



Ethics and Responsibility in Environmental Governance

Document of Reflection on Action Nov. 2011

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Networks: We have networks relating to environment and governance in New Zealand, in the Pacific region and in Australia.

New Zealand and Australia based

The International Union for the Conservation of Nature (IUCN) is influential in this region and globally. It is an NGO with permanent observer status at the UN. IUCN has 5 Commissions and we are engaged with the Commission on Environmental, Economic and Social Policy, and with the Commission on Environmental Law. IUCN has adopted the Earth Charter as an ethical reference. Our engagement with IUCN has led to a momentum to develop an approach of Responsibility

Environment and Conservation Organizations (ECO) is a national umbrella with 50+ organizations, of which RESPONSE is a member.

Māori organizations – these are mostly locally based and relate to tribes. We are associated with many of these both as sustained levels of ongoing environmental and governance programmes, and with several for specific projects.

Academic and research networks with particular roles in Academic Faculties of Education and Management. Waikato University Management Faculty has developed a programme of Management Education for Responsibility directly related to the FPH/RESPONSE Responsibility initiative.

Landcare – a national state agency for environmental governance and climate policy

Science, Technology and Society – a research network to integrate social and scientific research on sustainability (Australia and New Zealand).

Permaculture – a network of locally based social/ecological sustainable living initiatives

Overseas Aid and Development network – though membership of Council of International Development and NGO members and links to Ministry of Foreign Affairs and Trade.

Environmental Education organization.

Government agencies and political party links (through Green Party and Church Leaders/Prime Minister meetings)

Pacific Region

Oceania IUCN organization - Pacific Country regional programme of International Union for Conservation of Nature.

Local Management of Marine Areas Network – a regional network of community based management of coastal marine areas.

SPREP – South Pacific Regional Environmental Programme, based in Samoa

Organizations in Samoa – Afeafe o Vaetoefaga and O Le Siosiomaga Society – Environmental Agency, Samoa.

Vanuatu Watershed Management programme, Won Smolbag - environmental education institute.

Hawaii – Kamehameha Institute

Environmental Governance.

Introduction

Responsibility in governance and decision-making is to prioritize the integrity of ecosystems along with the wellbeing of people. This paper emphasizes relational ethics and collaborative systems for environmental governance and is therefore in the mode of co-responsibility. We draw on international research and case studies with information from key practitioners and professionals, mainly from Aotearoa-New Zealand and the Pacific region. Many of these are on water, arising from our studies of water ecosystems in the region. Although these are necessarily specific, we have in mind principles for wider relevance.

The orientation for governance is to restore human interdependence with nature. Responsibility is a relational ethic to mark a radical shift from individualized interests that is the predominant basis of western systems of governance, law and economics. An underlying problem for environmental governance is the historical **separation of nature and culture**. This arose during the 16th century development of the philosophy and economy of liberalism. This idea entrenched the objectification of nature and facilitated technological advances and scientific inquiry without ethical accountability in regards to the exploitation of nature.

We have considered the role of ethics in governance and discussed this with key contributors to this project. We consider that ethics can never be fully confined to formalized rules and requirements and therefore has a quality of ‘investing’ politics with values and moral integrity. At the same time it is imperative to pursue the quest for policy and legal frameworks to lift environmental responsibilities to the level of legally binding obligation with recourse to criminal justice. The philosophical concepts of relational responsibility are complemented by indigenous relational worldviews. Indigenous systems are characterized by integrated and adaptive decision-making and by relational commitments with intergenerational accountabilities.

We are aware that economic models and legal frameworks to support environmental governance, such as ecological economics and trusteeship law, are being investigated but are not well developed. Nor it possible in this paper to enter into a full discussion of economics and law. However we note that environmental governance is inseparable from economic systems of over-exploitation and associated legal systems. The challenge is to recalibrate economic systems to the renewable capacity of earth’s ecosystems. Innovations to support ‘greening the economy’ include developing forms of measurement for non-market contributions to national accounts. GDP only measures market transactions.

