the structure of societies. Where populations are high, tensions and conflicts with other communities are likely. The only alternative for such people is assimilation, with the loss of further intangible heritage. In the worst case scenario the result could be the complete disappearance of minority cultures.

3. Recognising the Value of Culture and Heritage

The interconnectedness of humans and the environment has been well recognised. This has been acknowledged in the natural and social sciences as well as in international and national policy.¹³ Natural scientists refer to ecosystem health involving both humans and other living elements; social scientists support an ‘inextricable link’ between biological and cultural diversity; and in a policy context the linkage is articulated through the three pillars of sustainable development.¹⁴

Furthermore, the value of cultural diversity has not been lost on the international community. Although relatively little attention has been paid to the cultural impacts of climate change, much more research has been undertaken in relation to safeguarding cultural heritage in the face of threats such as

globalisation. It is now well recognised that culture is of value – environmentally, economically and socially.

In an environmental context traditional ecological knowledge (TEK) is of significant importance not only in terms of information about plant and animal species but also the means to manage and conserve them. In relation to climate change adaptation, this is illustrated by the recognition that aboriginal fire management practices may be able to reduce carbon emissions.¹⁵ The importance of sacred natural sites is also well-recognised.¹⁶

TEK is also economically valuable. It can be utilised in the development of indigenous enterprises or contribute to sustainable development through benefit sharing agreements between states or corporations and traditional owners. There are regional examples of agreements with traditional knowledge holders in relation to medicinal and pharmaceutical products to be derived from the use of genetic resources and TEK.¹⁷ However, it is clear that traditional cultures may also be financially valuable in other ways, such as cultural tourism.

Culture and heritage are intrinsically valuable, as the memory of a society, contributing to a strong cultural identity. Socio-cultural well-being depends upon not only land and resources for sustenance and livelihoods but also respect for a community's culture and heritage.

4. Role of Law

Law can play both a facilitative and protective role - it can assist prospectively or regulate and punish wrongdoing retrospectively. Both these elements are needed if cultural diversity and heritage is to be safeguarded in the context of climate change.

For many years indigenous and traditional peoples were denied a voice at the international level. However, with the establishment of the *United Nations Working Group on Indigenous Populations*, the interest generated following the *International Year of the World's Indigenous People* in 1993 and the *Decade of the World's Indigenous People*,¹⁸ increasing attention has been given to these non-state actors.¹⁹ In 2000 the *UN Permanent Forum on Indigenous Issues* was created²⁰ and it has now become clear that Indigenous peoples have an emerging legal personality in the international arena.²¹ At the same time international laws have established collective indigenous rights and drawn attention to their importance in environmental governance.²² Significantly, international laws such as *ILO Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries*²³ refer to rights to protection and respect for Indigenous peoples' cultural, religious and spiritual values and practices²⁴ and to retain their own customs and institutions.²⁵ It also recognises the cultural and spiritual values Indigenous peoples place on land.²⁶ Most recently the *Declaration on the Rights of Indigenous Peoples*²⁷ has provided that 'Indigenous peoples have the right to practise and revitalize their cultural traditions and customs'.²⁸ As a declaration, it is

not legally binding but it has a significant standard-setting role and as it has been broadly accepted represents a certain level of international consensus.²⁹

In the specific context of climate change, international law and policy have been aimed at stabilising greenhouse gases, regulating emissions and also encouraging the uptake of new 'cleaner' technologies. But the *United Nations Framework Convention on Climate Change* and *Kyoto Protocol* make no reference to adapting or mitigating the effects upon culture or heritage beyond the recognition that 'responses to climate change should be coordinated with social and economic development'.³⁰ Simultaneously, there has been a rapid expansion of international heritage treaties which offer tools for the protection of culture. The oldest and most well known is the *World Heritage Convention*³¹ which provides for the listing of sites of outstanding universal value. It facilitates the protection of natural and cultural places, including sacred sites, through awareness raising, provision of funding, resources and expertise. Research undertaken in relation to climate change induced threats to World Heritage Sites draws attention to the need to prioritise socio-economic research on the impacts of climate change on traditional societies³² and 'how traditional materials and practices need to adapt to extreme weather events and a changing climate'.³³ However, world heritage status applies to only a very small number of sites and therefore to only a limited range of cultural spaces. Furthermore, it does not operate to protect intangible heritage which has been identified above as at risk from climate change.

More recently, the *Convention on the Safeguarding of Intangible Cultural Heritage* (2004) has brought international attention to the protection of intangible heritage. This treaty is aimed at safeguarding, ensuring respect for and raising awareness about 'intangible cultural heritage as a mainspring of cultural diversity and a guarantee of sustainable development'.³⁴ Intangible cultural heritage is broadly defined³⁵ and categorised into 'domains': oral traditions including language; performing arts; social practices; knowledge and practices concerning nature and the universe; traditional craftsmanship.³⁶ State obligations include the responsibility of identifying and creating inventories of intangible cultural heritage,³⁷ raising awareness through education,³⁸ adopting a national policy, establishing a competent national body and other technical and administrative measures.³⁹ Key items are listed on the *Representative List of the Intangible Cultural Heritage of Humanity*.⁴⁰ Importantly the focus is upon maintaining the 'living' nature of culture and its transmission to future generations.⁴¹ UNESCO has established a number of programmes and a toolkit of mechanisms to facilitate this. For example, the *Living Human Treasure* programme encourages states to recognise people with a high degree of knowledge and skills required for performing or re-creating elements of intangible cultural heritage and facilitate the transmission of knowledge and skills to younger generations.⁴² South Pacific countries such as Fiji have established such a programme.⁴³

Beyond the heritage arena there is other international law which both values and protect indigenous culture and heritage and which might be utilised in the context of the threat of climate change. For example the *Convention on Biological Diversity* Article 8(j) encourages states to ‘respect, preserve and maintain the knowledge, innovations and practices of Indigenous and local communities ... relevant for the conservation and sustainable use of biological diversity.’ Traditional communities gain further support from Article 10(c), which calls for states to ‘protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements’. In addition, the Convention incorporates principles of full prior informed consent and the right to a share of the financial and other benefits arising out of the use of biodiversity. The *Convention to Combat Desertification*⁴⁴ notes that states shall exchange information and ensure adequate protection of local and traditional knowledge, whilst facilitating equitable benefit sharing for local populations from its use.⁴⁵ Both of these treaty provisions support both the safeguarding of traditional knowledge and practices and its utilisation with the consent of customary owners and for their benefit.

5. Conclusion

The effects of climate change would appear to be inevitable. Human societies have had a significant impact upon the environment for thousands of years; and the environment has also influenced the development of civilisations.⁴⁶ This presents many challenges, but in the context of this chapter the issue is to use climate change as a force for positive change as far as possible. There is little doubt that climate change now threatens human culture and heritage, but society can contribute to climate change solutions. Elements of cultural heritage are an important part of that solution and offer environmental, economical and socio-cultural benefits. Law can facilitate the safeguarding of this cultural heritage and also protect it from exploitation. The challenge is to facilitate its protection, management and sustainable utilisation fairly and equitably. In this regard the implementation of the conventions analysed above should be explored further to ensure our rich cultural diversity is secured for future generations.

Notes

¹ S.A. Crate & M. Nuttall (eds), *Anthropology and Climate Change: From Encounters to Actions*, Left Coast Press, 2009, p. 12.

² For example, it has been reported that islands have already started disappearing in the Indian Sundarbans: G. Lean, ‘Disappearing World: Global Warming Claims Tropical Island’, *The Independent*, 24 December 2006, Viewed 2 June 2010 <http://www.independent.co.uk/environment/climate-change/disappearing-world-global-warming-claims-tropical-island-429764.html>. See also the reported loss of

Nigerian Islands: Michelle Lam 'Higher Temperatures, Rising Sea Levels, and Disappearing Islands', 12 May 2010, Carbonfund.org. Viewed on 2 June 2010 at <http://www.carbonfund.org/blog/news/higher-temperatures-rising-sea-levels-disappearing-islands/>.

³ F. Berkes & D. Jolly, 'Adapting to Climate Change: Social-Ecological Resilience in a Canadian Western Arctic Community', *Conservation Ecology*, Vol. 5(2), 2001, p. 18.

⁴ UNESCO *Policy Document on the Impacts of Climate Change on World Heritage Properties*, 2008; UNESCO *Case Studies on Climate Change and World Heritage*, 2007.

⁵ For example, M. Pearson, 'Climate Change and Its Impacts on Australia's Cultural Heritage', *Historic Environment*, 2008, Vol. 21(1), pp. 37-40; see also M. Cassar, *Climate Change and the Historic Environment*, English Heritage, London, 2005.

⁶ M. Cassar & R. Pender, *The Impact of Climate Change on Cultural Heritage: Evidence and Response*. ICOM Committee for Conservation, Published in the 14th Triennial Meeting, The Hague Preprints, Vol. II, 2005, p. 613.

⁷ Ibid.

⁸ E. Rosenthal 'An Amazon Culture Withers as Food Dries Up', *The New York Times*, 24 July 2009. Viewed on 2 June 2010 at http://www.nytimes.com/2009/07/25/science/earth/25tribe.html?_r=3&pagewanted=1&hp.

⁹ L. Zhi (ed), *Bangladesh Eyes Lion's Share from G20 Fund for Agriculture*, Xinhua News Agency. Viewed 10 June 2010 at http://news.xinhuanet.com/english2010/business/2010-05/25/c_13315129.htm.

¹⁰ Bdnews24.com, *Rice Output May Drop 7% A Year*, 26 May 2010. Viewed 10 June 2010 at <http://www.bdnews24.com/details.php?id=162353&cid=4>.

¹¹ P.F. Lefale, 'Ua 'afa le Aso Stormy Weather Today: Traditional Ecological Knowledge of Weather and Climate, The Samoa Experience', *Climatic Change*, 30 September 2009, Viewed on 2 June 2010 at <http://www.springerlink.com/index/w4170n44610n2431.pdf>.

¹² Ibid., p. 1.

¹³ L. Maffi, 'Biocultural Diversity and Sustainability', *The Sage Handbook of Environment and Society*, Sage Publishing, London, 2007, pp. 267-277.

¹⁴ Ibid., p.267.

¹⁵ P. Mercer, 'Indigenous Knowledge Could Curb Carbon Emissions: Scientists', *Treaty Republic*, 12 August 2009, Viewed on 2 June 2010 at <http://www.treaty-republic.net/content/indigenous-knowledge-could-curb-carbon-emissions-scientist>.

¹⁶ C. Lee & T. Schaaf (eds), *International Workshop on the Importance of Sacred Natural Site for Biodiversity Conservation*, Proceedings of the International Workshop held in Kunming and Xishuangbanna Biosphere Reserve, People's Republic of China, 17-20 February 2003, UNESCO.

¹⁷ N.G.V. Tavana, 'Traditional Knowledge is the Key to Sustainable Development in Samoa: Examples of Ecological, Botanical and Taxonomical Knowledge', Viewed on 2 June 2010 at <http://www.mnre.gov.ws/documents/forum/2002/4-Tavana.pdf>.

¹⁸ 'Since 2005 we are now in the Second Decade of the World's Indigenous People', Viewed on 13 February 2008 at <http://www.un.org/esa/socdev/unpfii/en/second.html>.

¹⁹ R.L. Barsch, 'Indigenous Peoples in the 1990s: From Object to Subject of International Law', *Harvard Human Rights Journal*, Vol. 33, 1994, p. 33.

²⁰ For full details of the establishment of the UNPFII see <http://www.un.org/esa/socdev/unpfii/>, Viewed on 13 February 2008.

²¹ Evidenced by their 'direct access to aid programs' and their greater role in UN decision making, such as their participation in working group meetings and their recognition as a 'major group' at the Rio Summit: Barsch, op. cit., pp. 33-34 & 58.

²² These developments are set out in detail in C. Charters, 'Indigenous Peoples and International Law and Policy', *Public Law Review*, Vol. 18, 2007, p. 22.

²³ *ILO Convention No 169 Concerning Indigenous and Tribal Peoples in Independent Countries* opened for signature 27 June 1989, 28 ILM 1382 (entered into force 5 September 1991).

²⁴ *Ibid.*, art 5.

²⁵ *Ibid.*, art 8(2), although this is qualified in that they must not be incompatible with national and fundamental human rights.

²⁶ *Ibid.*, art 13.

²⁷ Articles 5, 11, 27, 34, adopted 13 September 2007. DRIP was drafted by the Working Group on Indigenous Populations (WGIP), which is the longest-standing UN body that deals exclusively with Indigenous people. The other key UN body is the Permanent Forum on Indigenous Issues (UNPFII), which was established in 2000 by the UN Economic and Social Council. The UNPFII is significant in that it includes non-state actor representatives, including Indigenous people.

²⁸ Article 11.

²⁹ Charters, op. cit., p. 34.

³⁰ *United Nations Framework Convention on Climate Change*, Preamble.

³¹ *Convention Concerning the Protection of the World Cultural and Natural Heritage*.

³² *UNESCO Policy Document on the Impacts of Climate Change on World Heritage Properties*, 2008; *UNESCO Case Studies on Climate Change and World Heritage*, 2007, p. 6.

³³ *Ibid.*, p.10.

³⁴ *Ibid.*, Preamble.

³⁵ *Ibid.*, Article 2.

³⁶ *Ibid.*, Article 3.

³⁷ Ibid., Articles 11 and 12.

³⁸ Ibid., Article 14.

³⁹ Ibid., Article 13.

⁴⁰ Ibid., Articles 16-18.

⁴¹ UNESCO, *Safeguarding without Freezing*, Viewed on 2 June 2010 at <http://www.unesco.org/culture/ich/index.php?pg=00012>.

⁴² UNESCO, Encouraging transmission of ICH: Living Human Treasures, Viewed on 2 June 2010 at <http://www.unesco.org/culture/ich/index.php?pg=00061>.

⁴³ UNESCO, *Establishment of a National Living Human Treasures system in Fiji*, Viewed on 2 June 2010 at http://portal.unesco.org/culture/en/ev.php-URL_ID=29181&URL_DO=DO_PRINTPAGE&URL_SECTION=201.html.

⁴⁴ *Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa*, opened for signature 17 June 1994, 33 ILM 1328 (entered into force 26 December 1996).

⁴⁵ Ibid., Article 16(g).

⁴⁶ M. Rowland, 'Saving the Past from the Future', *Historic Environment*, Vol. 21(1), 2008, pp.19-29.

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PART IV

Governing the Environment: State and Non-State Actors

NGOs' Involvement in Developing the Aarhus Convention: A Case of a UNECE Conference

Radoslaw Stech

Abstract

The Aarhus Convention is the United Nations regional convention that rests upon three pillars, namely access to information, participation in decision making and access to justice in environmental matters. It was adopted in 1998 after strong participation of NGOs in the working sessions and drafting of the final agreement. Since then, the NGOs have been taking active part in monitoring and assisting with the Convention's implementation. Such involvement gives an opportunity to inject the activists' fresh evidence and experience into the high-level environmental negotiations. It also creates a good example of establishing a culture of participation and transparency in international environmental governance. This chapter looks into the NGOs' organization and the avenues of influence during the Third Meeting of the Parties (MOP) to the Aarhus Convention in Riga in 2008. Officially the NGOs exercise a status of the 'observer'. However, the draft procedures, which have never become accepted by the state actors, had granted the NGOs a status of the 'non-voting participant'. This chapter argues that, in reality, the NGOs enjoy considerable influence typical for the participant rather than the observer. It focuses on a case study during the MOP, where the NGOs gained favor with the European Union countries over the establishment of a Task Force on Public Participation in decision-making. The argument is underpinned by empirical research including participant observation, interviews with the crucial state actors and a focus group with the leaders of the NGOs.

Key Words: Aarhus Convention, NGOs' participation, socio-legal study.

1. Introduction

A creation of the Aarhus Convention in 1998 was underpinned by a number of initiatives, international documents and NGOs' involvement. It was eighteen years ago when the United Nations Economic Commission for Europe (UNECE) (1990) Charter of Environmental Rights and Obligations was drafted. Although it was not finally adopted it represented 'an early compilation of principles and themes similar to those ultimately found in the Aarhus Convention'.¹ Later, the tenth principle of the United Nations Conference on Environment and Development (1992) Rio Declaration on Environment and Development emphasized the importance of providing citizens effective access to information, participation and access to justice in environmental matters. In 1993 Environmental Ministers of the UNECE region and the European Commission explicitly endorsed and gave a

mandate to the UNECE to work on an international legal instrument that could facilitate citizens' participation in environmental decision-making.² Geneva prepared guidelines, which were accepted by Environmental Ministers in Sofia. The ministers agreed that '[t]he development of a regional Convention on Public Participation should be considered with appropriate involvement of NGOs'.³ Finally, the UNECE guidelines formed basis for the future convention's draft, which were negotiated between 1996 and 1998. The concluding negotiation sessions 'involved an unprecedented level of participation on the part of NGOs'⁴ and resulted in the adoption of the Aarhus Convention.

This chapter looks into the NGOs' organization and the avenues of influence during the Third Meeting of the Parties to the Aarhus Convention in Riga in 2008 (hereafter MOP or UNECE Conference). Officially the NGOs exercise a status of the 'observer'. However, the draft procedures, which have never become accepted by the state actors, had granted the NGOs a status of the 'non-voting participant'. This chapter argues that, in reality, the NGOs enjoy considerable influence typical for the participant rather than the observer. It focuses on a case study during the UNECE Conference, where the NGOs gained favor with the European Union countries over the establishment of a Task Force on Public Participation in decision-making (hereafter TFPP or Task Force). The argument is underpinned by empirical research including participant observation, interviews with the crucial state actors and a focus group with the leaders of the NGOs.

2. Methodology

This is a socio-legal study. Firstly, I conducted analysis of the official status of the NGOs in the MOP. This was followed by empirical research. I went to Riga on the 8th June 2008 where the following took place:

- The Working Group of the Parties to the Aarhus Convention (hereafter WGP) 8-12 June, which made preliminary work before the MOP;
- The Strategic Meeting of the NGOs (specifically ECO Forum), 8-12 June (SM);
- The Meeting of the Parties to the Aarhus Convention 9-12 June (MOP);
- The EU coordination meetings, thorough the WGP and MOP, closed for non-EU delegations;
- MOP contact group, 9-12 June, open for all and aiming at resolving contentious matters in smaller groups.

Firstly, I analysed the organisation and strategy of the NGOs through the participatory observation underpinned by the interviews. Secondly, I looked into the issues that the NGOs were advocating, inter alia, the establishment of the

TFPP. The EU clearly stated that they would not support the establishment of the Task Force and their agreement was crucial in light of the number of the Member States. On the second day of the MOP the EU announced they altered their decision and would support the TFPP. I turned my interview questions specifically to explain why the EU altered its position.⁵ As a result I took an inductive approach and I ‘found’ an empirical case which is one of the four most common ways of doing case studies. Cases are *found* means that they are ‘real and bounded [...] but must be identified as cases in the course of research progress’.⁶ As to the analysis, I decided to use an inductive content analysis and in the course of analysing the interviews I found four important issues as to the NGOs strategy: organisation, transparency and openness, expertise, trust and cooperation and formal and informal means of influence. I answer a question whether NGOs had some influence on the EU’s altered position.

3. Regulation of NGOs Participation

Aarhus Convention is undergoing further development and the NGOs continue their involvement. It grants them the status of an observer:

Any non-governmental organization, qualified in the fields to which this Convention relates, which has informed the Executive Secretary of the Economic Commission for Europe of its wish to be represented at a meeting of the Parties shall be entitled to participate as an observer unless at least one third of the Parties present in the meeting raise objections.⁷

This rule is written into the procedural rules of the MOP.⁸ The same rules grant the NGOs the status of an observer in the Bureau to the Convention:

The Bureau shall invite a representative of non-governmental organizations established for the purpose of, and actively engaged in, promoting environmental protection and sustainable development, appointed in accordance with paragraph 4, to attend bureau meetings as an observer.⁹

However, the draft procedures,¹⁰ which eventually were not approved by the Parties, gave a different status to the NGOs:

the Chairperson shall in general call upon speakers in the order in which they signify their desire to speak, but may at his or her discretion decide to call upon representatives of Parties before non-voting participants.¹¹

Secondly, an NGO representative would be eligible as Vice-Chair of a MOP:

A second Vice-Chairperson shall be elected by the Meeting from among the representatives of non-governmental organizations established for the purpose of, and actively engaged in, promoting environmental protection and sustainable development.¹²

Thirdly, the draft, unlike the current procedures, provided for a position in the Bureau for an environmental NGO representative.¹³

The above analysis shows clearly that the NGOs are referred as 'mere' observers in the current procedural code of the MOP as well as in the Aarhus Convention itself. The draft of the procedures aimed at raising their status that would reflect their considerable effort to develop the Convention. Nevertheless, the empirical research below suggests that despite the current language the NGOs can be described as non-voting participants rather than 'mere' observers.

4. Empirical Findings – ECO Forum's Organization and Approach

The UNECE Conference was attended by several grassroots, regional and international NGOs. Most of them have worked under the auspices of the European ECO Forum (hereafter ECO Forum). 'The Eco-Forum is ad hoc Coalition of environmental citizens' organisations (ECOs) and other NGOs acting in the UNECE region and primarily focusing on the 'Environment for Europe' (EfE) Ministerial process'.¹⁴ The analysis of my observations focused on the ECO Forum, which includes the ECOs, and shows three major aspects of their work which are discussed below.

A. Transparency and Openness

The ECOs in Riga showed that they were transparent and open regardless of the nature of activities they performed. The ECO Forum occupied a large conference room which served as a platform for debate between various ECOs' delegations. They organized themselves in a number of expert-led committees aiming attention at substantive matters such as TFPP or access to justice. Crucially, *everybody* could work in the expert groups by volunteering during the SM in a conference room. I participated in the workings of one of the committee groups concerning the Appeal to the Meeting of the Parties.

B. Expertise, Trust and Cooperation

The MOP dealt with numerous issues negotiated simultaneously through formal and informal meetings. The NGOs had a representative expert (or few experts) constantly attached to a particular negotiating string. The experts knew the procedures and substantive matters profoundly partly because most of them had been involved in the Aarhus Convention process for many years. They were easily

identifiable among ECOs and independent NGOs thus no problems occurred. Even though there could be many people interested in and knowledgeable of a particular issue it was clear that one person should be chosen to communicate a common position to the MOP. The experts were constantly in touch with the ECOs to explain the current situation. In summary, their cooperation was underpinned by the trust relationship.

C. Formal and Informal Means of Influence

The MOP featured several ‘hot’ issues negotiated until the end of the conference. Obviously such issues could not be negotiated solely during the official meetings, which included the SM, the WGP and the MOP. There were many ad-hoc meetings in a café bar or in the corridor during which Eco-Forum articulated their demands and bargained deals. I saw, for example, the key decision-makers from the EU making frequent conversations with the ECO Forum outside the formal schedule.

5. Empirical Findings II – The Battle for the Task Force on Public Participation

A. Background

The ECO Forum was a major proponent of the TFPP. They highlighted that ‘[i]n all of the 24 national NGO reports public participation procedures were found to be incomplete, underdeveloped or poorly elaborated’.¹⁵ They stressed that the Task Force should focus on the implementation of the whole Convention’s participatory pillar at the local and national levels. End result would be a collection of good and bad practices, proposals for potential solutions with practical illustrative examples.¹⁶ The ECO Forum had advocated the Task Force long before the Riga’s conference commenced. The EU had been reluctant because they were convinced that the same work could be done via seminars and other platforms of exchange of information. Furthermore, they accentuated the limited financial resources and the lack of leadership for developing the Task Force. They announced their viewpoint clearly again during the strategic meeting of the ECO Forum a day before the MOP commenced. Two days later, however, they announced openly that they ‘changed their position’. From then on the EU has been keen on developing the Task Force.

B. NGO’s Viewpoint

The Task Force’s importance ‘has been always in the air’: the ECO Forum sent the TFPP message through various channels, both formal and informal. They admitted openly during one of the formal meetings with the EU delegation that they would rather have the Task Force in question than another subsidiary body already functioning.¹⁷ They carefully looked into the EU’s arguments: the lack of funds and the leadership and the better alternative of seminars or university

debates. NGOs rebuffed these arguments: firstly, the funds could be transferred from a less important Task Force; secondly, they offered their own leadership, and thirdly, they argued that seminars would be one-off events providing no effective continuation. In addition, ECO Forum highlighted that:

We were aware that some Parties were thinking... , some resistant, and we had to look to the most resistant [...] we know that delegations are a bit flexible.¹⁸

They argued that the Czech delegation thought of 'putting something on the table' and that more and more delegations inclined to support the Task Force towards the end of the conference.

C. Officials' Perspective

The interviewed EU representatives admitted their initial marked reluctance to organize the TFPP. The Task Force had been 'unnecessary' and there had not been sufficient financial resources for its development. They acknowledged the importance of the bilateral meeting and the following informal meetings:

Clearly the fact that NGOs would have expressed on the repetitive basis their interest, and actually even their strong interest in having such a public participation Task Force has been taken into account.¹⁹

They highlighted that the NGOs' representatives demonstrated excellent knowledge of the current affairs in Riga and the procedural and substantive matters concerning the Aarhus Convention. Their skills were visible during the negotiations in the contact group that was supposed to resolve the contentious matters such as the development of the Task Force. Apart from the contact group the EU held internal coordination meetings behind the closed doors. The interviewed delegations declared that the TFPP idea had been mentioned repeatedly during the coordination meeting; they also noted that the delegations and the EU leadership were aware of the ECO Forum's position. One of them revealed that the following sentence was uttered before the final decision:

We have to send some positive message' to other countries that supported the Task Force and NGOs yesterday and this morning [during the second and last day of the MOP].²⁰

D. A Resolution

The EU finally supported the TFPP following the Ireland's offer to provide financial resources and the leadership. The ECO Forum are convinced that the Irish

support was a ‘finishing touch’ following the overall growth in support within the EU. The Czech delegation was ready to put something ‘on the table’ and the awareness of the importance of the Task Force among EU delegations was growing. Nevertheless, one of the key EU representatives highlighted that:

if there had not been instructions given to delegates in Riga to either give a clear and positive message or at least to be able to be flexible in the light of discussions than I don’t think that it would be possible to change so quickly the position but as part of this overall process the fact that NGOs have put to us such a clear message, I assume, was also part of the overall deliberations of the EU coordination.²¹

In my view the Irish delegation did not have such an extended flexibility during the MOP. The leadership offer was associated with costs that the Irish tax payer would have to cover. As a result, this had to be a senior politician from the Irish Ministry for the Environment who put forward the Irish leadership.²²

All interviewed NGOs and national delegations claimed that such instruction had been triggered by somebody watching the MOP closely. All acknowledged that one of the NGOs members (an Irish national) sent an email to his friend from the Irish Ministry and the latter passed the letter to the Minister who agreed to the leadership. The current Irish Minister for the Environment comes from the Green Party and Ireland is not a Party to the Convention. The Minister wished to send the ‘positive message’ that the county is interested in becoming a full signatory to the Convention.

6. Conclusion

This chapter showed that the NGOs enjoyed an official title of an observer in the MOP proceedings despite the earlier efforts to elevate their status to the ‘non-voting participant’. The empirical study described their professional organization based upon transparency, trust relationship and their strategy underpinned by effective cooperation, expertise and formal and informal meetings. The closer study of the EU’s changed position towards the Task Force on Public Participation showed the ECO Forum’s strategy can be truly influential. The empirical findings suggest that Ireland offered its leadership to develop the Task Force following the message of an NGO representative working closely with the ECO Forum. In conclusion, the study suggests that the NGOs enjoy considerable power adequate for the non-voting participant during the MOP.

Notes

¹ Economic Commission for Europe, *The Aarhus Convention: An Implementation Guide*, Geneva, 2000, p. 2

² Declaration by the Ministers of the Environment of the region of the United Nations Economic Commission for Europe (UN/ECE) and the Member of the Commission of the European Communities responsible for the Environment, Lucerne 28-30 April 1993 [Online] Available at: <http://www.unece.org/env/efe/history%20of%20Efe/Luzern.E.pdf>, Accessed on 12 April 2010.

³ Declaration by the Ministers of Environment of the Region of the United Nations Economic Commission for Europe (UNECE) 25 October 1995, Sofia (Sofia Declaration) [Online] Available at: <http://www.unece.org/env/efe/history%20of%20Efe/Sofia.E.pdf>, Accessed on 12 April 2010, p. 8.

⁴ *Aarhus Convention*, op. cit., p. 2.

⁵ I conducted interviews with the key players: 4 representatives of NGOs and ECOs, 2 national delegations, 3 representatives of the EU and one focus group with the ECO Forum.

⁶ C.C. Ragin, 'Introduction: Cases of "What is a Case?"', *What is a Case?: Exploring the Foundations of Social Inquiry*, Cambridge University Press, Cambridge, 1992, pp. 1-19.

⁷ UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (adopted 25 June 1998, entered into force 30 October 2001), Article 10(5).

⁸ Rules Of Procedure of The Meeting of the Parties to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Economic Commission for Europe Geneva, Rule 6(1), Available at <http://www.unece.org/env/pp/rop.e.htm>, Accessed on 12 April 2010.

⁹ *Ibid.*, Rule 22(2).

¹⁰ Draft Rules Of Procedure of The Meeting of the Parties to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Economic Commission for Europe Geneva, 2 May 2000 Available at <http://www.unece.org/env/documents/2000/cep/wg5/cep.wg.5.2000.3.e.pdf>, Accessed on 12 April 2010.

¹¹ *Ibid.*, Rule 27(1).

¹² *Ibid.*, Rule 18(1).

¹³ *Ibid.*, Rule 22(1c).

¹⁴ ECO Forum, Available at http://www.eco-forum.org/index.php?option=com_content&task=view&id=13&Itemid=34, Accessed on 18 July 2010.

¹⁵ European ECO Forum 'The Riga European ECO Forum Appeal – 10th of June', Riga, 2008 [Online] Available at: http://www.participate.org/documents/Riga_Appeal_Eng.pdf, Accessed on 1 November 2009, p. 1.

¹⁶ *Ibid.*

¹⁷ That is Task Force on Electronic Information Tools established in 2002; its mandate was extended in Riga.

¹⁸ Focus Group with the ECO Forum, transcript.

¹⁹ EU Representative, interview transcript.

²⁰ EU Member State's delegate, interview transcript, explanation added.

²¹ EU Representative, interview transcript.

²² At the moment of writing this chapter the Task Force has not been fully established. The up-to-date information is available at <http://www.unece.org/env/pp/ppeg.htm>.

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Eradicating the Water and Sanitation Crises via Unification

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Abstract

Non-governmental organizations have been working with government partners to promote and provide access to safe water and sanitation for many years. Unless these groups unify and set aside philosophical differences regarding project implementation, it will take decades to eradicate these age-old problems. This chapter examines recently revised strategies and the economic aspects of the vital social justice issue of water and sanitation and illustrates that the challenge is neither technical nor financial but organizational. A single international organization such as the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation could unite sector players in every developing nation. This government-led, financially sustainable model could be demonstrated in Haiti and bolstered by existing grassroots efforts including new forms of fundraising via mobile-giving or social media.

Key Words: Water, sanitation, hygiene.

1. Introduction

Access to safe drinking water and sanitation is an age-old struggle for billions of people around the world that continues to result in millions of deaths per year. In September 2000, the United Nations (UN) established the Millennium Development Goal (MDG) of halving the proportion of people in the world who lack access to safe drinking water and sanitation by the year 2015. Three years later, the UN officially recognized for the first time that access safe water is a human right.¹ Much of the world is on-track for access to improved water sources, but many areas such as sub-Saharan Africa will not achieve the MDG.² It is important to note that the UN defines improved water sources as dug wells or other types of public taps that are not necessarily safe and free of pathogenic bacteria and viruses. While the data affirms that more people have easier access to water, the number of people with access to safe water is significantly lower than indicated by MDG progress statistics. Furthermore, with over two billion people still lacking access, the MDG for adequate sanitation will not likely be met.³

When asked if the nations of the world would still be addressing the problem of safe water and sanitation in 2035, Ned Breslin, the head of Water for People, responded ‘Absolutely.’⁴ Will the injustices of the water and sanitation crises exist in 2100 or can we eradicate these problems with the tenacity that eradicated smallpox and nearly eliminated polio? The polio case-study provides an excellent public-private partnership example that could be mimicked by the water and

sanitation sector. Since the 1988 Global Polio Eradication Initiative, the World Health Organization (WHO), the Centers for Disease Control (CDC), the United Nations International Children's Emergency Fund (UNICEF) and Rotary International (RI) have successfully eliminated the polio endemic from all but four countries: Afghanistan, India, Nigeria and Pakistan. RI and its 1.2 million members have contributed over US\$800M for the polio fight and have raised 80 percent of the US\$555M that is needed to complete the goal.⁵ The polio eradication model has established best practices for global cooperation and financing, but the water and sanitation sectors have the additional challenges of perpetual operation and maintenance (O&M) and replacement costs for these infrastructure improvements.

The thousands of broken hand pumps and abandoned septic tanks that dot every region of the globe demonstrate the critical need for addressing the long-term sustainability of water and sanitation projects. For the past 20 years, the community-management model has been the norm for non-governmental organizations (NGO's) that work in the developing world. These 'one-off' projects typically circumvent local governments and provide water or sanitation services to small community groups, schools or medical clinics. Such projects are often initially successful, but they tend to fail because the NGOs do not plan for long-term O&M or replacement costs for equipment or materials.⁶ This has resulted in an estimated US\$1.2-1.5 billion of project failures in sub-Saharan Africa alone.⁷ As Breslin observed, water and sanitation strategies must work 'So that long after the cameras have left, the donor reports have been filed, and the press release circulated, the community is not forgotten'.⁸ Nevertheless, such a common sense policy has not taken hold for much of the sector in part because aid groups have not typically adopted policies that ensure support until the community itself can meet maintenance and replacement costs.

2. Service Delivery Approach

Given the high rate of failure of community-management projects, the IRC International Water and Sanitation Centre recently proposed the Triple-S Initiative which is intended to provide Sustainable Services at Scale.⁹ It promotes a service delivery model that is intended to improve the success rate for water and sanitation delivery by harmonizing the long-term cooperation of governments and NGOs. This cooperation is critical to the objective of providing services at scale which is defined as full-coverage for a geographically distinct district or region.

In a government-led strategy, the role of national governments should focus on the establishing standards for water and environmental quality. National governments should also be responsible for subsidizing infrastructure projects for the poorest areas, but that ideal is only a reality for communities with political influence. This is one reason why water and sanitation policies should be decentralized and managed at the sub-national or local level where communities can have more influence on decision-making and budget appropriations. Public-

private partnerships involving NGOs and local governments can also facilitate the planning for an appropriate level of service delivery within the local financing structure and for strategically building sustainable financing and support for replacement materials and maintenance requirements.

The service delivery approach uses the ‘service ladder’ model and recognizes that communities will choose a range of water and sanitation interventions based on household preferences, capacity to pay or technical ability to perform O&M10. The service ladder model (Table 1) depicts the range of service delivery options and includes the expectation that communities will move toward higher qualities of service once those levels become technically and financially feasible. For sanitation, the improvements involve a reduction in human exposure routes to pathogens. For water, upward improvements include reliable and convenient access to ample quantities of water. Disinfection for pathogen-free, safe water should also be a minimum goal even though it is currently not required by the MDGs.

To ensure that communities can achieve an appropriate and sustainable level of service, local businesses can play important roles, especially with respect to planning, implementation and maintenance. By developing an effective financing structure that combines contributions at the user-level with subsidies from external agencies (i.e. governments or NGOs), an adequate fund can be developed so that local water equipment suppliers or sanitation service providers will have a financial incentive to maintain and replace systems over time. Micro-lending has the potential for establishing new water-related businesses and jobs for areas that require such support. In the poorest communities where paying for services is impractical at the user-level, the sources of funds will be almost entirely external especially with regard to accessing safe water. In such cases where so-called lifeline tariffs are minimal or no fee is assessed, the user’s access is typically limited to personal consumption and hygiene needs of at least 20 liters per capita per day.¹¹ Lifeline tariffs were an important part of the success of South Africa’s water program which increased water coverage from 62 to 86 percent during the period of 1994-2000.¹²

Table 1: The Service Ladder Approach Offers Technically and Financially Appropriate Interventions to Communities.

Service Level 10	Water Intervention	Sanitation Intervention
High	Household connection	Household connection
Intermediate	Water disinfection	Septic tank system and service
Basic	Standpost, borehole, protected dug well, protected springs, rainwater collection	Pour-flush latrine Ventilated improved pit-latrine, Dry pit latrine

The need for external funding is less pronounced for sanitation projects, because the capital expenditures are simpler (e.g. shovels and materials for a small shed) than those that accompany drinking water projects (e.g. chlorine generators, pumps, filters etc.). One successful approach, known as community-led total sanitation (CLTS), has been promoted by Water Aid and many other NGOs since 2000 and has been implemented in thousands of communities throughout the world including those in Bangladesh, India, Nepal, Uganda and Zambia among others.¹³ The approach involves a facilitator who guides members of the community through a process that enables them to recognize the need for better sanitation. Meetings often begin in areas where open defecation occurs so that community members can assess the associated negative impacts such as odor, pests or cleanliness. The process typically motivates the community to build simple pit latrines and to change their behavior by moving toward improved sanitation. The success of CLTS depends on the understanding that no external funding or materials will be provided, otherwise the community will not act and will simply wait for the problem to be addressed by an outside group. This passive approach has resulted in significant decreases in water-borne illness and the associated medical costs for people of all age groups with nominal use of external funds.¹⁴ Despite these successes, sanitation cost estimates for global coverage are well into the hundreds of billions of dollars.