The concept of a ‘Genuine Progress Indicator’ (GPI) to include an account of environmental value and of social contributions of care and voluntary work is one example developed in the field of ecological economics. An account of **ecosystem services** is another economic innovation to measure of the value of biophysical resources with accountabilities for their use. There is a major gap in knowledge of the economic

value of ecosystems. The concept of ecosystem services is to assign economic value to the beneficial contributions of nature's systems such as soils, water, forests, marine environments. Examples of ecosystem services [in New Zealand and which would be true globally are that forests prevent soil erosion, and that forests and riparian planting improve water quality and water yield ; microbial life and shellfish provide the benefits of reducing pollution and increasing water clarity, and marine reserves are beneficial for fish stocks, and unfarmed reserves are beneficial for pest control.

The Economics of Ecosystems and Biodiversity (TEEB) and the UNEP Intergovernmental Platform on Biodiversity and Ecosystem services are researching ways to measure ecosystem functions. These studies are to work with economic concepts and tools to incorporate the values of nature into decision-making at all levels. Discussions with organic farmers was supported by research which suggests that organic farming secures environmental wellbeing and thus is significant in contributing to ecosystem services, Put simply organic growing is good for the earth. The non-use of chemical inputs generates practical orientation to the dynamics of soil and water ecologies. Permaculture approaches of integrating landscape qualities and watershed habitats into land management and farming demonstrate practical cultures of sustainable land management. The expanding networks of organic trade and of Fair Trade signify the renewal of communities of care for land and growing commitments to live within nature's biophysical limits. These are vital expressions of earth centered ethics and responsibility.

Climate is an important reference because of the environmental impacts of climate change. We are mindful of recent research on Greenland and Antarctica ice melts, the acidification of oceans and the safe limit of 350 parts per million of CO₂ in the atmosphere, which is currently at 391ppm. During 2010 and 2011 a consistent message of climate science presentations is that one of the biggest responsibilities is to engage social scientists in interpreting the science. The social consequences of climate change include growing social disparity, displacement of people as climate refugees and food scarcity. With Pacific Island states already facing disappearance under rising oceans the prospects of people having to leave their homelands is already upon us. The destruction of coral reefs from ocean acidification will remove the protection they provide to coastal communities in Island countries as well as threaten fish populations. The health impacts of climate change are being documented, but much is still unknown in social and economic arenas.

Climate change is associated with growing **uncertainty**, with droughts, floods, changing land use patterns and impacts on oceans. Uncertainty refers to the unknown redistribution of marine and terrestrial biodiversity, loss of biodiversity, pressures on food production with expected food scarcity. Thresholds of change are being scientifically modeled but the non-linearity of ecological systems and complexity of the inter-related dynamics of land and water ecosystems is often beyond the capacity of predictable information.

Risk corresponds with uncertainty in the face of climate events and the costs of damage or harm to people and property, which threaten communities. The further pressure of population growth, which has just reached 7 billion globally, is a challenge for livelihoods and for governance.

I.A: Constraints to responsibility with analysis of problems and their causes.

One of the biggest constraints to environmental governance is the lack of correspondence between social and ecological systems. While ecosystems are dynamic, complex, non-linear and can span small and long term time scales, the governance of social systems is more linear, sector defined with short term time frames and not mandated to take ecological variables into account. The complexity and range of ecosystems dynamics can be seen in small scale ecosystems and in vast global environmental systems which cross state boundaries and ocean territorial jurisdictions. The melting of Arctic ice, the West Antarctica ice sheet and Greenland ice has global impacts yet there are no governance provisions to mitigate these catastrophic changes.

The institutions of governance, law and economy are entrusted with responsibility for ensuring the life sustaining capacity of ecosystems, yet we do not have well developed systems of governance to calibrate social and economic systems to the life supporting capacity of ecosystems.

Much environmental governance is directed towards conservation estates and marine protected area as a way of protecting and enhancing forests and marine ecosystems. This is a vital strategy in the face of the destruction driven by economic growth and development. However, protection through this form of conservation is grossly inadequate to meet the challenges of climate change. Conceptual evolution is needed for collective responsibility in all scales of governance. This paper on environmental governance addresses the broader issues of governance, and is not restricted to governance of conservation estates.

Economic growth on the current trajectory is set for a collision course with ecosystems. Much of economic growth in NZ, in Australia and in the Pacific region is achieved via extractive industries. NZ is extracting coal and gas, Australia is extracting minerals. In the developing countries of the region, mineral and natural resources are the focus for development which is being accelerated by wealth of China's significant investment in fisheries and minerals industries in the region as a whole. Papua New Guinea is rich in mineral resources, fisheries and forests. New Caledonia has 25% of the world's nickel.

The **climate crisis** has been, in part, attributed to the lack of integration across social, economic and environmental fields with 'siloed' systems producing conflict and fragmentation. In westernized countries, the capacity for integrated approaches is often frustrated by separated legal and policy jurisdictions — over forests and fisheries, rivers and agriculture, private and public property.

Sectorial policies relating to resource use are a barrier to achieving coherence across the range of ecosystem areas. Technology and the application of market mechanisms to problems such as air pollution and fisheries has failed to solve problems in environmental and resource management.

The Quota Management System (QMS) for the governance of fish catch is an example of policy directed at a specific resource without accompanying governance to safeguard the ecology of fisheries' habitats. The QMS is acclaimed as a sustainable system of fisheries management by setting limits on quantities of fish allowed to be caught for any given species. These quota have no reference to habitat protection. The QMS was introduced to stop over-fishing of inshore fisheries, but there are persistent issues of marine pollution and waste, despoliation and destruction of habitats.

The QMS is in many respects out of synch with the biodiversity and sustainability goals of Oceans policy and the NZ Biodiversity Strategy, because of the commercial priorities of the QMS which have an instrumental effect on Fisheries management. The QMS is a system of species extraction and 'mining' of sea resources, with inadequate information on species stocks and regeneration for the decisions on Total Allowable Catch.

Sustainability has come under critique from researchers including Edith Sizoo (2010) and ecosystems scientists Filkret Berkes, Johan Colding and Carle Folke (1998, 2003). As sustainability has become a mainstream concept it has also become co-opted and colonized to serve purposes of company profit making priorities. Companies can use a façade of sustainability through charitable donations to environmental causes to divert attention from blatant environmental abuse (Sizoo, 2010:17). The example of Shell forging a partnership agreement with the IUCN (International Union for the Conservation of Nature) is being scrutinized for the lack of environmental accountability from Shell (Steiner 2011).

The exposure of facades of sustainability has subjected this concept to critical analysis and is found wanting for those seeking paradigmatic change. The susceptibility of sustainability to weak interpretation strengthens the case for an ethics of responsibility to give effect to economic, social and environmental accountability.

Although human **rights** is such an important means to justice, rights are identified as an impediment to the collective imperatives of environmental governance. The entitlements basis of rights were identified as leading to conflicts over access to resources. An example is access to the use of water in New Zealand with conflicts between the incompatible interests of farming, industrial, conservation and Indigenous Māori interests. Development interests compound the complexities of water infrastructure and governance, with additional growing pressure on sewage management, wastewater and industrial discharge. Water allocation is currently managed on a 'first-in-first-served' basis that leads to inequities and conflict. Some of the conflict has been attributed to disputes over rights which are usually for abstraction for irrigation or industry.

Individual property rights is the most prevalent form of property for land and resource use. It is important for protection against the power of the state to over-ride citizen rights. But private property and individual rights are also barriers to developing legal imperatives for responsibility for sustaining biophysical ecosystems. Legal frameworks for sustainability, such as the New Zealand Resource Management Act (1991), are embedded in private property rights and these present limitations to collective responsibility. An example is where water use rights outweigh the responsibility to maintain the integrity of water ecosystems.