3. Interventions and Cost

The World Health Organization has estimated the capital investment costs for several water and sanitation interventions (Table 2). Household-level treatment and disinfection is the least expensive approach for safe water access,¹⁵ however household treatment systems such as clay pot or sand filters may have difficulty producing the recommended minimum of 20 l liters for an individual's daily consumption and hygiene. Groundwater wells and public stand-posts may offer more adequate volumes of water, but the initial costs per capita are over 200 fold higher with averages ranging from US\$38 to US\$57 per capita. An extrapolation of the costs for the various interventions to the 1.1 billion people who need access to safe water results in a required initial infrastructure investment ranging from US\$0.2 billion to US\$63.2 billion (Table 2). Since the global demand for sanitation is double that for safe water, the capital costs for providing the un-served with latrines or sewer connections are US\$116 billion to US\$400 billion, respectively.

The capital investment that is needed for global water and sanitation projects has a potentially enormous rate of return when the benefits of these programs are considered. The health benefits can directly affect the finances of individuals and families by reducing costs associated with health care and the number of workday absences. These benefits are further magnified at the societal level through an overall increase in workforce productivity and a decreased burden on the healthcare system as a whole. It has been estimated that the benefit-cost ratio for

most water and sanitation interventions ranges from US\$5 to US\$11 economic benefit per US\$1 invested.¹⁶

As indicated earlier, the sustainability of water and sanitation projects requires a financial structure that will ensure that replacement and maintenance costs are continuously met. There is considerable uncertainty in the magnitude of these costs due to the variety of interventions (Table 3), but the required annual financing is on the order of US\$4 billion and US\$14 billion for water and sanitation interventions, respectively.

Table 2: Global average initial cost per capita (\pm one standard deviation) for improved water supply and sanitation options. Based on WHO data¹⁷ and adjusted to 2010 US dollars assuming 2.7 percent average annual inflation.

Water Interventions	Initial cost per capita, US\$	Cost per 1.1 billion people in billions of US\$
Disinfection at point of use	0.2 \pm 0.1	0.2
Dug well	38.4 \pm 19.4	42.3
Borehole	40.1 \pm 25.9	44.1
Rainwater	50.3 \pm 10.3	55.3
Standpost	57.4 \pm 21.4	63.2
Household connection	142.7 \pm 35.0	157.0
Sanitation Interventions	Initial cost per capita, US\$	Cost per 2.2 billion people in billions of US\$
Simple pit latrine	52.8 \pm 21.7	116.1
Ventilated improved pit-latrine	67.2 \pm 4.6	147.7
Septic tank	160.1 \pm 37.6	352.1
Household sewer connection	183.3 \pm 27.3	403.2

Table 3: Global averages (\pm one standard deviation) for annualized capital, operation and maintenance per capita costs for improved water supply and sanitation interventions. Based on WHO data and adjusted to 2010 US dollars assuming 2.7 percent average annual inflation.

Water Interventions	Average Annual Cost Per Capita, US\$	Annual Cost per 1.1 Billion People in Billions of US\$
Disinfection at point of use	0.5 ± 0.2	0.6
Borehole	3.0 ± 1.9	3.3
Dug well	2.8 ± 1.4	3.1
Rainwater	3.7 ± 0.8	4.1
Standpost	4.4 ± 1.7	4.8
Household connection	16.0 ± 3.4	17.6
Sanitation Interventions	Average Annual Cost Per Capita, US\$	Annual Cost per 2.2 Billion People in Billions of US\$
Simple pit latrine	6.4 ± 1.6	14.1
Ventilated improved pit-latrine	7.5 ± 0.3	16.5
Septic tank	13.2 ± 2.2	29.0
Household sewer connection	14.9 ± 2.1	32.8

Based on WHO cost estimates alone, providing access to safe water should be a budget priority over sanitation. The poorest communities need financial assistance for developing drinking water infrastructure whether it is for the construction of a well, the purchase of disinfection equipment or the establishment of small businesses that can provide perpetual O&M. On the other hand, the CLTS approach has demonstrated that significant behavioral change can occur with little or no external investment.

When coupled with hygiene education, universal access to safe water should result in the realization of health and economic benefits for individuals and society that greatly exceeds the required investments. Assuming an initial capital investment of US\$50 per capita, an investment of US\$50 billion for water infrastructure would present an enormous step toward eradicating the deaths associated with water-borne illness. As a point of reference, the 2008 USAID budget for water projects was US\$490 million¹⁸ and the United States Treasury's 2008 Troubled Asset Relief Program has been estimated to cost US\$105 billion.¹⁹

The annual O&M cost of US\$4 billion must be shared by users where possible and externally subsidized as needed.

Significant sources of financing other than cash-strapped governments include grassroots organizations such as RI²⁰ or individual donors. The advent of social media and mobile-giving has already demonstrated the power of individuals for raising awareness and millions of dollars by simply pressing a few buttons.²¹ With over 540 million unique users, a US\$100 donation from every user of Facebook would generate over US\$54 billion.²² Given the financial and technological solutions at hand, the developing world's water problems are surmountable as long as there is strong political will and logistical organization to do so.

4. The Next Twenty Years

Currently, there is an available niche for an umbrella organization that can unify the thousands of water sector contributors (governments, NGOs and businesses), provide educational resources and connect donors to the catalog of water and sanitation projects around the world. Improving communication between governments, NGOs and communities in this way will lead to coordinated planning, greater economic sustainability and increased overall efficiency. Of the thousands of existing NGOs working in the sector, the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) would be a logical universal umbrella organization.

The JMP could start by demonstrating a model for water sector unification in Haiti which is the only country in the western hemisphere that is not on-track to meet the MDG for improved water access. Haiti is also a strong candidate, because it has a relatively small geographic area and has hundreds of aid organizations that are not well unified or coordinated. Many of these groups (including small businesses) could be organized and trained to start CLTS and hygiene education efforts for a nominal amount of financing. By following the IRC Triple-S service delivery model for a government-led, regionally-scaled and financially sustainable program, the entire population of ten million could have access to safe water for approximately US\$500 million.

National government participation in the planning and coordinated placement of water projects is crucial, but to reduce corruption, financing must still be simple, transparent and managed by local communities in partnership with NGOs.²³ This will also require the continued coordination of bottom-up, grassroots efforts for fundraising, volunteer coordination and implementation that have been well-established over the past twenty years. After success is achieved in Haiti, the model can be replicated throughout the world so that the water and sanitation crises are permanently buried in history.

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A Role for Corporate Sustainability Strategy in the Garden City

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Abstract

This chapter discusses the response of the Letchworth Garden City Heritage Foundation to the sustainability agenda. The Heritage Foundation owns and manages the Letchworth Garden City Estate which includes housing, commercial premises, farms and community facilities within the world's first Garden City. The Heritage Foundation is adopting a sustainability strategy to actively manage its sustainability impacts. The chapter discusses the rationale for a corporate sustainability approach rather than a corporate social responsibility or environmental management approaches. It explains the role of a sustainability management system in implementing a sustainability strategy and the opportunities that such strategies may offer organisations and their local communities. Businesses are facing increasing scrutiny from their external stakeholders, including the communities within which they operate. Many organisations face significant challenges in developing an appropriate response. The adoption of a focused sustainability strategy can help organisations identify and manage their significant environmental, social and economic impacts more effectively and demonstrate their performance in these areas.

Key Words: Sustainability performance, strategy development, garden city, stakeholder engagement.

1. Introduction

Most organisations are facing pressure to address their non-financial performance, both as a result of increasing regulation, especially in the environmental arena, and the changing expectations of external stakeholders.^{1 2 3 4} The adoption of a sustainability strategy is one possible response to this challenge. Such a strategy can help organisations co-ordinate improvements to their environmental and social performance, while demonstrating to their stakeholders that business concerns extend beyond the bottom line.⁵ Furthermore, addressing these issues can have a significant impact on the financial performance of a company.⁶

The Letchworth Garden City Heritage Foundation (referred to hereafter as 'the Heritage Foundation') is the organisation that owns and manages the 2,200 hectare Letchworth Garden City Estate located in Hertfordshire, UK. Letchworth Garden City was built at the beginning of the 20th century, delivering Ebenezer Howard's proposal for a new community which incorporated the best features of both town and country.⁷ The Heritage Foundation is a unique organisation, set up by an Act

of Parliament and operating outside the ‘public’ sector as an Industrial and Provident Society with Charitable Status. While some of the income from property and trading activities is reinvested in the estate, the Heritage Foundation is tasked with delivering a key feature of Howard’s vision, that the majority of the annual profits from the Estate be ploughed back into the town. In pursuit of its six Charitable Objects (which cover, *inter alia*, heritage conservation, education and the relief of poverty), the Foundation funds and manages a day hospital, a museum, a community and entertainment centre, a minibus service, environmental improvements, education projects, town events and makes direct grants to clubs and individuals. Indeed since 1995, some £27m has been given back to the town in this way.⁸

The responsibilities of the Heritage Foundation to deliver its Charitable Objects place it in a unique position to positively influence the development of the town towards becoming an exemplar 21st century community. Socio-economic needs could be addressed in a way that also integrates environmental concerns such as resource efficiency and climate change. However, its activities as a landlord and service provider have potential for generating environmental impacts which need to be managed. To be an effective sustainability leader, the Heritage Foundation recognises a need to ensure it manages these activities in an exemplary manner, getting its own house in order so that it can credibly influence others. To align its activities and aspirations, the Heritage Foundation is currently working with the University of Hertfordshire on a Knowledge Transfer Partnership Project to develop a corporate sustainability strategy. Acknowledging the high profile of the Heritage Foundation within the Garden City, this strategy will need to effectively respond to the issues that are important to the community.

This chapter explains the rationale for the Foundation to actively manage the sustainability implications of its activities. Section 2 explores the motivations for organisations to adopt a Corporate Sustainability (CS) approach, rather than narrower Environmental Management (EM) or alternatively focused Corporate Social Responsibility (CSR) approaches to respond to the sustainable development agenda. Section 3 explains the rationale for pursuing a corporate sustainability approach at the Heritage Foundation rather than other approaches. Section 4 discusses the challenge of implementation and proposes the use of a Sustainability Management System to enable this. Throughout the chapter, we highlight the opportunities that may be open to organisations adopting a sustainability strategy for the first time, together with the benefits that affected local communities may experience.

2. Corporate Sustainability and its Relationship with Other Approaches to Manage Environmental Responsibilities

CS is a relatively recent concept, clearly linked to the emergence of the launch of the 1987 Brundtland Report *Our Common Future* which caused the concept of

sustainability to become globally recognised.^{9, 10} The 1992 UN-sponsored Rio Earth Summit further highlighted the role of businesses and corporations in achieving the sustainable development goal and it was at this time that the term Corporate Sustainability came into use.¹¹ Governments identified how sustainable development would be achieved in their own countries, for example the UK adopted its first sustainable development strategy in 1994, with further publications in 1999 and 2005.¹² Whilst the Government's early responses were primarily focused on environmental sustainability, this was followed by a strong emphasis on the economy and society with the term 'sustainable' being used to label strategies which were primarily addressing socio-economic priorities.¹³ The segregation of social, economic and environmental issues in the Government's four sustainable development objectives led to criticisms of 'ambiguity, intellectual incoherence and a continuing failure to properly understand the essence of sustainable development'.¹⁴ A more integrated approach is arguably at the centre of the most recent strategy. This aims to decouple economic growth from environmental impacts, through the pursuit of four shared priorities, each with a role for business. For example, businesses need to use product declarations and labelling to educate customers.

The varied interpretation of the sustainability concept has led to the fluidity of the definition of CS and consequent difficulties for practitioners in understanding what is involved in responding to this agenda.¹⁵ Two different definitions have been identified; one which links the concept to the ecological or environmental dimensions of business and another which takes a 'triple bottom line' view of environmental, social and economic issues.¹⁶ Some scholars describe the response to this latter interpretation by an organisation as CSR¹⁷ whilst others use the terms CS and CSR interchangeably.^{18, 19} It is argued that the two terms have different roots, with CSR being strongly anchored to social issues and CS combining a consideration of these with environmental and economic issues.²⁰

One of the best known voluntary approaches to manage the interaction between business and the biophysical environment is the Environmental Management System (EMS).²¹ Management Systems represent a rational, process-based approach which continually checks and maintains compliance against pre-defined goals.²² While companies are urged to tailor their EMS to their own circumstances, the International Standards Organisation's ISO 14001 EMS standard defines the issues to be managed in narrow environmental terms (emissions, releases, waste, resource use, etc).²³ Critics of the EMS approach have expressed concerns. They argue that it focuses on the management of effects arising from essentially unsustainable activities and that it is unable to deal with complex or ethical issues where the course of action needed to 'do the right thing' is unclear.^{24, 25} Therefore, how can organisations, like the Heritage Foundation, select an approach that allows them to co-ordinate improvements to their environmental and social performance, while demonstrating to their stakeholders that business concerns extend beyond the

bottom line? This question is of central importance to this chapter and is one upon which the next section focuses.

3. Selecting a Suitable Approach for the Heritage Foundation

It is clear from the discussion above that organisations looking to actively address their non-financial performance are faced with a range of possible options in terms of their overall approach. However, smaller organisations may lack the technical skills and knowledge to assess the suitability of different environmental and sustainability tools for their particular circumstances, which may result in them not addressing the issue at all or experiencing delays and further expense when they do take action.²⁶

The Heritage Foundation has found itself in this position in recent years, recognising the need to more actively manage the environmental impacts of its own operations while realising the potential role it could play as an environmental leader in the community. Having implemented a recycling initiative across its operations, the organisation required advice on a more holistic approach to resource efficiency. A series of environmental reviews revealed multiple opportunities to improve the management of individual issues, whilst highlighting the need for a more strategic approach across the organisation. In particular, impacts needed to be quantified before they could be managed. A strategic approach was needed to communicate the commitment of senior management towards environmental improvement and to promote action from employees, leading to a cultural change internally.²⁷ Communication of the strategy and its outcomes would also strengthen stakeholder relations externally.²⁸

While the use of a strategic environmental management approach to improvement, such as an EMS, would have enabled the Heritage Foundation to control its environmental risks and manage its key aspects, a CS approach offered greater opportunity. For instance, the charitable objects which govern its activities have a strong social justice theme. As a major property owner, it has considerable influence over the economic development of the town, having recently funded a major redevelopment of the town centre. At the same time, the Foundation recognised a need to ensure that the way these activities were delivered was fully aligned to sustainable development priorities. Since the catalyst for this project had been primarily an environmental one, a CSR approach was dismissed. The Heritage Foundation's direct activities and market are limited to the boundaries of Letchworth Garden City. CSR is perceived by many stakeholders as more relevant to multinational companies and concerned with human rights.²⁹ This perception may have limited the community's understanding of what the Heritage Foundation is trying to achieve.

As a result, the Heritage Foundation is operationalising CS through the adoption of a comprehensive sustainability strategy, addressing environmental, economic and social dimensions, their impacts and interrelationships.³⁰ The

strategy is being designed to reflect senior management's decisions about how sustainable the organisation ought to be and the resources available to put these principles into practice.³¹ Sustainability strategies can be categorised as introverted, extroverted, conservative or visionary according to their focus and the standards of sustainability they aim to pursue.³² While these categories reflect increasing maturity of the strategies, the Heritage Foundation is initially aiming to adopt a transformative extroverted strategy, to positively influence basic conditions for sustainability, such as those defined by the Natural Step Framework.^{33, 34} This type of strategy enables the organisation to become a champion of sustainable development in society, whilst also ensuring that internal sustainability issues are fully dealt with.³⁵

With respect to the project, an extensive quantitative baseline review has already been conducted to investigate the significance of these issues, which is enabling identification of the areas in need of improvement prior to the strategy being drawn up. A stakeholder engagement exercise is currently under way, enabling the external expectations of the Heritage Foundation's role in sustainable development to be fully understood and where appropriate, reflected in the development and implementation of the strategy.

4. Addressing the Challenge of Implementation

Once a sustainability strategy has been developed and adopted by an organisation, a major challenge of such a policy response is to ensure it is implemented effectively throughout the organisation.³⁶ This requires that sustainability values are embedded into the organisation's core business strategies and processes.^{37, 38} It requires changes in the way operational activities are carried out by staff to be sustained over time until they become part of the organisation's culture.³⁹ To this end, a Sustainability Working Group has been meeting within the Heritage Foundation since 2008. This is chaired by the Property Director and includes representatives from the Property, Marketing and Finance departments. This group has played a major role in identifying emerging issues relevant to the different work areas, implementing the recommendations from the Environmental Reviews and progressing projects such as a workplace travel survey of staff.

This approach represents recognised good practice in helping to raise the profile of sustainability issues internally.^{40, 41} However, it is only one part of the implementation process. A sustainability management system (SMS) will be used to ensure that the strategy is put into practice throughout the organisation.⁴² An SMS may be considered as a mature standard EMS that has been expanded to consider broader sustainability issues.⁴³ Although the Heritage Foundation does not currently operate an EMS, a bespoke SMS will be put into place which implements the strategy through yearly action plans designed to achieve specific objectives and targets.⁴⁴ Initial sustainability performance indicators have already been proposed following the baseline review although these will be adapted in

response to internal and external stakeholder input.⁴⁵ Progress against these indicators will be monitored and reported. Arrangements for resourcing, responsibilities, staff training and communication are currently being made.

Concerns have been expressed that while management systems can help organisations to ‘do things right the first time’, ie specific actions have been achieved, they cannot help organisations in their quest to ‘do the right things’, ie adopt appropriate values.⁴⁶ Therefore, by firstly carrying out a thorough baseline review, initiating stakeholder engagement and adopting a sustainability strategy, it is argued that the Heritage Foundation will be able to rely on a management systems approach to continually check that ‘the right things’ for sustainability are being done. This means that values and actions can be aligned and year-on-year progress will be made.

5. Conclusion

The Heritage Foundation is developing a sustainability strategy that will guide its current and future activities. This approach is enabling it to identify and manage the key environment, social and economic impacts of its activities, while in the future maximising the positive influence of its unusual position and enabling it to take a leadership role in sustainability within Letchworth Garden City. While the Heritage Foundation is a unique organisation, with special responsibilities towards residents of Letchworth Garden City, the approach taken is applicable to other organisations that have a particular influence on a single community.

Businesses have a vital role in enabling society to move towards a more sustainable future.⁴⁷ Issues such as climate change and resource consumption need to be tackled effectively in a way which addresses issues of equity and opportunity for all. Implementing a sustainability strategy through the use of a sustainability management system enables organisations to identify and address the most significant sustainability issues they face. It enables organisations to co-ordinate their approach, make progress year on year and reduce their environmental impacts, while enhancing their community contribution in a manner which is aligned with sustainable development principles. Furthermore, this approach demonstrates that sustainability issues are a corporate priority. High profile, forward thinking organisations must respond positively to a growing body of vocal stakeholders demanding their contribution in the transition towards a more sustainable society.