It is consistently argued that **Indigenous** forms of environmental governance support sustainable use of resources. In Aotearoa New Zealand, this is managed through provision for restrictions on harvesting – known as rahui, and as taboos in Pacific countries. In a remote part of New Zealand a forest estate, known as SILNA, is owned by Māori. As native forests became rare through intensive deforestation over the last century, the SILNA forest increased in value. They were classified as private property and were thus liable for rates. Plans were made for a sustainable forestry industry to pay the rates and to provide employment to the owners. Under pressure from conservation NGOs, the government intervened and stopped the development plans by using compensatory packages to put these blocks of land under conservation protection in perpetuity. This shows that the rights of traditional owners, which ideally incorporated obligations of care for the forestry resources, were over-ridden by majoritarian conservation interests. The owners have been alienated from their land and the exercise of traditional systems of management.

I.B. Practices in Environmental Governance in support of Responsibility, with Examples

Indigenous approaches to governance and managing environmental resources are traditionally constitutionally dynamic. Māori recognized ‘law’ as local, contextual, responsive, flexible, and resistant to uniformity. Authority is negotiated and lived in the day to day of community life and therefore held the possibility for localized responses, agreements, protocols and structures to be negotiated and for greater community engagement in their own governance.

Integrated and adaptive approaches are keys to ‘climate responsible’ governance because of the need to account for changing environmental, social, economic and political realities. This entails a systems approach to environmental governance with value being attributed to the vital function of ecosystem services. Risk is a reality for climate hazards and risk and uncertainty presents governance challenges, which have to be met through adaptive governance. These adaptive and integrated systems have much to contribute to contemporary challenges of governance.

A principle of **adaptive governance** is to reduce vulnerabilities of people and communities to extreme and variable weather patterns and to extreme events. Extreme weather events such as floods and draughts are already bringing crises in food production and increases in food costs globally.

Food scarcity is exacerbated by degraded water ecosystems, loss of biodiversity and biophysical resources. Adaptive governance must therefore give priority to the restoration of natural ecosystems to maintaining their life supporting capacities. Optimum resilience in land and water ecosystems is the best defense against shocks of climate variability. Adaptive governance is responsive and responsible in that it is processual and reflects more of the complex non-linear systems in nature. It represents a move from more centralized command and control forms of government towards the goal of integrating social –ecological systems. Centralized forms of government are problematized as having little correspondence with complex, non-linear dynamics of ecological systems (Galaz 2007), and therefore limited in their capacity to manage risks and uncertainties of climate change and to meet the need for socially engaged specific local situations.

Adaptive governance goes hand in hand with collaboration. This refers to the multilevel and cross-organizational processes for knowledge sharing and decision-making. Dynamic learning processes with responsiveness to information and to feedback from monitoring are the components of effective collaboration.

Collaboration is an inclusive form of decision-making to achieve sustainability. Sustainability means ‘maintaining the capacity of ecological systems to support social and economic systems’ (Berkes, Colding and Folke, 2006, p.2). ‘Social systems’ refers to property rights, land tenure, access to resources and forms of governance and decision-making, as well as systems of economics and law.

Governance of complex ecosystems involves taking into account different forms of **property rights and land tenure** (Galaz 2007: 10). In New Zealand, these include private property, government property and Māori customary tenure. Regulations over Private property and Māori customary titles, which is a form of common property do not always sit easily together. In Pacific countries, collective tenure is the norm, with small provision for individualized property rights. Issues about property emerge throughout this discussion.

The New Zealand Land and Water Forum (2010) identifies collaboration as the way to achieve a new framework water allocation. The Forum meets stakeholders across a range of sectors and with Māori tribal representatives. Stakeholders include primary industry, the electricity sector, environmental and recreational interest groups, tourism and central and local government. Farmers’ interests in irrigation, discharge of nitrates, effluent and pollution have to be balanced against the environmental health of river ecosystems and managing land use to safeguard water quality.