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PART V

Engaging with Technology

Sharing and Shaping Perceptions: Dialogues with Expertise in the Deployment of Renewable Energy Technologies

Carla Alvial-Palavicino and Masaru Yarime

Abstract

The challenge of sustainability calls for a more inclusive approach to the development of science and technology. A broader, multi-framing perspective has been proposed, revealing the complexity of the problems, as well as multiple actors' perspectives and framings, intended to achieve a more democratic process of knowledge construction, and as consequence, results that are more socially robust. Therefore, it is relevant to understand the role of scientific expert knowledge and its interplay with other types of expertise. The purpose of this research is to understand these interactions, using the concept of expertise as well as the idea of coproduction during the development of a technology. We use the case study of a renewable energy innovation project and we analyse how local people's perspectives interact with the developers' ones. Through action research we analyze the dynamics of knowledge creation in the development of energy project, focusing on the role of engineers as well as how their perception changes through the process. The adoption of participatory approaches on energy innovation opens-up the research process to encompass a project on its full socio-technical dimension. Social and cultural constructions around technologies – in this case electricity – are shared among stakeholders, and affect ontological aspects of the technological design. This research highlights the importance of broader definitions and expertise and the importance of interactional expertise as a connecting actor between stakeholders. Interactional expertise and informal situations allows process of social learning to be promoted within the project, and as a consequence, different framings and perspectives are encompassed in the project design; we also describe how the process of coproduction occurs in different ways depending on the problem and the stakeholder's dynamics.

Key Words: Renewable energy, technology appraisal, coproduction, expertise.

1. Introduction

Sustainability has emerged as a normative, problem oriented discipline, highly related to people and to how they interact with their environment.¹ These interactions can only be grasped if we understand them in the framework of complexity. Systems that are complex are not merely complicated; by their nature they involve deep uncertainties and a plurality of legitimate perspectives.² This plurality of perspectives can only be addressed by opening-up to diverse kinds of

knowledge and framings, and can only be translated into action by closing-down to commitments.³

In the development of renewable energy technologies, communities and local actors are key stakeholders whose knowledge and perception is not always properly acknowledged and included in technological appraisal, especially in the case of large scale generation. Micro-generation, in contrast, is a concept rooted in the idea of the alternative technologies movement⁴ and refers to small scale, community based technologies.⁵ When local communities are engaged in this type of technological developments, a complex and contradictory set of reactions are observed. Cultural and social aspects of energy and technology are reflected on the way communities react to the introduction of renewable energy, with locality, ownership, trust, symbolic, affective and discursive aspects affecting the behaviour of people in relation with energy.⁶ Approaches to include these aspects, understood as community participation, can encourage the community to get personally involved with projects and therefore strengthen its further development. Community participation comes at a price for the project implementers, as they need to share decision power with end users,⁷ but an active involvement is more beneficial for local communities since they can benefit from local training as well as employment.⁸ Local issues are the main reason to want to be involved in a community energy project, but that forms of involvement tend to be more 'reactive than proactive'.⁹

The discourse of participation has proliferated in many areas in the recent years. Science and technology are 'increasingly recognised to be open to individual creativity, collective ingenuity, economic priorities, cultural values, institutional interest, stakeholder's negotiations and the exercise of power.'¹⁰ But from theory to practice in terms of public participation in technology appraisals, there is still a huge gap.¹¹ An invisible line is drawn between areas where public engagement is seen to be legitimate –issues of ethics and values– and those where is not –matters requiring specialist knowledge and expertise.¹² But under conditions of social and technical uncertainty, citizens can bring relevant forms of knowledge and expertise, as well as trust and transparency in the decision making process.

The purpose of this research is to address the dynamics of renewable energy project, using concepts of STS,¹³ in order to understand how different types of expertise interact in the creation of knowledge, and how this relates to the governance of these technological systems at local level.

2. Expertise and Technology Appraisal

The question of balance between participation – appraisal – and reaching agreements – commitments – is essential to create socially robust knowledge that can be effectively used for the benefit of society.¹⁴ Process of deliberation not properly planned can be confusing and even generate conflict. Expertise is central,

yet whose expertise? Collins and Evans, (2007)¹⁵ approach this problem by defining a typology of expertise – the periodic table of expertise.

Within this classification of expertise, there are three basic types. *Specialist expertise* is not only composed by a ‘hard or concrete knowledge’ component – that is to be found in textbooks and scientific papers – but also a strong tacit knowledge component – a particular way to see and interpret the world. Within specialist knowledge definition, there is contributory expertise and interactional expertise. *Contributory expertise* ‘enables those who have acquired it to contribute to the domain to which the expertise pertains’ and *interactional expertise* is an ‘expertise in the language of a specialism in the absence of expertise on its practice’.

Technological systems are understood to be composed by hardware – the equipment itself – and software – social and infrastructural organisation through which alternative renewable energy hardware is utilised and given purpose.¹⁶ The idea of coproduction¹⁷ provides an explanatory framework that ‘is not about ideas alone; it is equally about physical things. It is not only about how people organise and express themselves, but also about what they value and how they assume responsibilities for their inventions’, thus allowing us to include social and cultural aspects as well as the issue of authority and power in the development of a project, which would be reflected in the final design.

3. Context of the Case Study: Renewable Energy Innovation Project in a Rural Community

The project described in this research introduces the concept of community energy in Chile by the promotion of a hybrid system for energy production, composed of wind and solar energy as well as a diesel backup, in a configuration known as *virtual power plant*. The location of the project is a rural village in the north of Chile called Huatacondo. This village has a rich history relevant to our analysis. It was founded in the 903 B.C and populated by indigenous people¹⁸ until the invasion of Spanish *conquistadores* in the XVI century, when it became an Indo-Spanish community. The same founder Spanish families have been living in the village for almost 500 years. During the saltpeter rush, Huatacondo was a supply provider for the saltpeter works – known as *oficinas* – but after the invention of the synthetic ammonia and the following decline of the industry, Huatacondo lost its trading activities and became further and further isolated. In the beginning of the 1990’s, two mining companies¹⁹ started activities in the near area, but these industries have had little impact in the socio-economic realities – income and employment – of the village. Their CSR²⁰ activities have had some impact on improving livelihoods in Huatacondo. As far as we could notice, this is not an empowering relation for the village, but rather one of *asistencialismo*,²¹ creating dependency and reducing the willingness of the villagers to transform their realities, as well as their own perception of the future. As a consequence,

villagers today have little expectations on the future and doubt the existence of Huatacondo in the long term.

4. The Introduction of the Renewable Energy System

The project initially promoted has not a fixed design beyond small scale hardware and control systems. It was planned to be adapted to the reality of the village where it was going to be implemented. Initially, it was the developers that decided the planning of the project without consultation, in a first visit to the village. But this design had to be evaluated by social and environmental researchers in order to promote a so called sustainable energy system.²² It was this process that promoted the interaction with local people as well as a transformation of the technological system and the approach used by the developers. Hereby we describe some of these interactions in terms of how framings interact and knowledge is coproduction among actors.

Engineering expertise can be characterised using the terms by one of the members of the research group 'to bring intelligence into the system'. Engineers have a certain way to approach a problem that works well within a particular framing and when there is enough information about the issue. But in reality data availability is not always complete and technical data may not exist nor be obtainable under current conditions. Conventional approach was not enough to find an optimal solution and local knowledge or contextual knowledge of the area of the village was more relevant than the technical data available.

As part of the project, villagers were required to choose the location of the generating units among several options given by the developers. The selected locations according to the data available and engineering criteria conflicted with the use villagers had given to the land. In the absence of any other location, villagers were asked to propose a location themselves: the place they presented received more radiation than the one previously selected, was well protected from environmental risks and was easily accessible, although this was not apparent at first sight. What seems to be taken for granted of 'local people know about their local environment better than anyone else' is often ignored because of the prevalence of certain technical methodologies and procedures to define optimal solutions.

The dynamics of knowledge sharing also happen as a way to share knowledge brought up by different kinds of expertise. It is commonly agreed that one kind of expertise is not able to grasp the whole complexity of a problem; yet, in practice, decisions are made by one particular group with biased opinions on what the rest components are. When the process is revealed on its whole complexity, knowledge is changed and expanded, along with the methodological appreciation of the problem itself.

Included as part of the initial proposal of the project, was an improvement in the water supply system of the village. The village has running water but not

drinking water, and supply is provided to some houses only. At first sight, the water tower intended to provide drinking water to the whole village is not operating because of technical issues. The idea was to solve the technical issue in order to provide drinking water to the whole village. After fieldwork, the social researchers presented to the engineering group the issue from a different perspective: it was not only about technical issues and funding, but also severe institutional problems inside and outside the village, as well as cultural practices on water management and perceptions about water pollution due to mining activities. Villagers framed the problem as a question of who is in charge and has the credibility and authority to solve the water issue. As the real complexity of the issue was revealed, the technical issue shifted to a political issue – ‘should we or should we not do something about the water? How far can we intervene in the village without having to deal with the social problems?’ – leading to a re-definition of the scope of the technical intervention as well as a change in the methodological approach in order to include all actors. Engineers’ interpretation of the problem was one of the multiple framings that could be given and represented only a portion of the real complexity of the water supply system.

A central component of the project was the introduction of smart metering systems in the village. Because the introduction of entirely new technologies is a process of iterative generation of social meanings, any such introduction would imply even high uncertainties. Smart meters are devices aimed to shape energy consumption behaviours through information and incentives.²³ The introduction of these devices is of great importance to the experimental part of the project, since it will provide data about energy behaviours and how can they be affected.

Context is profoundly relevant, and pure-technical approaches to smart metering systems would not only not achieve its purpose, but could also give rise to new conflicts. The basic smart-metering system design was based on experiences in industrialised countries; however, in the context of this rural village there is no concept of paying for public goods: the few hours of electricity as well as the water systems are for free and for everybody, and attempts to change it have failed. In response, everyone should be responsible for the well being of the systems. Villagers have created a system of management for each of these services, which is virtually independent from the government and companies.²⁴

As the project proceeded, it became evident that to change energy behaviours was not a matter of just information and incentives; it also included aspects such as networks within the community, social capital, equality, trust, customs, and perception of value. Thus, what changed was the organisational strategy of the smart-metering implementation: what – if any – incentives for energy reductions would be used, who should be involved, who should manage the system, how much information should be provided and to whom.

5. Expertise Recognition and Social Learning

Both local and scientific knowledge can be classified as contributory expertise, of different nature but both relevant to the issue – renewable energy. But even though stakeholders both had contributory expertise, open and fluent interaction between them did not happen by itself; it was the role of the social researchers, who had interactional expertise, to generate a common language between stakeholders and allow a fluent dialogue between them, as well as to transparent process of appraisal and commitment.

The existence of different contributory expertise does not guarantee their recognition. Whether an expertise is acknowledged as such within public domains depends on each culture's civic epistemology, that is, the criteria by which members of society systematically evaluate the validity of public knowledge.²⁵ Being authority an important part of expertise, within the paternalistic mentality of Latin America, authority is expected to be authoritarian.²⁶ As it happened in the case of the water issue, engineers were exposed to the complex aspect of the problem since they first contacted the villagers, yet they were not able to interpret it in a way that would allow them to frame it within their particular understanding. Villagers, on the other hand, would not challenge the expert's opinions. The interactional expertise of the social scientists allows them to effectively communicate with a contributory expertise, and because of their standing as 'experts' within the social network, challenge the status quo giving due recognition to local knowledge as central part of the technological appraisal process.

Social learning occurs in this case, in parallel with the process of participation and social appraisal.²⁷ In order to be able to interact with the local community, stakeholders enter in multiple dialogues with other stakeholders and within the same group, creating meaning of each other and the relationship that is developed between them. This first step of awareness and mobilisation²⁸ is crucial defining the normative nature of the technological appraisal. It is in this there were actors' perceptions can be negotiated so it creates a basis for the construction of socially robust knowledge.

6. Conclusion

We have described the role of interactional expertise in the promotion of more inclusive framings of technological appraisal and social learning. Interactional is the basis for process of interactional that have multiple directions (Table 1.) yet they rely on a common basis of how stakeholders construct knowledge about their relations. It is clear that interactional expertise is a type of expertise that has to be acquired as any other. Yet, since we are looking at expertise under the concept of democracy and sustainability – which are not necessarily congruent – how to promote interactional expertise in this context remains an open question.

How to best manage the conflict remains an open theoretical and political project. Although this question cannot be directly solved through this research, we

have shown an empirical example where an initial step has been taken toward more inclusive and participatory appraisal of technology by means of deconstructing the traditional conception of expertise and reassembling it through a process of social learning.

Table 1. Three Typologies of Knowledge Co-Production Found in the Project.

Aspect where change is observed	Local expertise role/ acknowledgment of other expertise.	Directionality of the process
Location of solar panels: Data about solar exposition and risk of the area	Within the same domain than scientific expertise: acknowledged without conflict.	Unidirectional and Substantial: Increased knowledge about an specific topic.
Intervention on water system: technical, political, social, cultural and value aspects of water management.	Different domain of expertise: acknowledgment is value-ridden, requires normative thinking.	Multidirectional and relational: expansions of boundaries, framings and
Smart metering system: Social and cultural components about energy management in the locality; divergence and impacts from previous studies; unpredictability.	Expertise as centered on process rather than on outcomes: mutual construction of meaning. Acknowledgment requires admitting one's ignorance.	Constructional: Directionally unknown, iterative process of construction and reflection on multiple directions.

Notes

¹ R.W. Kates et al., 'Environment and Development: Sustainability Science', *Science*, 292/5517, Apr 2001, pp. 641-642.

² S.O. Funtowicz & J.R. Ravetz, 'Risk Management as a Postnormal Science', *Risk Analysis*, 12/1, Mar 1992, pp. 95-97.

³ A. Stirling, 'Opening up and Closing Down: Power, Participation, and Pluralism in the Social Appraisal of Technology', *Science Technology & Human Values*, 33/2, Mar 2008, pp. 262-94.

⁴ E.F. Schumacher, *Small Is Beautiful: A Study of Economics as if People Mattered*, Blond & Briggs, London, 1973.

⁵ The concept of ‘community’ as the central basis for micro-generation technologies has multiple interpretations and in practice gives space to a diverse type of energy and ownership settings. For an extensive discussion on this topic, please refer to G. Walker et al., ‘Harnessing Community Energies: Explaining and Evaluating Community-Based Localism in Renewable Energy Policy in the UK’, *Global Environmental Politics*, Vol. 7, No. 2, May 2007, p. 64.

⁶ P. Devine-Wright, ‘Energy Citizenship: Psychological Aspects of Evolution in Sustainable Energy Technologies’, *Governing Technology for Sustainability*, Earthscan, London, 2007, pp. 63-86, G. Walker, ‘Environmental Justice and Normative Thinking’, *Antipode*, 2000, pp. 203-205.

⁷ C. Villalobos & P. Schweizer-Ris, ‘Rural Solar Energy Supply and Participation: The Example of a Small Hellenic Community’, *Learning Communities and Sustainable Social-Economic City Development*, C. Arcidiacono & H. Legewie (eds), 5th European Conference for Community Psychology, Berlin, 2004.

⁸ Patrick Devine-Wright, ‘Local Aspects of Uk Renewable Energy Development: Exploring Public Beliefs and Policy Implications’, *Local Environment*, 10 (2005), 57-69.

⁹ J.C. Rogers et al., ‘Public Perceptions of Opportunities for Community-Based Renewable Energy Projects’, *Energy Policy*, Vol. 36, No. 11, 2008, pp. 4217-4226.

¹⁰ Stirling, op. cit.

¹¹ A. Delgado, K. Lein Kjolberg & F. Wickson, ‘Public Engagement Coming of Age: From Theory to Practice in STS Encounters with Nanotechnology’, *Public Understanding of Science*, 2010.

¹² A. Irwin, ‘STS Perspectives on Scientific Governance’, *The Handbook of Science and Technology Studies*, 3rd Ed., MIT Press, 2008, pp. 583-608.

¹³ STS Science and Technology Studies, op. cit.

¹⁴ H. Nowotny, ‘Democratising Expertise and Socially Robust Knowledge’, *Science and Public Policy*, Vol. 30, 2003, pp. 151-156.

¹⁵ H.M. Collins & R. Evans, *Rethinking Expertise*, University of Chicago Press, Chicago, 2007.

¹⁶ G. Walker & N. Cass, ‘Carbon Reduction, ‘the Public’ and Renewable Energy: Engaging with Socio-Technical Configurations’, *Area*, Vol. 39, No. 4, Dec 2007, pp. 458-469.

¹⁷ S. Jasanoff, *States of Knowledge: The Co-Production of Science and Social Order*, Routledge, 2004, p. 352.

¹⁸ It was first populated by Atacameño people, and it became part of the Inca Empire, that brought populations from Aymará and Quechua origin. Although its Indo-Spanish nature today, it stills preserves many of the characteristics of these indigenous people, such as agricultural practices and traditional festivals.

¹⁹ These mining companies mainly extract copper and molybdenum, and are owned by foreign mining corporations.

²⁰ CSR, *Corporate Social Responsibility*.

²¹ ‘*asistencialismo*’ is a Spanish word that refers to basic aid that does not attack the roots of the problem, it can be translated as ‘help-ism’ and it is related to the idea of paternalism.

²² The idea of sustainability - as well as the idea of technological innovation – are the main two components of the discourse of the developers. It is important to note that sustainability was used as a sort of promotional term, since the developers were not really sure of what it meant in practice – beyond not using fossil fuels for energy production. Some of the developers acknowledged that sustainability was used as a term to promote the project and to get funding and acceptance, rather than something meaningful to the methodological design and the intervention. However, it can be argued that, through the process of social learning, there was a change in the vision of the project, not explicitly related to sustainability, but related with values of environmental and social justice and responsibilities.

²³ Through a smart meter, a two-side communication is generated between the user and the energy system. In that way, the user actively participated on the maintenance of the system. The idea is to maximize the stability of the system and reduce carbon emission by making an efficient use of it. Smart meters, associated to renewables energy sources, are a good alternative to overcome the disadvantages of these types of energy – intermittent supply. The basic idea is to inform consumers and give them some incentive to change their behaviour; usually this incentive is differentiated tariffs. But this technology is still on demonstration state, and although it has been implemented in some areas, it is not clear yet what is the optimal design and how effective it actually is.

²⁴ Although, it is true that the government and mining companies contribute to the improvement on the quality of water and electricity, none of them impose any governance system in the village. The system works as follow: there is a fixed amount of energy and those who want to use more or outside working hours have their own batteries and buy their own diesel. Villagers have no concept of energy efficiency or cost of the energy system, they just know that when overloaded, it does not work anymore. Below such limit, energy use is unconscious.

²⁵ S. Jasanoff, ‘Technologies of Humility: Citizen Participation in Governing Science’, *Minerva*, Vol. 41, No. 3, 2003, pp. 223-244; S. Jasanoff, *Designs on Nature: Science and Democracy in Europe and the United States*, Princeton University Press, 2007.

²⁶ R. Hernandez, Personal Communication.

²⁷ Social learning process can be acknowledged in this case, but it is important to highlight the factors that promoted social learning to happen spontaneously: transparency, spaces of negotiation, expertise recognition and systems thinking. Further analysis on the components that promoted social learning can be found in R. Dyball, V.A. Brown & M. Keen, ‘Towards Sustainability: Five Strands of

Social Learning', *Social Learning Towards a Sustainable World Principles, Perspectives, and Praxis*, A.E.J. Wals (ed), Wageningen Academic Publishers, Wageningen, 2007, pp. 181-94.

²⁸ R. Bouwen & T. Taillieu, 'Multi-Party Collaboration as Social Learning for Interdependence: Developing Relational Knowing for Sustainable Natural Resource Management', *Journal of Community & Applied Social Psychology*, Vol. 14, No. 3, 2004, pp. 137-53.

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Public Participation in UK Infrastructure Planning: Democracy, Technology and Environmental Justice

Matthew Cotton

Abstract

Public involvement in environmental planning has become a central concern of academics, policy specialists and planning practitioners in recent years. In particular, public involvement has become a prominent feature of the decision-making processes for large-scale infrastructure builds, such as roads, airports and energy technologies. The practice of public and stakeholder engagement (PSE) has been touted as a means to alleviate public opposition to controversial planning proposals that create localised environmental burdens to affected communities. Though PSE in decision-making has become an institutionalised practice in the operation of UK Government departments, there is a contrasting culture of planning policy emerging through a 'modernisation agenda' culminating in the Planning Act 2008 - which makes infrastructure planning the purview of an independent Infrastructure Planning Commission (IPC). The IPC is a body that has been criticised as being top-down and 'technocratic', thus curtailing the democratic rights of local communities. The tensions between these two objectives of deliberative democratic public involvement in decision-making and the streamlining of the planning system to reduce costs and planning delays are explored in this chapter with reference to a practical example of infrastructure planning, namely the development of electricity transmission networks in the UK.

Key Words: Planning Act 2008, public participation, infrastructure planning, electricity networks.

1. Introduction: Infrastructure Planning and Public Controversy

The roles of 'public', 'local community' and 'stakeholder' actors in the decision-making processes for large scale technological infrastructure projects has emerged as an important concern for both academic social scientists and planning practitioners. In the UK there are numerous examples of publicly controversial projects which encounter siting difficulties when state-owned and private sector organisations seek to implement proposals that generate risks to individuals, adversely affect local community welfare and potentially harm the natural environment. For example, when it comes to the siting of nuclear power stations, wind farms, radioactive waste disposal sites, motorways, gas pipelines or airports, the often publicly controversial nature of these developments necessitates the generation of support, or at least the attenuation of opposition from local communities, public planning bodies, non-governmental organisations and myriad

other stakeholder groups. Doing so is necessary to both justify the construction of such facilities openly within the public sphere, to maximise the social welfare of affected citizens that bear environmental risks, and often to defuse the types of public opposition to proposals that can result in planning failure and wasted public and private sector resources.

Where political controversy emerges around infrastructure plans from affected citizen groups, one frequently cited solution is to improve the level of direct public and stakeholder engagement (PSE) with the processes and outcomes of decision-making, either as a means to strategically ‘grease the wheels’ of planning processes and hence reduce costs and planning delays,¹ or else to challenge the problems of *bounded rationality*² whereby the so-called objective assessments of experts are prioritised over ‘soft’, ‘subjective’ and ‘irrational’ public values; and the *deficit model*³ assumptions that pervade political, technical and industry actors’ conceptions of public understanding of risk - whereby expert-centred planning authorities assume that better communication of technical information to a ‘misinformed’ and ‘irrational’ public will result in widespread public acceptance of controversial proposals. Thus PSE can potentially benefit developers, planning bodies and affected local communities by reinforcing social and environmental justice through fostering greater community support and rendering decision-making processes and resultant policies as legitimate in the eyes of decision-makers.

PSE also has the potential to substantively improve the quality of decisions⁴ by eliciting the types of information often excluded from technical analyses (such as local, indigenous, cultural and geographical knowledge), thus making decisions more ‘socially robust’.⁵ It has therefore become widely recognised within academic and policy circles that decision-making should no longer be the sole purview of politicians and technical specialists, and so PSE is not only considered to be a kind of gold standard for decision-making,⁶ but is also becoming institutionalised as ‘best practice’ in planning and environmental governance.

2. Public Participation in Infrastructure Planning

In terms of the institutionalisation of PSE mechanisms in the UK planning system, documents from the former UK Labour Government administration highlight PSE as an ‘essential component’ of planning processes for sustainable development,⁷ and more broadly as being fundamental to an effective planning system.⁸ With particular regard to energy infrastructure planning, PSE is also posited as a means to meet strategic objectives such as achieving ‘lower costs, fewer delays and less uncertainty in the planning process’.⁹ The essential nature of political decision-making over the governance of controversial technological developments has thus evolved in manner sometimes labelled as a ‘deliberative turn’ as PSE becomes standard procedure within government departments. Similarly, private sector organisations have increasingly become accustomed to

public engagement as a statutory requirement in planning processes. In theory at least, this results in increased opportunities for citizens to participate in the processes of political governance around technology implementation and environmental planning and also a change in the way that techno-scientific, infrastructure development and resource use objectives are achieved.

In practice, however, despite the stated aim of UK Government departments to integrate PSE within planning processes, this objective is being reversed by the so-called ‘modernisation’ agenda. Within academic, practitioner and policy circles there has been a long-standing debate over how to expedite the protracted planning processes for large infrastructure builds where construction of necessary facilities is hampered by long, and often adversarial public inquiry processes. This has occurred not only in the UK, but commonly in other European countries, whereby governments move to accelerate and simplify or ‘streamline’ the processes of forward planning and development control.¹⁰ Emerging from this debate in the UK is one such piece of planning legislative reform called The Planning Act 2008 – designed specifically to streamline the planning processes for what are described as nationally significant infrastructure projects (including ports, energy systems, airports and roads). This chapter focuses upon the tension that emerges through changes to the planning regime as a result of these two competing objectives of improving public involvement and improving ‘efficiency’ within the sector, and considers this tension with regard to a practical example of electricity transmission network development in the UK.

3. The Planning Act 2008 and the Infrastructure Planning Commission (IPC)

The UK Planning Act of 2008 was developed within the political context of Government concerns over the lengthy and costly arrangements for approving Terminal 5 at Heathrow airport. Terminal 5 was finally constructed and opened in 2008 following the longest planning inquiry in UK history. The inquiry cost £80m, heard 700 witnesses, generated 100,000 pages of transcripts, sat for 524 days and took eight years from first application to government approval,¹¹ making it one of the most exhaustive exercises in democratic consultation ever undertaken into a major national policy decision. Terminal 5 illustrated how the concept of national need for infrastructure to provide regional economic development (from increased air traffic) trumped both the democratic powers of local planning bodies and the political will of locally affected residents, and also the concerns of environmental groups over the implications of increased air traffic to reduce local air quality, generate noise pollution and exacerbate the global risks of anthropogenic climate change. Rather than strengthen the democratic powers of local community actors in environmental planning, however, what the Government took from the Terminal 5 case is that the fundamentally democratic Public Inquiry process proved a sticking point for the development of what it termed ‘nationally significant infrastructure projects’. Terminal 5 was thus instrumental in defining the terms of the Planning

Act 2008 and the subsequent creation of the independent Infrastructure Planning Commission (IPC) to oversee future infrastructure projects, as a means to reduce costs and delays associated with local planning authority and affected community involvement in public inquiry processes.

4. The IPC in Practice

The IPC is the expert committee that oversees development consent for infrastructure projects. It formally began operations in October 2009 and began receiving applications from developers in March 2010, with the first applications coming from transport and energy infrastructure developers. IPC chairman Sir Michael Pitt describes the change as the long-overdue shake-up of the planning regime for national infrastructure, marking the separation of policy-making from decision-making for the first time in UK planning history. The IPC promises the delivery of an efficient and equitable planning process, alongside estimated taxpayer savings of £300 million annually, by bringing eight former consent regimes into one and reducing the time taken to make a decision from an average of 100 weeks previously, to less than a year.

Applications for development consent are decided by the IPC within a framework of National Policy Statements on each form of infrastructure (such as energy, airports etc.), which when completed then undergo public consultation and parliamentary scrutiny. Once this process is complete, the government will take account of the responses and the views of parliament before designating the statement. If the relevant national policy statement or statements are in place, then the IPC subsequently makes the decision on each application it receives, if not, then the Secretary of State will make the decision.¹²

In terms of PSE, the IPC assures 'heavy front loading' of public consultation under the new regime, meaning that developers need to demonstrate public consultation and that they have acted upon public feedback prior to submitting an application to the IPC. Following application submission, the IPC has 28 days to accept or reject the proposal, and inadequate consultation is described as a criterion for the rejection of proposals. If an application is accepted the public will be able to register at the appropriate time to provide their views in writing to IPC, and to participate later in open-floor hearings and to cross-examine evidence. In principle it appears that the IPC process offers ample opportunity for public involvement, however, local community actor *influence* upon the outcomes of decision-making is highly contested, and so the creation of the IPC raises fundamental questions about legitimacy and democratic accountability in decision-making. In particular the separation of planning from policy-making raises questions around whether land-use change is primarily a technical activity or one which involves the making of political choices.¹³

Within the Act itself, the public involvement provisions are described by Edwards¹⁴ as being expressed in 'apple pie and motherhood' language, i.e. in terms

that are broadly agreeable but that lack specificity as to how public actor responses are incorporated in practice. More broadly the IPC has been construed in the popular press as curtailing democratic involvement in the planning process¹⁵ as well as incurring adverse comment from organisations such as Friends of the Earth.¹⁶ The Act and the IPC appear to reflect a fundamental conflict of policy objectives that pervaded the former Labour Government's over-arching governance framework. For example Inch,¹⁷ building on the work of Newman¹⁸ identifies the fundamental differences residing within the former Labour Government's cultures of governance. On one side are policies defined as a means to build a power base for central government through vertical integration, making the public sector the delivery vehicle for governance and, in other respects, a professional empowerment culture evident in the setting up of appointed, independent expert committees to oversee the implementation of planning and policy making in the public sector (the IPC being one such example). These two strategies contrast sharply with a concurrent commitment to a local empowerment exemplified in bottom-up community consultation policies around sustainable development, such as a commitment to articles such as the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) and Local Agenda 21. What is clear is that these two objectives are mutually exclusive - democratic legitimacy through deliberative local community involvement is inevitably undermined technocratic, expert-centred planning and development control. In practice, therefore, developers may pay lip service to the notion of public involvement, whilst plans for infrastructure developments are predominantly defined through technical criteria and top-down decision-making by an unelected body. To illustrate this democratic deficit, a brief example is given below of a development process for the construction of electricity transmission networks in the UK.

5. The Case of Electricity Network Development

Electricity transmission networks are the centralised power systems to connect electricity generation (from large scale power stations and renewable resources such as wind farms) to industrial and domestic customers. They are characterised by high voltage conductors, usually overhead lines supported by steel latticework towers (often called pylons) or buried underground cables, and substations where changes in voltage are necessary. The infrastructure is publicly controversial due to the visual intrusion in rural and suburban landscapes that occurs from siting highly visible linear structures, alongside the subsequent effects on household property and local amenity values and the potential risks identified from electric and magnetic fields (EMF), which have been implicated in elevated risks of childhood leukaemia.¹⁹

In the past, transmission networks suffered from the so-called problems of the former planning regime – for example in the 1990s a proposed 50-mile line from Teesside to York in the northeast of England became mired in public controversy with the affected local authorities formally objecting, along with MPs, MEPs and approximately 8,000 people - resulting in multiple public inquiries, delayed construction, increased costs and significant mistrust in National Grid (the network operator [hereafter referred to as NG]) amongst community residents.²⁰ Most recently, however, electricity networks have become subject to the Planning Act 2008, and for large projects (such as connections for future nuclear power facilities) NG has applied for development consent and undertaken public consultation measures in local communities in advance of their application to the IPC. In practice the planning process firstly involves a strategic or ‘high level’ consultation process with statutory consultees (organisations such as Natural England, Environment Agency or the National Assembly for Wales) to define a route corridor – the broad tract of land (about 2 miles across) that could potentially host a new overhead line. Consultation then occurs further ‘downstream’ with local authorities and affected communities, through mechanisms such as public exhibitions – where industry representatives meet with local community members and explain project proposals, and through written feedback, website responses and calls to consultation phone lines.

Though the public consultation provides ample opportunity for citizens to discuss proposals, in practice, participants are given an extremely limited range of options (usually corridor 1 or 2), and in some cases these options are limited to one side of a community or the other, thus proving a divisive measure that pits one side of a community against the other.²¹ Public feedback is therefore largely limited to a choice between two locally unfavourable options, quite literally a Scylla or Charybdis decision, and so the public consultation activities have served as means to mobilise localised public opposition in the formation of protest groups and networked community campaigns which are not only stressful, costly and time consuming for local communities but also serve to deepen local distrust of the developer National Grid.

6. Conclusions

What the National Grid example shows is that the strategy of ‘front-loaded’ public consultation in advance of development consent through the IPC process is a politically controversial planning measure that is designed primarily to legitimise agency decisions that have already been made on a technical level in advance of public consultation, and so it places participants in the position of reacting to proposals rather than providing input to their development. Local community actors are forced to engage with predefined plans for siting, rather than question the ‘need case’ for new infrastructure, holistically evaluate the project's feasibility, or present alternative options.²² Under the IPC process, therefore, public voices

from locally affected citizenry have little power to influence planning processes and so the PSE mechanisms employed become a focal point for proposal opposition to agencies' *de facto* decisions, rather than a means to 'streamline' an efficient planning process.

The Planning Act and IPC are instruments borne of the former Labour Government, however, the current Coalition Government has planned to scrap the IPC and overhaul planning powers within the Department for Communities and Local Government (CLG) by replacing it with 'fairer, faster decision making' through a Major Infrastructure Unit as part of a revised CLG structure that includes the Planning Inspectorate. This means final decisions on nationally important infrastructure would be made by the relevant secretaries of state rather than an independent committee. Though in essence this measure replaces the technocratic decision-making process of an unelected body with that of an elected minister, further questions must be raised about the tension between the powers of Government over that of a local community. Simply employing a greater level of ministerial control will not ameliorate public opposition to infrastructure siting plans which local community members rightly perceive as an environmental burden which damages their community. Until arrangements for decision-making are implemented that foster community support by providing local communities with 'decisional' influence and a degree of planning control, these large scale infrastructure projects will continue to be a source of political conflict, delay and environmental injustice.

Notes

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Succeed through Science? Science, Technology and Innovation as a Central Theme in a Scenarios Exercise to Guide a Societally-Centred Approach to Environmental Management

Gary Kass

Abstract

Natural England is the UK government's statutory adviser on the natural environment in England. It has undertaken a range of futures activities to establish a robust perspective on long-term challenges facing the natural environment and how society might interact with and manage the environment over the next fifty years. This work was grounded in an ethnographic framework that explored how potential changes in society could have implications (either positive or negative) for biodiversity, landscape and the relationship between citizens and their environment. This chapter describes the rationale and conceptual frameworks for the scenarios and how the futures work is driving strategic thinking in a public agency charged with managing the environment for the benefit of society. The chapter outlines how the futures perspective at Natural England is helping to develop a more active and dynamic vision and approach to conservation through an ecosystems approach that has at its heart the need to secure living within ecological limits and a fair society as the two key goals of sustainability. Central to the drivers and scenarios work was the role and governance of science, technology and innovation. This featured as a major issue in each of the scenarios developed, with one scenario 'Succeed through Science' being characterised by a clear focus on driving innovation and sustainability together to benefit society. This chapter focuses on the development of that theme. It sets out the critical role of science and technology in shaping, and helping to secure, the future of the natural environment and how people might interact with nature. It identifies and describes key challenges and relates them to how the pace and direction of science and technology might be steered to contribute to sustainability.

Key Words: Science, technology, innovation, sustainability, scenario, future, society, ethnography, environment.

1. Plausible Futures for Society and the Natural Environment

The world is constantly changing, so we need continually to stimulate new thinking and ideas about how we can address the risks and take advantage of the opportunities that change will bring. Thinking constructively about the future helps us to make conscious choices that ground our short-term decisions in a set of robust longer term goals, creating direction and momentum to deliver a sustainable future.

Natural England's role is to ensure that the natural environment is conserved, enhanced and managed 'for the benefit of present and future generations, thereby contributing to sustainable development'.¹ With a focus on the future, it has a statutory obligation to be ready to respond to longer term future challenges and opportunities. Key to this, NE is developing a new approach to environmental management based on three fundamental shifts:

- From species and habitats to ecosystems and the wider landscape
- From a static, historical perspective that resists change to a dynamic, future-oriented approach that recognises, embraces and values change
- From an emphasis on protecting non-human species to a focus on delivering goods and services from a healthy natural environment that can help us live within ecological limits and deliver a fair society.

During 2008-2009, four scenarios were developed to assist thinking about how the next fifty years might unfold in relation to England's natural environment.² The scenarios paint plausible pictures of how the future might play out. They map out the changes that *could* happen. Fourteen global drivers of change were identified: (in alphabetical order): climate change; converging new technologies; demographics; energy; food security; world economic power shifts; governance; health and wellbeing; infectious diseases; marine; mobility; money; wealth; economy; resources; values and people.³

In relation to the overarching question 'what could affect England's natural environment to 2060?' three major sub-questions emerged:

- Will the world have found a way to live sustainably?
- Will technology have provided a 'get out of jail free' card or will lifestyle changes still be necessary?
- What will be the world order? Will it be dominated by free market globalisation?

Between now and 2060 there are likely to be major generational shifts in society, together with many changes in technology, lifespan and climate change. For this reason major 'givens' relating to these topics were consistently built into the four scenarios, the responses to them being different in each:

- Scientific advancement and technological development
- Changing population and demographics, in the UK and globally
- Climate change - on its projected track for the next 50 years.

The scenarios were developed along consistent ‘narrative threads’ along which the stories start out grounded in the present, highlighting current emphasis on certain strategic issues but also pointing out where other emerging trends or issues are ignored or downplayed. The stories develop along those tracks until a response occurs in which the dominant policies and emphases are challenged and new pathways open. These pathways are then followed through to the outcomes in 2060 described in the scenarios. The scenarios are presented as a series of stories, each told from the view point of a person in 2060, looking back on the previous 50 years.

2. Conceptual Framework

The scenarios focus on the full range of factors that might affect the natural environment in England between now and 2060, including people’s relationship with the natural world. The scenarios were influenced strongly by the central role of people’s values, culture and behaviours in shaping how the future may develop. With this in mind, the Ethnographic Futures Framework (EFF)⁴ was adopted as the central unifying structure to explore how the drivers may develop over the next 50 years and then to develop and structure the scenarios. The EFF asks a number of questions, which fall under five headings:

- Define: What new concepts, ideas and world-views will emerge to help us make sense of the world?
- Relate: How will we live together and relate to each other and the world around us?
- Connect: What arts, media and technologies will we use to connect people, places and things?
- Create: What will we create and build?
- Consume: How will we use resources?

The EFF complements the timeframe of the scenarios to 2060, as the values, cultures and behaviours of people are central to determining potential outcomes in long-term scenarios. The focus of the EFF lies in where the effects of changes in the future are felt. This is different from the more usual drivers of change approach, which focuses on where changes originate.

3. The Scenarios

Below are short summaries of what life in 2060 would be like in each scenario and how each scenario came about.

A. Connect for Life

Life in 2060: People connect through vast global networks. Decisions and economies are based locally, but through billions of worldwide connections they

create a bigger and more effective system - a global super-brain. Social and environmental values are stronger - loyalty lies with communities connected for common purposes across the globe; national government has relatively little influence.