The building of relationships during the forum process became the basis for trust and for the capacity to listen and hear different points of view. Those with opposing interests, such as business and environmental interests, came to respect the different concerns and views of Forum members. The Forum was also crucible for engagement with Iwi (Māori tribal groups) and some steps towards respect for Māori interests is evident

in the recommendation that a National Policy Statement on Water must be developed to the satisfaction of Māori tribal interests.

In Australia, as in many countries, environmental governance is increasingly devolved to local government. Tensions have emerged in the transition from central government control to localized management of environmental resources in Australia. Disparate expectations of accountability, efficiency and community engagement emerged. Complexities of the accountability requirements between regions and central government are at odds with community concerns. Aligning these disparate interests through dialogue supported by the notion of responsibility is a basis for co-management, or co-responsibility in environmental practice.

Responsibility as *accountability* and as *responsivity* can provide a way to reconcile the varied interests of stakeholders and give respect for those with more experience based environmental knowledge in communities.

Integration is closely related to collaboration and refers to overlapping issues across different sectors, such as agricultural interests and water quality requirements, which in turn are matters of public health. The **mountains to sea / ridge to reef** approaches to the management of watersheds show an integrated approach to rivers and coastal receiving waters and associated fisheries. They link oceans, coasts and land. As yet most governance systems do not encompass the grand designs of nature. Science is only now starting to confirm what has been ‘common knowledge’ amongst coastal communities. The impacts of excess sediment and nutrients washing downstream into the coastal zone affects coastal fisheries as well as fish species that migrate from rivers to sea to fulfill their life cycles. These fish include *tuna*, or eels, with a life span of 100 years or so, and the tiny whitebait of native New Zealand fish species.

The Integrated Water Resource Management (IWRM) project in Vanuatu aims for ecologically sustainable development, especially through the protection and management of water supply. A hydro system for renewable energy is underway to provide water for subsistence farming, commercial ventures and water for 20,000 local people.

Local forms of governance are an important theme for practices of environmental responsibility. Examples of local decision making showed both effective local control as well as examples of local communities being over-ridden by state interests.

In Samoa the tensions between local owners of the Sili river and Central government interests shows the power of local communities to counteract central government proposals. The Sili river is a major watershed for the large island of Savaii and the Village is the guardian of the resource. We were told by representatives of the Samoa Water Authority and of Sili Village, that the voluminous water flow from the river would

provide water for all of Savaii. The Samoan Water Authority have interest in building a dam on the river for hydro power, and to this effect have been involved in negotiation with the village council for thirty years. They have had the backing and technical assistance of international aid agencies and the Asia Development Bank. Although the benefits of the proposed scheme are identified as being in national interests, the Sili Village people have resisted this major infrastructure development. They refuse to agree to any charges for water. The negotiations have now ceased, and the people of Sili have proceeded with their own scheme to supply water to villages free of charge.

Tenure and Common Property

Elinor Ostrom's research on the Commons shows that sustainability is most robust where communities are directly engaged in managing their lands, fresh water, oceans, resources and food supplies (Ostrom 2011). The huge variations in geography and ecologies mean that local enterprise has to be highly responsive to local conditions and built to the scale of local resources and social capacity. Food sovereignty in local communities and the production of energy according to local scales need to be strong dimensions of community sustenance.