How this scenario emerged: In the early 21st Century the major focus was on using information and communication technologies to improve productivity and for entertainment. However, less attention was given to the potential of social networking and internet-enabled democratic decision-making to improve social and environmental outcomes. As social networks became sufficiently large and self-supporting, 'traditional' beliefs and ways of doing things became outdated and unproductive. These faded as hyper-connected communities became the main focus.

B. Go for Growth

Life in 2060: Making money is a priority and economic growth continues to be driven by consumption and new technology. Few people worry about the environment and almost everyone continues to consume at will. The country has reacted to devastating events by spending money on food from abroad and developing technology. There is growing concern this may not always solve the problems facing Britain.

How this scenario emerged: Trends dominant in the first part of the 21st Century continued. Society remained focused on consumption-based growth through a market economy enabled through accelerating innovation.

C. Keep it Local

Life in 2060: Society now revolves around nations feeding and providing for themselves. England's land is largely used either for food production or for housing. Critical decisions (for example, around security and infrastructure) are made nationally, with other decisions made regionally and locally. People are very protective of their local area and belongings, but have a strong sense of national identity. Resources are limited and are tightly controlled, but consumption remains high.

How this scenario emerged: In the early 21st Century, society emphasised consumption while paying little attention to working within environmental and resource limits. However, in the 2020s and 2030s, those limits were breached and a series of social and environmental crises emerged. This forced nations to adopt more protectionist positions, slowing and unravelling globalisation.

D. Succeed through Science

Life in 2060: The global economy continues to be driven by innovation and everyone relies on business to keep the country growing. London and the South East are important, but the rest of the country is also booming as both cities and

their surroundings produce so much. People trust technology to enable growth within environmental and resource limits, but some worry it may not always have the answer.

How this scenario emerged: The early 21st Century emphasised improving productivity in the global market economy. However, this served only to focus attention on driving innovation to achieve short-term economic gains. Long-range consequences for society and the environment received little serious attention. However, new entrants in the global economy recognised that their own long-term competitive advantage required a more forward-looking approach that would safeguard social and human capital in the longer term.

4. Science and Technology Shaping the Future

There are four potentially dominant areas of technology over the next 50 years: biotechnology, neuroscience, information technology and nanotechnology.⁵ Moreover, the ‘convergence’ of technologies may also be hugely influential. Biotechnology includes advanced genetic techniques to generate desired traits in plants, animals or micro-organisms and, ultimately building entirely novel forms of life (synthetic biology). Neuroscience explores how the human brain works and how it can be influenced through drugs or other ‘cognition enhancers’. Advances in information technology include its decreasing cost and increasing capability and pervasiveness and shifts to new platforms (such as quantum and organic computing). Nanotechnologies manipulate matter at the atomic and molecular levels and have the potential to create many new materials and devices with wide-ranging applications, such as in medicine, electronics, and energy production.

While these rapidly expanding fields have the potential both for great opportunities and for great risks, the range of potential implications stretches beyond merely physical health and safety (either for the human body or the wider environment). Converging new technologies could provide new products and services, enable human personal abilities and social achievements, and reshape societal relationships. In the medium term, convergence is expected to increase, as both the basic underlying science and the range of applications grow. While these technologies may contribute significantly to solving many health, food security and environmental problems, a lack of effective governance could put this at risk, or could give rise to greater potential harms.

In the longer-term, converging technologies may, in the views of some, lead to the mastery of all nature. The view here is one of ‘material unity’ at the molecular scale where all matter (living and non-living) is indistinguishable and can be seamlessly integrated.⁶ Convergence then aims to improve human performance, both physically and cognitively (e.g. in the battlefield, in the field, in the workplace). Alternative views suggest that there is something qualitatively different about ‘life’ and that advancing technology could pose threats to culture

and tradition, to human integrity and autonomy, perhaps to political and economic stability.

While the range of potential uses is vast and the implications essentially unpredictable, two positions may emerge in relation to crossing the boundaries between the ‘natural’ and the ‘non natural’:

- *Breakdown* - crossing the boundary is ‘transgression’ and leads to a backlash where whole classes of technology might be banned for ethical reasons. Potential side effects could result in human toxicity, environmental impacts and effects on societal cohesion and global economics.
- *Breakthrough* - crossing the boundary is ‘progress’ and leads to an explosion of innovation as it enters the ‘flatlands’ where ‘everyone is at it’ - bio-mash-ups and bio-hacking are common. Traditional hierarchies are swept aside and a new prosperity emerges based on widespread innovation.

5. Science, Technology and the Natural Environment

Advances in science and technology were found to be key factors in shaping all the scenarios, but the pace and direction of such innovations varies widely.

In *Succeed through Science*, innovation drives growth within environmental limits in the ‘*breakthrough*’ mode. The long-term goal is to safeguard human and social capital in as much as it serves increased and sustained productivity and consumption. Often ecosystems are co-opted to provide functions and services for human benefit.

In *Go for Growth*, global markets drive innovation to both stimulate and satisfy consumption. Technology is developed rapidly to drive economic growth, improve efficiency and increase productivity - again in the ‘*breakthrough*’ mode. Little effort is made to explore or deal with potential implications in advance.

In *Connect for Life*, hyper-connectivity and immersive technologies are central. Most people and communities are connected globally through advanced computer networks, for example to share knowledge and experience, entertainment, personal connections, business and collective decision-making. There is a balance between *breakthrough* and *breakdown* thinking.

In *Keep it Local*, technology is oriented towards ensuring both national and resource security. Innovation has slowed overall but there is still rapid technological development in some sectors, particularly to increase resource efficiency and to bolster security. *Breakdown* and *breakthrough* are weak paradigms as there is less reliance overall on technology.

6. Synthesis

After examining common themes and significant differences across the scenarios, two issues emerge that are central to helping society make better and more informed decisions about the natural environment and people's relationship with it.

Firstly, the natural environment still has value in some form. The question of values boils down to 'where will the balance sit between valuing the environment for its own sake and for the social and economic benefits it can bring?' All the scenarios hint at both these positions but it is a question of degree, rather than a discrete position at one or other extreme.

Secondly, the future state of the natural environment is determined largely by the choices that people make, shaped by their values and the broader context in which they live. The scenarios describe the effects of different ways that choices can be made, leading to the second key question: 'what will drive decision-making?' The nature of the choices and the systems in place to make those choices vary across the scenarios but essentially they are shaped by:

- the availability of resources (energy supplies, food or water)
- scientific and technological capabilities (low-carbon energy, food production and information technology)
- societal preferences and paradigms - e.g. *breakthrough* versus *breakdown* thinking
- the scale and nature of decision-making - e.g. spatially (from global to local), over time (from short to long-term) and through relationships (directed to voluntary).

In Natural England, these insights feed into a series of 'strategic challenges' which stimulate thinking and innovation in the organisation. More specifically, the organisation is asking itself what role it should play in relation to emerging and new areas of science and technology. Four levels of intervention are under consideration:

- Reactive control - react to technologies when they arrive
- Reactive influence - work with inventors to mitigate risks
- Pro-active control - scan the horizon to prepare for technologies
- Pro-active influence - steer innovation towards sustainability.

In terms of environmental justice and global citizenship, the scenarios work described here illustrates well three key principles that are raised by the ubiquity and pace of development of technology:

-
- Equity - The power of new technologies, if used appropriately, can help solve some of the world's most intractable problems and provide real benefits for people, planet and prosperity
 - Responsibility - But we don't want to create more problems than we solve - all those involved in the development and use of these technologies can ensure that social, ethical and environmental issues are considered alongside the economic and the technical
 - Democracy - These life-changing technologies are not the domain of the few. Stakeholders including the general public should have a real say in the way they are developed and used.

Given the ubiquity and potential influence of the role of science and technology in the coming decades, such debate would aim to influence decisions and actions in the short-term to deliver societal, economic and environmental benefits from technology development and deployment over the longer-term. It would include issues at the level of individual technologies, their applications and their broader systemic context. The debate would engage policy-makers, professionals, experts, communities and individuals in discussions about what goals society should aim for and how new technologies can contribute to meeting these goals.

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A Bio-Integrated Model of Food Production Based on Scientific and Traditional Knowledge in Ciudad del Carmen, Mexico

*Luis Domínguez-Trejo, Miguel R. Morales-Garza and
Wendy Cano Domínguez*

Abstract

Ciudad del Carmen, Campeche is an island located in the Gulf of Mexico. In 1946, shrimp became the most important international traded fishery that provided employment and income for the population. Later in 1971 the discovery of oil in the region changed the story of the island but shrimps' exploitation continued. There was no concern on precautionary and ecosystem approach to fisheries (EAF), and natural populations diminished. Overfishing was rampant, and when this resource was not available anymore, fishers blamed the Mexican state oil company for the social conflicts that were generated by the crash of shrimp populations. Some native residents are actually concerned in shift to an EAF and take the shrimp experience as an excellent example of what not to do in the present. Members of the community and researchers developed a bio-integrated model system that links recirculating aquaculture with hydroponic vegetable production, as a different way to integrate fish and plants in a polyculture that increases diversity not only of products but of knowledge. To develop this project and set up the system we integrated scientific and technological knowledge considering the needs and wishes of the community. To decide the production of plants in the aquaponic system we rescued the traditional knowledge of the elders and women. As a result, the community is now in charge of their resources and takes care of them. Also, the participant households are improving its nutrition with the consumption of the products and its incomes with the sale of the products. Cooperation between experts and communities can be possible when both recognize that the value and legitimacy of traditional knowledge is a first step to reduce social inequality. This community empowerment gives them now access to participate in the decision making actions of their present and future.

Key Words: Aquaponic, aquaculture, hydroponic, knowledge, household, Mexico.

1. The Context

Since 1946 the resource dependency on the shrimp fisheries of the community of Ciudad del Carmen, Mexico have had ecological consequences for the natural populations of shrimps, the environment and the way of living of the community. Populations that directly depend on a specific natural resource for a high proportion of their income tend to be very vulnerable to the availability of the resource, market valuations, competition, and also local policies.¹ In this case the

overfishing of shrimps was rampant affecting the natural populations and creating many social conflicts. With the discovery of oil in the region by 1971 the history of the island changed dramatically and the pollution of the sea also affected the shrimp population. Overfishing continued, and when this resource was not available anymore, fishers only blamed the Mexican state oil company for the decrease in the shrimp populations. Since then scientists and local communities have long been concerned about the connection between natural resources and community stability; even though social conflicts in the island such as poverty and corruption avoid doing significant changes.

2. From the Imposition to the Integration

The research center CRIP-Carmen had been working on the investigation of fisheries and the biology of regional species with economic importance. Although the scientific relevance of many projects the transference of scientific results to the society was problematic. We thought it was because the scientists had a linear vision on the transference of knowledge and technology.² In other words, they transfer technological outputs with a complex scientific load to a community that lacks of scientific education but is rich in other kind of knowledge that some scientists consider not as valid as the scientific one. In this scenario for the community is quite difficult to adapt an unknown technological practice to its own context or needs. When they do not find sense or have not the conditions to incorporate a new technology to their own lives, sometimes the community reject the project or abandon it, even if it has real or potential benefits. Simply the new technology is out of context. Moreover, it is more complicated if the transfer of new technology has to be implemented using an ecosystem approach to fisheries (EAF), because this linear model do not consider the cultural and traditional dimensions that EAF emphasizes:

It is well-known that many indigenous people or local communities have a profound empirical knowledge of the environment in which they live, one central reason being the fact that their survival may depend on their understanding of how different patterns of resource use will affect the sustainability of resources in the future. Their understanding of the environment is often close to the conceptual basis for integrated or holistic management.³

Considering the potential knowledge hold in the local community of Ciudad del Carmen we tried to develop mechanisms to use this knowledge appropriately. Instead of transfer indirectly the scientific knowledge to the community or try to impose the scientific model as superior or better than other knowledge, we tried to change the linear model of transference of knowledge (from scientists to society)

and integrate new forms to transmit and share information with the community. We decided that the community was not going to be any more the object of study; instead, it became an active subject of change. In this way we can interact, investigate, and understand the needs of the community and start working in a different environment of mutual respect and understanding. We changed the linear approach of transference of knowledge when we did not apply any more the existing knowledge generated on the research institution to the community. Instead, the knowledge itself is generated inside the community in a multiplicity of contexts of application. The production of knowledge is determined since the beginning by the interests and needs of the community. This transfer of knowledge is bidirectional and more interactive because the transference answers the social demands inside a specific sociocultural context.

3. Aquaponics, Scientists and Community

For several years we were working in close contact with fishers of the community to study first the shrimp population dynamics, and few years later the impacts on the blue crab fisheries in the Gulf of Mexico. From these experiences we learnt that scientific information produced at the CRIP-Carmen was only for other scientists and the results of those investigations never reach local people. It was then when we decided to act different and apply a human approach based on common values and interests. We learnt that the participation of the fishermen also recognized their economic, social, and cultural importance in the community.

For this new experience, we considered to set up real objectives considering our human and economic resources. Planning was a very important part of this well-structured process. We first decided the type of participation that each member will have and the objectives in each phase to experience a productive outcome. We always considered the scientific and technical quality of the project but also we recognized that the use of both scientific and traditional knowledge, even in a very specific context, could have limitations and be in some cases problematic. Fortunately, interacting with the community for several years allowed us to exchange perspectives and knowledge. This mutual learning helped us to build strong bonds between participants and gave us the tools and skills to start the new project of aquaponics in Ciudad el Carmen.

At least since the mid 1980s aquaponic became a viable system of food production, but required intensive management. Aquaponic is the combination of aquaculture and hydroponics in an integrate system. In the aquaponic laboratory of the CRIP-Carmen we decided to design our system using mainly recycled materials. The bio-integrate model that we design were thought to answer the needs of the local community, where women are in charge of the nutrition and take care of the family. Once the system is installed the activities to maintain it are easy to do.

Households in Ciudad del Carmen are mainly supported by women. They are in charge to raise their children and provide their families. Considering this, we believed that a gender aspect of this local knowledge would be more appropriate when developing the bio-integrated model. Women often have more traditional knowledge of the local resources because they exploit them to provide their families. These skills and special knowledge to use natural resources are very important to get a bidirectional share of knowledge with scientists. Finally, we thought that if our project were successful using a participative approach, probably it could solve some of the socio-economic and environmental issues in the island.

The system allow to have a healthy functioning ecosystem that not only sustains itself, but also can sustains a family, local communities or even regional economies.

When you grow fish and plants together in one integrated soilless system the benefits for the households are multiple because they can increase their food supply and improve nutrition while eating fresh fish and vegetables. Also the household economy benefits through diversification of income for the sale of fish and plants.

The combination of traditional knowledge and scientific knowledge is not easy and requires a continuous learning from each other, commitment, a process of learning and time. Time allowed us to create an environment of mutual respect and equality. Women were the ones that decided the vegetables and fruits that had to be grown in the system. Also, they taught some traditional cooking recipes using the production of the aquaponic system. To integrate woman and make them feel more comfortable most of the interviews were made in their kitchens, the place that they totally control. In that comfortable environment we obtained the best results working and planning together the next stages of the project.

4. A Learning Experience

The products obtained from our bio-integrated model were first used in households that were effectively engaged in sustainable development, had a shared sense of purpose and participated in this project that was and still is meaningful to them.

The use of the bio-integrated model and its incorporation inside the households, allowed us to understand that different practices (scientific and traditional) can coexist together and help to change the representation that science is more important than other knowledge. In this case the scientific practice is an important part as well as the traditional practices. The model improved the nutrition of some households in the community.

The aquaponic system worked fine at a household level, and now we expect to expand the transference of the bio-integrated model in more household in different areas in the island. But we need to involve decision makers, scientists, managers and more people of the local population. They need to cooperate in the elaboration

of a pattern program that will meet both the development requests of local communities, and the protection and conservation needs of the natural environment. Unluckily, it is not the case in Ciudad del Carmen, there are economic and political interests that for many years segregated the local communities. However, we consider that if we could obtain more support from our authorities we could have an extended program for public sensitizing and collaborative working, to encourage the participation of the local population as well as the integration of other scientists to work in an interdisciplinary way. By now, we cannot carry out all our ideas with such a limited budget, inadequate facilities, lack of human resources and in some cases without basic resources such as water and light. But we are not going to stop working because we think that communication, a permanent dialogue, and the public involvement of some members of the community still are a priority reason to go on.

We believe that the active participation of the community can empower them to define in an autonomous way the course of his own personal and collective development.

Notes

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PART VI

Rethinking Climate Change

Climate and Agency: Post-Humanist Geographies and Environmental Change

Vanessa Burns

Abstract

Climate is reconfiguring world geographies through such phenomena as sea level rise and extreme weather, challenging anthropocentrism and is imminently forcing greater democracy between humans and non-humans in our international institutions and everyday practices. Based on Bruno Latour's political ecology framework, this chapter asks how humans and non-humans can be brought into more democratic relations in the context of climate change. Broadly, it considers the problems of anthropocentrism in climate change governance. More specifically it is concerned with how emerging geographies of climate interact with human geographies and how this problematises ideas of the social.

Key Words: Climate change, post-humanism, intergenerational rights.

Recent scientific evidence reveals 'climate' to be an interconnected global network centered around the global ocean systems. Additionally, climate science elucidates a disparity between the temporal mechanisms of human society and the temporal cycles of nature and climate. This chapter works with the growing body of climate science to investigate the interconnectedness of climate networks, both spatially and temporally, that I argue forces a new realism on humanist based assumptions. I ask whether 'Nature' can – and should – be understood to have agency in the emerging imperative for both post-national and posthumanist solutions to the growing climate crisis – solutions that I argue necessarily reflect the interconnectedness of these global climate systems.

I suggest that it is through engagement with science that climate can best be understood in social terms as a singular yet complex global assemblage of non-human actors and remote human agencies. I investigate how scientific frameworks and practices such as speciesism, paleoclimatology and climate modelling, inform post-humanist philosophy and institutional responses within the climate regime that might be considered posthumanist. Rather than focus on the sociological impacts of climate on 'human' society, my chapter emphasises the assemblage of climate itself as an alternate mode of power. Climate is reconfiguring world geographies through such phenomena as sea level rise and extreme weather, challenging anthropocentrism and is imminently forcing greater democracy between humans and non-humans in our international institutions and everyday practices.

Lastly, I interrogate what seems to be an increasing phenomenon; that, as

science reveals the interconnectedness of natural and social systems ‘under the skin’ of Western societies founded and presently reliant on their bifurcation, the sciences are being radically questioned and arguably becoming marginalised from their previously authoritative central position.

Climate – as distinct from the weather – was understood in the eighteenth and much of the nineteenth century as interactions between local topographies and the atmosphere. It is only recently that climate has begun to be understood as a global, interconnected and ocean-centric system. However, this early regional understanding of climate was critical in the development of contemporary attitudes to climate change. It laid the groundwork for thinking about climate around human societies rather than understanding this global system as an important part of their essential fabric.

In recent years, the increasing impact – and understanding of - climate change has necessitated the construction of geographies of human and ecological resilience to serious impacts such as sea level rise and extreme weather. Yet despite the definitively global and borderless indications of climate, as well as international efforts to address trans-border issues matters of common concern, the nature of human geographies has obstructed responses outside the regional and geocentric terms of our humanist framework. In particular, the local and political demands of the nation state have meant cooperative responses have been limited.