Ostrom's account of sustainability achieved by local communities making decisions and managing 'Commons' lands, waters, coastal areas and natural resources add to the evidence of indigenous peoples that governance and management of collectively held lands and resources has the best long term environmental, economic and social outcomes. In both cases face-to-face relations between people and the living world create systems based on interdependence. The effectiveness of local scale environmental decision-making is enhanced by regimes of shared ownership and by economic dependence on ecosystems and environmental / natural resources

The development of **Oceans as a Commons** is an important area for governance and policy development. Marine reserves, while expanding are a very small part of oceans areas. Proposals for the Ross Sea to be come a reserve would will be a small area of protection of the Deep Ocean. Oceans are home to 80% of the world's biodiversity, and oceans produce more than 50% of the oxygen in the atmosphere. Not only are seabirds, sea mammals and fish under threat of biodiversity loss and extinction, the acidification of the Oceans takes us into the vast and significantly unknown regions of knowledge about Oceanic ecosystems (McGinnis, 2011, NIWA 2011). The prospects for Oceanic Commons through the development of Oceans and Economic Exclusion Zone (EEZ) Policies would express to environmental responsibility.

The need for **Global Scale systems for environmental governance** is one of the major challenges. An important idea is to upscale the local forms of decision-making and responsibility through extending these as global networks. We have two examples.

A Pacific wide network for **Local Management of Marine Areas** based in Fiji is an extensive regional network for local governance of coastal marine areas in Pacific countries. To date 342 LMMA sites involving 550 villages have been developed in seven countries. The Vision for the network is ‘healthy ecosystems and communities, abundant marine and fish stocks, and sustainable fisheries’.

LMMA initiatives take an enterprise approach to conservation, using participatory techniques to combine conservation with resource use. These demonstrate responsibilities of stewardship because they combine sustainable use of natural resources such as fish, fresh water and forests with environmental protection by using traditional systems of restraint to safeguard against overuse. At the same time their resources are the basis for small scale economies and business partnerships.

LMMAAs are managed by local communities working with network support advisors. This systematic knowledge building and skills development means that learning and skills can be shared around the network. Credible data collection and analysis is essential for influencing governments. The LMMA concept integrates ecological and socio-economic outcomes.

While marine reserves are widely regarded as vital to conservation of ocean waters and marine biodiversity, the Locally Managed areas combine biodiversity enhancement with support for livelihoods. In other words, marine reserves are usually set aside as ‘no-take’ areas while the local or village managed areas are managed for sustainable takes of fish and sea resources. Sustainable management means application of taboos, rahui, tapu (restrictions) as needed to protect and replenish resources.

The Local Marine Areas villages retain ownership and control over their land and in some cases villages enter into agreements for development and business opportunities. The village of Nivitili has made land available to a hotel business and the hotel supplies the village with fresh water and offers employment opportunities. The village manages the rivers and marine area for environmental benefit and this in turn supports village fisheries requirements and tourism.

A global association of local government bodies is a horizontal initiative to reduce carbon emissions is global in scale and local in implementation. This network of 600 member cities of the **International Council for Local Environmental Initiatives (ICLEI)** was formed in 1993. The Climate Protection Programme (CCP) of ICLEI is an international association of Local Governments agreeing to reduce carbon emissions in their local regions.

Local government bodies in New Zealand, Australia and many countries throughout the world have responsibility for sustainable environmental management, so this initiative represents an effective global strategy to implement policies for sustainability with a direct carbon emission reduction program. Local government networks avoid the ‘national interest’ positions that can be taken by states in respect of global agreements.

Governance gaps in Global networks

Many environmental challenges are outside the jurisdiction of state territorial government authority. Pre-eminently, agreements to mitigate CO₂ emissions and steps to hold back climate change can be seen as being stalled because of politics of state interests. This has brought about interest in global governance institutions to address the non-boundary character of oceans, biodiversity and of climate change. Environmental systems supersede state boundaries and therefore global institutions are expected to plug the gaps between state spaces, or to expand the collective territoriality of the state into the atmosphere and oceans' (Bulkeley 2005: 6).

While the case is made for the development of network-based forms of governance, researchers point to conditions, which might cause failures from such governance. Given the inter-related dynamics of social, ecological and economic factors, a failure or disturbance in one part of the system may have a domino effect upon others. Examples are occurring in the Australian wheat-growing region and in Samoa with the increasing salinity of groundwater. A likely effect is that agriculture becomes unviable and this in turn triggers migration, unemployment and the undermining of social capital. In what might be an indirect effect of changes to water in the case of Samoa, the men from many villages are migrating to New Zealand for four months per year as seasonal workers. While this is not permanent migration it does alter the village working capacity and provides a small example of the 'cascading' effect of environmental changes on local social organization and patterns of economic activity.