Two important conceptual shifts need to occur. The first is that the three broad principles of the climate system– a global, interconnected and ocean-centric system - must be considered as guiding principles in any analysis of climate change strategy. Secondly, geographies of vulnerability need to be constructed around these principles that place an emphasis on non-human actors. It is the resilience of ecological actors, not human actors or human rights that is absolutely critical to the functions of the climate system in the long term.

These two points apply an essentially Latourian idea - that by recognizing a greater number of non-human participants in an assemblage, the dominance of human actors obstructing certain actions or understandings becomes decentralized. In the context of climate the inclusion of the non-human allows fundamental parameters of climate to better inform geographies assembled for the purpose of responding to climate change. In line with Latour’s ideas, this participation undermines anthropocentrism by – for example - adding an ocean-centric logic to an otherwise geo-centric range of strategies.

Consideration of such post-humanist climate geographies opens the way to a closer analysis of precisely how ecological and human resilience to climate change intersect. Importantly, this approach reveals new regions and different areas of concern for climate governance. Local geocentric strategies that are already in place are ill-equipped to consider the long term. Furthermore, an approach that de-centres the human is particularly important for protecting intergenerational rights –

so often talked about as the long term end result of massive climate change impact.¹

Western societies have a long history of understanding nature and society as separate and singular entities. I suggest that this continues to inform climate change governance. An important example of this is a comparison of geographies of human resilience to climate change, with geographies of ecological vulnerability.

Global geographies of human resilience to climate change have presented distinct differences between mid and low latitude regions. This dynamic defines the equatorial belt as a critically vulnerable zone. It is a zone of highly populated low lying islands and deltas vulnerable to sea level rise, a region where extreme weather will be more severe and where rainfall and temperature variability will be high. Adaptive capacity in these regions is typically low and so this mid to low latitude dynamic indicates an important new mode of socio-economic analysis – one that further complicates established east-west, and postcolonial north-south relationships.

A geography of global ecological vulnerability considered independently of human needs and values is yet to be constructed. What is clear is that a preliminary sketch of this geography shows many of the key areas of vulnerability are areas of low or no human population, such as the poles, deserts and high mountainous regions. Because climate is ocean-centric, many critical areas are key areas of global ocean circulation (the Southern Ocean, the North Atlantic, the North Pacific and North Indian oceans). What is most striking is that the outline of this geography begins to construct a definite high latitude focus, compared to the clear equatorial focus of the human based geographies that form the basis for mitigative and adaptive strategies.

This is a stark example of how our persistently humanist underpinnings obscure empirical understanding of a global geography of ecological and human resilience to climate change. Indeed, this same conceptual framework obstructed the inclusion of critical parameters in the methodologies of early climate scientists. Now, despite advancements in scientific understanding, this same framework obscures the international ‘methodologies’ of climate governance resultant in short term strategies that are incapable of addressing long term ecological vulnerability or intergenerational rights.

Vulnerability is assessed by weighing the seriousness of climate impacts against the socio-economic capacity to build adaptive strategies. It is utilitarian in nature - its criteria defined by the greatest impact on the greatest number of people. I suggest that as an exercise in moving toward a less humanist understanding of climate we think about ecological vulnerability in a similar way - around the greatest loss or gain to the greatest number of non-human actors, rather than assessing ecological loss through human values and interests such as biodiversity.

For example, geographies of human resilience to climate change do not prioritise the regions with the highest ethnic diversity, but the highest populations in regions of low adaptive capacity - such as Bangladesh.

As legal theorist Christopher Stone noted in his pivotal essay 'Should Trees Have Standing', this line of arguing does not promote that all non-human actors should have equal rights, or in my example equal consideration or weighting in these geographies. However, as Latour argues the recognition of the more than human actors participating in an assemblage is an important step in understanding hidden agencies and rights obscured by Humanism.

Having now considered an increased number of non-human actors at risk from climate change I suggest this creates a starting point for a more democratic geography of ecological vulnerability. One that is not defined by human needs and more informed for the purpose of creating long term strategies. A next step in this exercise is to give greater weighting to non-human actors that perform particularly critical functions in the climate system. I suggest this then creates a geography of vulnerabilities within the climate system itself. This is the geography that I am promoting should be used in assessing global vulnerabilities and that I argue is particularly critical to long term strategies.

There is little merit in considering either ecological vulnerability or human vulnerability alone, as climate and human society are now inextricably connected. What I aim to achieve by applying this Latourian methodology is a more democratically aligned geography of humans and non-humans intersecting along this now high to low latitude modes of comparison.

To avoid further separating human and non-human concerns it is important to recognise human interests and remote human participation in high latitude zones important to ecological vulnerabilities, while also considering the important functions of equatorial ecosystems in relation to human rights in low latitude areas.

A good example of the latter is found in an area of North-West Amazonia. This area emerges in recent climate models as the most vulnerable to rainfall and temperature variability of any area on the planet in the next 50 years.² In an ecoregion highly vulnerable to drought, this north-west region could constitute a tipping point in a drying phenomenon considered likely to transform 80% of the Amazon into savannah by 2100.³

The Amazon is a critical region in terms of the global climate system and has certainly been promoted by scientists as such. The north-west region identified in these models is sparsely populated by Indigenous peoples living on traditional lands, and home to communities of de-tribalised riverine people reliant on a complex tributary system of the Amazon River. Along with its low human population it is not an area of high deforestation and so hasn't been considered in either human rights or economic frameworks for assessing climate change impacts. Despite the wider region of Amazonia being promoted as important to global climate, this smaller north-west region has received no attention. Unfortunately,

this is consistent with other regions of high ecological importance to the climate system, but that have relatively low human population or immediate resources.

This is an example of an area that according to the science, appears to be central to the decline of the wider Amazon and thus critical to the stability of the global climate system. But it is an area that has been overlooked by anthropocentric geographies of vulnerability. I suggest that its identification as a site through the methodology I have referred to exemplifies how Latour's ideas can be empirically applied in thinking about climate change.

Historian Dipesh Chakrabarty has written about what geologists now call the Anthropocene – a geological period in which through anthropogenic climate change humans have altered geology.⁴ However climate can also be understood to have agency in the social. This is exemplified in effective climate governance now requiring human institutions to recognize greater non-human participation.

Regardless of whether human strategies can conceptually adapt to understand these indicators or the emergent post-humanist geographies of climate change discussed here, they already exist. Not only is climate reconfiguring world geographies through impacts like sea level rise and extreme weather, but these impacts on human society alone show how climate already participates in, and informs, strategies for adaptation. So while human societies' participation in climate change is still being debated by some, it is also important to consider that climate has become a mode of power that may have already forced a new social period - a period where society must be understood as post-humanist in order to institutionalise the responses necessary for our survival.

Notes

¹ Refer to V. Burns, 'Latour's "Parliament of Things": The Problem of Anthropocentrism in Global Climate Change Management', *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, Vol. 6, 2010. I argue that this 'decentering' can be empirically applied at an institutional level and used as an instrument that effectively distributes power away from the Human as a way of protecting intergenerational rights.

² P. Cox et al., 'Amazonian Forest Dieback under Climate-Carbon Cycle Projections for the 21st Century', *Nature*, Vol. 453, 8 May 2008 and also in, *Theoretical and Applied Climatology*, Vol. 78, June 2004. O. Phillips et al., 'Drought Sensitivity of the Amazon Rainforest', *Science*, Vol. 323, 2009.

³ *The Copenhagen Diagnosis*, The Climate Change Research Centre, University of New South Wales, 2009.

⁴ D. Chakrabarty, 'The Climate of History: Four Thesis', *Critical Inquiry*, Vol. 35, Winter 2009, pp. 197-222.

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Adapting to Climate Change: Science, Scepticism and Philosophy

Ruth Irwin

Abstract

Is it any accident that the ‘debate’ about climate change is dominated by scientists and economists? The Copenhagen summit in December, 2009 illustrated a rather narrow range of concerns and an even narrower range of solutions to climate change by the international policy community. This could be because scepticism and long entrenched powerful factors constrain the political and economic arguments about distribution and equity. Or it could be that we have not yet gained the foresight to fully comprehend and thus know how to respond to climate change.

Key Words: Climate change, philosophy of science, scepticism, East-Angliagate, Heidegger, Being, modernity, social contract, technology.

The immense increase in public knowledge about climate change has an impact far broader and deeper than the public discourse suggests. In many ways, the public is better able to consider change than politicians, who are saturated with the mass scale, normative concerns of modernity. In contrast, consideration of the *existential* of climate change contextualises modern human practices in seriously new ways.

The Copenhagen Summit was indicative of the global political response to climate change. The debate was captured by seemingly spurious concerns; climate scepticism, East Anglia-gate, and little real concessions to meaningful responsibility and action over climate emissions amongst more ‘highly developed nations’.

It was the arguments over the East-Anglia emails from IPCC scientists that seemed to stall the talks. Scientists from the Climate Research Unit at East Anglia University were so concerned about their research being used to falsely suggest that global warming is not as consistent and predictable as the IPCC presents, that they had extensive email conversations amongst themselves about withholding data. Their emails suggest that they withheld data from their published journal articles, and also withheld information by using legal loopholes around national legislation for requests for freedom of access to information. These modes of behaviour seem the antithesis of good scientific ethics.

On the other side of the debate, climate scepticism has been seriously inhibiting positive change on climate change for some time. Its consequences are serious and its methods are more often than not, ethically grey. Interestingly, there are actually very few scientists who are prepared to commit to wholesale climate scepticism.

But those one or two who do, get a disproportionate amount of private research funding, newspaper footage, judicial requests for expert opinion, and political attention.¹ Much of their publications are overtly funded by oil business.² The methodology often leaves a lot to be desired. Common examples are graphs with no supportive evidence (Heritage Foundation) or interpreting existing data in underhand ways³ by downsizing the prevailing trends for global warming by scaling up short term stability.

But weirdly enough, the actions of the Climate Research Unit at East Anglia University and the Sceptics are disturbing in startlingly similar ways. Firstly, the active duplicity aimed at controlling information. The East Anglia scientists (despite being found 'not guilty' by three Independent Reviews)⁴ attempted to concentrate control of knowledge, and thus, power, with a select few. The Sceptics are actively protecting the existing powerful cartels of industries such as Big Oil. Secondly, transparency of method and results is of fundamental importance to science. Science is concerned with the ongoing examination of evidence to discover whether or not the data is falsifiable or not. When results fail to reproduce and the results are 'false' this can lead to interesting anomalies that do not fit the hypothesis. The East Anglia Climate Research Unit actively engaged in misinformation to prevent alternative explanations about prevailing trends in climate data. Others have since argued that this was entirely unnecessary as short term stabilisation does not eradicate the long term trends in global warming. Climate Sceptics have also misused data by focussing exclusively on short term results to 'prove' that warming is not, in fact, taking place. In both cases, transparency is fundamental to good science and fundamental to good politics.

As was obvious at the Copenhagen Summit on Climate Change, it is easy to get caught up in a raging political storm about the ethics of scepticism, transparency, and scientific integrity. The release of the East Anglia university emails was timed perfectly a few weeks before the summit. Saudi Arabia used the scandal to call the entire Summit into question. Scepticism, in opposition, is easily associated with the big business interests of oil, and the normative lifestyle commitments deeply entrenched in 'first world' nations. The global disparities in equitable resource distribution and widely divergent ability to cope with the affects of climate change are tangled together with the media responses to climate change, the popular attitude and willingness to make lifestyle alterations in the rich countries, along with an unreflective acceptance that modern 'development' is necessarily the ultimate goal in throughout the world. But for us to grasp the fuller dimensions of climate change, there are further issues at stake.

Although the IPCC scientists would hate to think of themselves in the same light as the sceptics, in fact, both groups are operating with the same set of assumptions, and broadly speaking the same world view. It is my position, that this world view itself, is part of the ongoing problem in both our lack of ability to

adequately respond to climate change, and the factors that have constituted the radical shift from the Holocene era, to the Anthropocene, in the first place.⁵

Science, along with a certain approach to technology, economics and the nature of truth itself, are all aspects of the modern world view. It has been extremely difficult to gain perspective on these normative modes of understanding, as they so fully saturate our comprehension of the earth we live on.

One of the defining characteristics of humanity is the ‘tool wielding animal.’ But rather than simple implements to extract ants from a log, or similar, technology has undergone a major developmental shift. Technology is now crucial intervention between human communities and the constraints of the natural ecosystem in which that community abides. Industrial technology has enabled modern people to extract resources from their local environment at the rate dictated by consumerism, rather than the rate that the biodiverse ecological system can maintain.⁶ This has given us the illusion of mastery over nature. Technology itself holds this powerful role which is why it is crucial in discourses of modernity, such as economics.⁷

Science holds a related position in the pantheon of concepts of modernity.⁸ Yet science is, arguably, less and more caught up in the apparatus of control than technology. It is noticeable that neither sceptics nor IPCC scientists doubt the goal of control over nature for a minute. In contrast, social scientists such as Mike Davis shows his frustration with the IPCC models which attempt to project the consequences of different modes of modern culture on the planetary climate as ‘linear physics’.⁹ The sceptics too, make use of the simplicity of linear teleological models to claim that the evidence of warming does not resemble linear progression. But both the IPCC and the sceptics are simply arguing over the semantics of a rational, teleological response to climate change. Both, essentially, are expecting that clearer science and rational economic behaviouralism (in a contested balance) will generate the change required to ‘mitigate’ and ‘adapt’ to changing climatic conditions.

Positivism *expects* a logical formula that explains the matter of the Earth. Complexity is read as a set of complicated causal stimuli that needs to be included in the model. The unknown and the uncertain are just the yet-to-be-discovered or better still, the yet-to-be-deduced. Climate sceptics justify their position with a similar set of views. They assume a regular order to the universe, an underlying mathematical structure. So they embrace the same philosophy of science as that of the climatologists; both scientists and sceptics are positivists that value the use of mathematical formulae, and the analysis and selection of data into graphs that make large claims. The assumptions are that quantification and charts point towards a substratum that structures the universe. As evidenced by the hacked emails posted by East Anglia Gate,¹⁰ the graphs are a narrative form and are intentionally shaped to convey a certain perspective or world view. I am not suggesting here that climate sceptics have a case. On both sides of the debate,

evidence is perceived through the modern lens. At its best, this narrative relies on carefully constrained moral codes that make all data available to the public, and interpretation as transparent and open to criticism as possible. But all science is a narrative, not exactly a fiction (nor a ‘construction’), but a method of ascertaining the truth from the appearance of the object in the light of modernity.

Heidegger argues that science holds a particularly important role in the metaphysics that justifies and underpins the modern world view.

The argument for the importance of science is to do with the close proximity of science with the ‘real’. This proximity, which has always given metaphysical philosophy trouble, makes the orientation of science particularly interesting. A troubling aspect of modern philosophy is the extremely high value placed on individual human imagination and rationality. A plethora of philosophical schools has resulted from the (over)emphasis on subjectivity (Idealism and Constructivism, to name but two). On the other hand, philosophical schools associated with science tend in the other direction – by placing more emphasis on the ‘evidence’ that emerges from real, natural objects (most famously, Idealism and positivism). The two positions appear to be contradictory; one with an emphasis on human concepts that project onto the natural objects, and the other with an emphasis on the evidence that interrupts these hypotheses and insists on better recognition of the ‘objective facts. As the examples illustrate, both are the extremes of the same conceptual apparatus - ‘metaphysics’. An apparatus begun, arguably, with Plato and Aristotle in the Ancient Greek crucible of western philosophy.

Plato’s philosophy is perhaps less at issue, when it comes to science. It was Aristotle, lost ironically, to western thinking for about 1000 years, who ‘invented’ modern science. Aristotle was interested in defining natural objects into carefully delineated categories.¹¹ This involved carefully describing characteristics that belong to the genera, the genus, the species, and so on, down to, and possibly with least significance, to the individual. Aristotle’s genius, or at least one aspect of it, was distinguishing in the individual between ‘accidents’ of environmental happenstance, and the ‘essential’ ‘substance’ of the genus. He believed every individual item contained the potential to emerge in its essential fullness as a perfect example of the species. But each iteration of an animal or object is subject to the contingencies of history; storms, drought, malnourishment and whathaveyou, all of which contributes to constrain the potential from reaching its full possibility. One of the difficulties for science is to distinguish between what is ‘essential’ and what is ‘accidental’. Prevailing conditions can make it *appear* that certain characteristics are enduring. Given that every single tree is leaning from west to east, scientists might assume that all Manuka trees lean, for example. Or given that every swan in the northern hemisphere is white, the assumption held for generations that swans are essentially white. Universal characteristics are the definition of the essential nature of that species. It might be the case, (and we can never definitively know, being temporally bound ourselves) that *all* individuals

will exhibit that characteristic a-historically, that is across the expanse of time and space. But it might be the case that in some unknown corner island, there are black swans, and straight Manuka trees.

As Karl Popper famously pointed out, it is impossible to 'prove' that an object will maintain its characteristics consistently. We can have a given expectation that consistency will endure, with statistical correlations over a large as possible cohort of data. Yet even so, natural objects are in a certain sense impenetrable to human knowledge, and they can exhibit hitherto unknown behaviours that throw erstwhile enduring explanations out the window.

The prevailing expectation, set up since Aristotle, and earlier to Plato and the pre-Socratics, is that there is an order to the universe, that emerges in recurrent themes, and that humanity can ascertain, if somewhat imperfectly. That assumption of orderliness pre-exists modernity by over 2000 years. But a metaphysical belief in order at the root of the universe is fundamental to the change towards modern practices of industrial technology and the possibility for intervention and control of the natural ecological cycles of growth and decay, predation, epidemics, yields, and so forth. Modernity is a conceptual shift that takes the metaphysics of structural order and turns it into 'economic development' and 'technological innovation' for mastery over climate change.

For these reasons, Heidegger argues that science is the 'culmination of metaphysics.' Science and technology epitomise the modern worldview. But a new question is forming. Climate change is bringing certain aspects of the modern, technological, economic, and scientific world into view in ways that have only been obliquely, 'pessimistically' seen before. The question is, how does science, technology and economics *contribute in themselves* to climate change. It is only once that question is answered can science, technology and economics be given responsibility to respond and 'answer' to the problems that climate change is posing.

If the climate is warming because of modern technological practices, especially industry, heating and cooling, and energy, then these practices must drastically alter. The alteration can either be extinction or dramatic reduction of the practice, or alternative modes of producing the outcome without the familiar inputs (hydro-energy rather than coal, and so on). But it is necessary, if climate change is generated by modernity, to interrogate modernity at its roots. Simply fiddling with a few, relatively minor behaviours, like recycling, does nowhere near enough to actually remedy the 'essential nature' of the problem.

For these reasons, climate scepticism is as interesting as climate science. Each demonstrate the same fundamental scientific (and at times, economic and/ or technological) world view. On the face of it, they each have different fundamentally different goals. Climate scientists, working for the IPCC or research centres, have the goal to decipher the underlying universal structures at work, so that technological intervention can be effective. In other words, there is a belief

(and this is a generalisation, there are a select few scientists who do not make this assumption) that rigorous understanding of climate will allow human mastery to eliminate the dangers. This is an optimistic belief in technological innovation.

Funnily enough, sceptics often refer to technological mastery (as innovation) as well. The CATO institute, for example, does not outright deny the anthropological impact on climate, but disputes the timeframes and urgency often advocated by institutions such as the IPCC. What is in dispute is the need to dismantle the consumer model.

Outright sceptics pounce on any disparities in the evidence for climate change on the grounds, as Popper and ultimately Aristotle point out, that disproof weakens the claim that the climate is overall warming, or more importantly, that modern human behaviour is contributing to it. Again, this is to avoid any implications that modern science, technology and economic 'growth' needs to be reconsidered. Instead of justifying modernity in the light of its affects on climate change, sceptics try to exempt modernity from critical examination by denying that it has any detrimental consequences on the globe.

Just like the life of an individual, Heidegger argues civilizations are born and die. Each civilization has a finite lifespan. The two extremes, beginning and end, are especially important for casting perspective on the direction we are currently engaged in.¹² If you contemplate your childhood and the most likely illness to cause your death, then in the immediate future, you are more likely to quit smoking, take up walking, and appreciate some sunlight and fresh air. If you refuse to consider the effects of smoking, over-eating, and lack of exercise on you quality and length of lifespan, you are highly unlikely to do anything about it. In similar fashion, considering modernity as a whole; from its inception in early Greek thinking, to its likely culmination in the large scale ecological collapse of an overheated earth, it is possible to discern where the equivalent of fatty arteries and faulty organs are. From there, it is possible to implant healthier behaviour change.

But if, instead, we continue to believe in the 'optimistic' world view of technological innovation and never-ending, teleological 'progress', we have no means to critically engage with the unhealthy aspects of modern consumer lifestyles.

The characteristics of science that make it 'essential' to modernity have nothing to do with the methodology of positivism. Rather, the way science is 'essential' is more akin to Kuhn's concept of the paradigm, or Karl Popper's work on the *limitations* of the positivist enterprise. Science is 'essential' in serving as a site where the 'thing in itself' and conceptions about it stand in close proximity. At that site, this relationship is often problematized, and the unknowable can be most apparent. At its best, science makes human perception stretch to its utmost.

Notes

¹ See L. Hermann, 'Judge who Lifted Deepwater Drilling Ban had Ties to Big Oil', *Digital Journal*, June 24, 2010.

² eg. Exxon and Koch's financial support of a number of conservative thinktanks, see Greenpeace, 'Exposing the Money behind Fake Climate Science', 31 March, 2010.

³ C.de Freitas 'We Need To Be Listening To The Science', New Zealand Herald, 1/5/2009 and S. Baliunas, W. Soon, I. Sherwood, I. Craig & D. Legates, 'Reconstructing Climatic and Environmental Changes of the Past 1000 Years: A Reappraisal', *Energy and Environment*, Vol. 14, 2003.

⁴ 'Climate Review Finds Scientists Not Guilty of Dishonesty', *RedOrbit*, July 7, 2010.

⁵ See R. Irwin, *Heidegger Politics and Climate Change*, Continuum, London, 2008; R. Irwin (ed), *Climate Change and Philosophy*, Continuum, London, 2010; and also M. Davis, 'Who will Build the Ark?', *New Left Review*, Vol. 61, Jan-Feb, 2010.

⁶ See M. Heidegger & W. Lovitt, *The Question Concerning Technology and Other Essays*, Harper and Row, New York, 1977, pp. 3-35.

⁷ Irwin, *Heidegger Politics and Climate Change*, op. cit.

⁸ Irwin, *Climate Change*, op. cit.; P. Glazebrook, 'Heidegger and Scientific Realism'. *Continental Philosophy Review*, Vol. 34, 2001, pp. 361-401; and T. Glazebrook, *Heidegger's Philosophy of Science*, Fordham University Press, New York, 2000.

⁹ Davis, op. cit.

¹⁰ East Anglia Gate.

¹¹ Aristotle, trans. W.D. Ross, *Metaphysics*, Clarendon Press, Oxford, 1953.

¹² See M. Heidegger, 'On the Question of Being, Über 'Die Linie'', *Pathmarks*, Cambridge University Press, Cambridge, 1999, pp. 291-322 and Irwin, *Heidegger Politics...*, op. cit., chapter 3.

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The Climate Change Debate: Where do We Go from Here?

Linda Hadfield

Abstract

Through the later decades of the twentieth century, climate science, and the natural and physical sciences in general, underwent a dramatic paradigm shift, as the nature and implications of anthropogenic climate change became more widely understood and accepted within the scientific community. The theory of anthropogenic climate change is now firmly part of ‘normal science’, to use Kuhn’s phrase: an established body of knowledge which is undergoing a process of testing and extension but is not seriously open to challenge in its essence. However, though many would say that the time for debate is past, and the need for action urgent, there exists strong resistance to this argument. The scientific debate may be settled, but the political debate is characterized by intense controversy, not to say polarization of views. The Inter-Governmental Panel on Climate Change, established by the UN in 1988 to provide an independent assessment and review of the state of scientific knowledge, is accused of partisanship and advocacy because of its acceptance of the reality of the underlying science. In part, the intensity of the controversy can be explained by the complexity of the underlying problem. Neither the causes nor the impacts of climate change are easily amenable to political control, being both temporally and spatially diffuse. Knowledge about the causes and impacts is characterized by a high degree of uncertainty, the implications are potentially catastrophic, and passions run high on both sides. This chapter will consider the processes by which scientific knowledge about climate change has developed and become accepted; the role of the scientific method; and whether and to what extent arguments based on the scientific method differ fundamentally from arguments based on value judgements.

Key Words: Climate change, complex systems, history of science, emergence, public understanding of science.

1. Introduction

Given the potential consequences that have been attributed to climate change, why are we not doing all in our power to prevent it? In this chapter, I address this question by conceptualising the issue as an emergent system, and considering the interactions between changes in the physical environment, in knowledge of those changes and in perceptions of that knowledge. I argue that when knowledge is disputed, and power is diffused, management may be virtually impossible, however dire the consequences of inaction.

2. Climate Change as an Emergent System

Anthropogenic climate change is perhaps the ultimate example of a class of problems which can be described as ‘emergent systems’. Such problems are characterized by: multiple and dispersed causes and impacts; scientific uncertainty; and multiple perspectives.¹

The concept of emergence refers to the ways in which simple causes may combine and affect one another to create complex effects, and emergent systems arise from the unintended and unanticipated interactions of seemingly unrelated causal factors. In emergent systems, the ultimate outcomes are detached from the fundamental causes, either through time, geographically, or in terms of the people affected. Even when the outcomes affect the same people who have contributed to the causes, because the relationships are extended and opaque, no clear connection may be recognised. There is no single body with overall control of an emergent system. Management of outcomes is at best palliative, but there may be little incentive for those responsible to change their behaviour, even when the causal chains are understood and acknowledged.

The concept of emergence applies not only to changes in the actual physical relationships, but also to the state of human knowledge about those relationships, and to perceptions of the significance of the impacts of such changes.

3. Knowledge Emergence: The Development of Science

Our knowledge of the cause and effect relationships which operate in the world is always developing and never complete, even when the underlying physical relationships it describes are not in themselves changing. There may be multiple explanations and theories, which while they cannot all correspond equally exactly to the underlying ‘reality’, open the field of debate.

What sets the standards by which we choose between competing scientific explanations? Kuhn describes science as a process of problem-solving within the fixed boundaries of an existing body of knowledge, determined by a set of standards and methods for evaluating it, or paradigm.² ‘Good science’ is that which conforms to established methods, and is evaluated and accepted or rejected through the process of peer review. One instance of disproof does not necessarily lead to the rejection of a hypothesis, but prompts investigation into the reasons why the result in this instance was not as expected, for example, the sample was contaminated, or there are some unknown factors affecting the results that require further study.

When the inner contradictions build up to the point where the paradigm can no longer accommodate them, a sudden change in understanding occurs, or ‘paradigm shift’. In between, we have ‘normal science’, the extension of understanding within the existing paradigm.

4. The History of the Science of Climate Change

The concept of ‘the greenhouse effect’, the process by which the gaseous composition of the atmosphere traps the sun’s heat close to the surface of a planet, raising its temperature, has a perhaps surprisingly lengthy history. The genesis of the idea is usually attributed to the French mathematician and physicist Jean Baptiste Joseph Fourier, who described it in chapters published in 1824 and 1827.³ It developed within the context of the discovery that the earth’s climate had changed dramatically at various times in its past, in particular with the spreading and receding of ice sheets across the northern hemisphere. Svante Arrhenius in 1896 carried out lengthy calculations to predict that a doubling of atmospheric CO² would lead to an increase in global temperature of 5-6 degrees, taking into account the feedback effect from increased water vapour (itself a greenhouse gas) in a warmer atmosphere. Another feedback effect, predicted though not calculated in detail by nineteenth century scientists such as James Croll, was the ‘albedo’ effect, whereby a change in snow cover relative to darker vegetation could have an impact on the extent to which sunlight is reflected or absorbed, and hence on temperature. All of these factors were considered in developing theories to explain the cyclical nature of ice ages.⁴

Although these ideas continued to be of interest to individual scientists, their significance was not fully recognised for many decades. The prevailing view of climate was of a self-regulating system, which changed cyclically over aeons, but not rapidly enough to be a cause for concern. Investigations continued into understanding the mechanisms by which it might change over time, and the positive and negative feedbacks which might enhance or hold back that change, but these were seen as exploratory science for its own sake, not of immediate practical concern. In 1963, the Director of Research of the UK Meteorological Office commented on climate change science: ‘With theory so rudimentary and the data so incomplete... the subject has largely been left as a topic for armchair speculation.’

This began to change with the development of computers capable of modelling planetary wide trends. Speculation had also led to more concerted efforts to gather meaningful data, such as Charles Keeling’s measurements of atmospheric carbon dioxide at the Mauna Loa observatory in Hawaii, begun in 1958. Much of the science in the early 1970s was focussed on the possibility of a new ice age, and the resulting publicity, as the media of the day leapt onto an exciting story, did much to encourage subsequent lay scepticism with regard to climate change science, although a survey of the scientific literature published between 1965 and 1979 on climate change found that 44 scientific papers were published predicting global warming, 20 were neutral and only 7 predicted cooling.⁵

Most significant, however, was the changing perception from the climate as a stable, homeostatic system which would always be self-regulating in the short term, to one where extreme fluctuations and feedbacks were possible. In the early

1970s, a number of climate scientists attempting to model various planetary climate processes found that ‘under a variety of simple assumptions, any model that gave a good representation of the Earth’s present climate looked unstable and could just as easily produce a radically different climate’.⁶

Although at that time, such apocalyptic views remained in the minority among climate scientists, this new perception gained ground and credibility through repeated and intense investigations and analyses. The Intergovernmental Panel on Climate Change was created by UNEP and the World Meteorological Organisation in 1988 and issued its first report in 1990, finding, through an exhaustive survey of the then best available science, that the planet was getting warmer. Although at that time it could not definitely conclude that this was because of the greenhouse effect, it recommended that, because the potential impacts were so severe, measures should be found and put in place to reduce emissions of greenhouse gases. By its second report, in 1995, it stated that ‘The balance of evidence suggests that there is a discernible human influence on global climate’ and estimated that a doubling of CO² would lead to an increase in the average global temperature of between 1.5 and 4.5°C. The third report, published in 2001, stated more unequivocally that most of the observed warming during the twentieth century was likely to be due to the greenhouse effect, and confidently predicted that future warming would be more extreme and rapid.⁷

5. Knowledge, Perception and Action

By the turn of the century, the recognition of anthropogenic climate change within the scientific community was overwhelmingly accepted. The fourth report of the IPCC, published in 2007, described the probability that global warming was attributable to human causes as ‘very likely’, quantified at 90-99% certain.⁸

Such a high degree of certainty among those who have access to the most comprehensive and up to date information might be expected to be taken seriously and lead to the fundamental changes required if the worst scenarios are to be prevented. However, the existence of such knowledge does not, in itself, guarantee that appropriate action will occur.

Knowledge grows over time, is added to, theorized, checked against empirical evidence, hypothesized, rejected or provisionally accepted. It is not universal, but is lodged in the minds of those who hold it, and cannot be detached from belief. Vickers makes the distinction between statements of fact, which are independently verifiable and statements of value, which are inherently subjective, although they can acquire a form of ‘objectivity’ if enough people agree with them.⁹ Scientific debates ultimately rest on judgements of fact, not value. It is possible to settle a scientific debate by an appeal to the evidence – indeed, this is the only legitimate way of doing so. This is not to say that this is easy, far from it, but it distinguishes them from ideological debates – at the opposite end of the spectrum – which are entirely based on judgements of value. When considering ideological arguments, it

is not philosophically possible to say that one argument is 'better' than another purely on the basis of its content, as there is no external standard against which they can be evaluated, except possibly in terms of their popularity.

The transference of knowledge from one person to another depends on a range of factors, relating to the nature of the knowledge, the evidence behind it, the plausibility of the giver, the prior beliefs and experience of the receiver, etc, but many of these factors can be summarised in the word 'trust'. The willingness of the receiver to accept the information provided by the giver is intimately tied up with the extent to which they trust the other and are prepared to change their own understanding and belief. Thus, the possession by some individuals and groups of particular knowledge, however well founded, evidenced, tested, discussed, and significant in its import, cannot be assumed to lead to action on the parts of others. Funtowicz and Ravetz, writing in the 1990s, argued for 'post-normal' science (as opposed to Kuhn's 'normal science'), in which scientific uncertainty is recognized as being unavoidable, and, where decision stakes are high, action is taken even though system uncertainties still exist.¹⁰

Funtowicz and Ravetz were calling for action to be taken immediately, action which, arguably, did not occur, or not to sufficient extent. Fifteen years later, although in terms of scientific research, the message is becoming clearer all the time and it might be assumed that the scientific argument has been won, it is no longer perceived as being a scientific debate but an ideological one.

Acknowledgement of the fact that scientific knowledge is always provisional, because it is in a constant process of development, of the existence of fundamental uncertainties and of the discursive and at times disputative nature of scientific debate, can lead to a perception that a greater level of disagreement between scientists exists than is actually the case. Because any particular explanation is a 'theory', which can never be proved absolutely in all its details, it may be suggested that other 'theories' should be accorded equal value. This is often argued in putting the case that creationism should be taught as an alternative belief system to evolution. Ironically, in such circumstances greater affirmations of certainty in asserting the ideas may lead to greater scepticism, provoking accusations that such certainty 'proves' that the arguments are ideological rather than scientific.

However, scientific theories are distinguishable from ideological thought in one important regard. With factual/scientific debates, it is possible to reach resolution in terms of an appeal to an external standard. Different arguments can be shown to have a stronger basis than others. They are not all of equal value, different opinions which should be accorded equal respect. Thus, it is wrong to say that creationism is equal in value to evolution because they are alternative 'theories'. There exists an external standard against which they can both be compared – and one, evolution, has a huge body of objective evidence to support it, while belief in creationism rests only on faith.

6. The Role of the Public

Despite the foregoing, there is evidence that at least some governments are now taking climate change seriously and are attempting to bring in laws and policies to tackle it. The UK, for example, was the first country to pass a Climate Change Act, in 2008.

It might seem that once those in power are convinced of the need for action, then the battle for implementation of that action is almost won. However, there are characteristics of this issue which make its management as difficult as, or even more so than, establishing the truth. Both causes and effects are diffused, a complex web of factors intimately embedded in lifestyles which have been accepted as the norm for generations, tied up with the cultural value of technological development and progress. Government approaches to tackling the problem may involve changes to infrastructure, eg industry and energy generation, but far more significant is the need to change individual behaviour. What is significant in determining individual behaviour is not just how things are, but how we believe them to be. Thus the greatest challenge with controlling such problems is that they depend intimately on the cooperation and compliance of members of the public.

It might be assumed that power could be imposed from the top-down to manage the situation. However, in terms of everyday consumption decisions, individuals have considerable power over their own behaviour. Often the apparently powerless have access to resources of resistance to externally imposed power. For example, attempts to introduce alternative energy generation, such as wind farms, are often stopped by fierce local opposition.

It is possible that the scientific arguments may gain the ear of the authorities, but not the public, and evidence suggests that the public are becoming less, rather than more, accepting of the arguments. A survey by Cardiff University in 2008 showed that the British public has become more sceptical about climate change over the last five years, with twice as many people now agreeing with the statement 'claims that human activities are changing the climate are exaggerated'. Half of the respondents believed the media was too alarmist, while a third said there was too much conflicting evidence to know what is actually happening.¹¹

7. Conclusions

Since the early 1970s, the scientific understanding of anthropogenic climate change has moved from the fringes to centre stage, from 'armchair speculation' to paradigm. In the process it has raised huge questions about the nature of industrial and post-industrial societies, future development and the implications for the planet as a whole.

It is natural, perhaps, for scientists to believe that the case has been made, and that now is the time for others to take the necessary action to ensure that their worst prognostications can be avoided. Global warming due to the greenhouse effect is

the new orthodoxy, and those who question or argue against that orthodoxy are on the fringes, their arguments easily dismissed, a distraction from the pressing issue of dealing with the problem.

However, such dismissal underestimates the attractiveness of those arguments. The implications of climate change threaten the basis of modern consumerist societies, and the aspirations of developing ones. Rather than accept such an apocalyptic vision, it is far more comforting to believe that this is just one possible story among many, that nobody really knows the truth, so we might as well just continue as we are. Increasing certainty on the part of scientists is attributed to the closed minds of conservative professionals protecting their own careers, while attempts by governments and institutions to introduce measures designed to lead towards lower carbon futures are seen as the extension of state control over individuals for its own sake.

The Montreal Protocol, which recently passed its 25th anniversary, has been widely hailed as an environmental success. It told a clear story, of the destruction of the ozone layer by CFCs, a discrete problem for which a solution (the phasing out of the chemicals concerned) could be implemented in a relatively straightforward manner with a number of technical fixes and without drastically threatening the comfortable lifestyles of the public. Sadly, no such solution offers itself for anthropogenic global warming.

Notes

¹ L. Hadfield & R. Seaton, 'A Co-Evolutionary Model of Change in Environmental Management', *Futures*, Vol. 31, June 1999, pp. 577-592.

² T. Kuhn, *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago and London, 1996.

³ S. Weart, *The Discovery of Global Warming*, Harvard University Press, 2008.

⁴ Ibid.

⁵ <http://www.newscientist.com/blogs/shortsharpscience/2008/10/global-cooling-was-a-myth.html>.

⁶ S. Weart, op. cit.

⁷ Ibid.

⁸ Ibid.

⁹ Sir G. Vickers, *The Art of Judgement*, Harper & Row, London, 1965.

¹⁰ S.O. Funtowicz & J. Ravetz, 'Uncertainty, Complexity and Post-Normal Science', *Environmental Toxicology and Chemistry*, Vol. 13, 1994.

¹¹ <http://news.bbc.co.uk/1/hi/8249668.stm>.

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