These challenges to network based governance show the need to retain capacity for central systems to be able to take into account the threshold effects of failure in one part of the system rebounding across others. Coordinating these complex non-linear social –ecological processes across national and transnational domains requires timely governance intervention and leadership. In exploring the responsibilities of States that might be appropriate in systems of network based governance there are a number of points to bear in mind. Central governments have the capacity in terms of authority, legitimacy and resources for coordinating responses with timeliness and across spatial scales.

Global Environmental governance

UN Conventions show global scale environmental governance initiatives. The UN convention on Biological Diversity (1993) arose from the 1992 convention on biological diversity held in Rio de Janeiro. The UN convention provides for the setting of national priorities, and these translate in to regional plans and local management effort, and promote community participation to enhance biodiversity 'in situ'. The objectives of the UN Convention are:

- The conservation of biological diversity

- The sustainable use of its components
- Fair and equitable sharing of the benefits arising out of the utilization of genetic resources

As a signatory to the UN Convention NZ developed a Biodiversity Strategy 2000-2020. The vision, goals and guiding principles make provision for include Māori as partners in safeguarding biodiversity interests through collaborative mechanisms.

Implementation of biodiversity is mainly through Conservation estates and Marine Protected Areas, including customary reserves, to protect habitats and ecosystems.

The UN Convention on the Law of the Sea (UNCLOS 1982) serves to initiate governance regimes at a global scale with implementation through State signatories. In 1996 New Zealand, signed the UN convention of the Law of the Sea with agreement to implement a legal framework for management of oceans. As a signatory, NZ gained rights and responsibilities over 4 million sq. kilometers (430 million hectares) of sea. This Exclusive Economic Zone (EEZ), extends beyond the 12 nautical mile limit of the Territorial Sea, to 200 nautical miles from the coastline. Policy development has languished but a recent Oceans Atlas is setting out to document the acidification of the oceans in this territory as a means to feed in to policy development.

Two global scale initiatives to give effect to environmental responsibility are being developed with the backing of legally binding rules.

The Aarhus Convention (1998) is to ensure public participation in environmental matters. It is a Treaty of the United Nations Economic Commission for Europe (UNECE). Its full title is ‘Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters’. The Aarhus Convention represents enforceable binding law in most member states of the European Union (EU), including the UK. From 2007 all institutions, bodies, offices or agencies of the EU will also have to comply with the provisions of the Convention.

Aarhus is designed to improve the way ordinary people engage with government and decision-makers on environmental matters and it is intended to ensure that environmental information is easy to get hold of and easy to understand.

Ecocide as a crime against peace is being proposed at the UN in addition to the other four crimes against peace. If accepted, this would allow polluters, both corporates and governments to be prosecuted in the International Court of Justice in the Hague.

This legal campaign is being led by Polly Higgins, an English lawyer with expertise in Earth Law, a new body of law seeking to create legal instruments to protect the earth and planet from destruction. Higgins has developed the concept of ecocide and is running a global campaign to have the destruction of earth’s

ecosystems made a crime. She says corporate ecocide is a global crime of great prevalence, and the pursuit of profit without consequences must be stopped. She proposes that governments or companies which are guilty of the crime of ecocide can be forced to change the incentive structures for businesses by redirecting subsidies for fossil fuels towards clean energy sources.

Environmental Law

Trusteeship law and the duty of care are two avenues for legal development for collective environmental responsibility. These are areas for legal development, with further discussion beyond the scope of this paper. However we do have a first hand case study of trusteeship in the case of water in Hawaii. Although Hawaii has the status of a developed country, the indigenous populations share regional identity as peoples of Moana-Nui-a-Kiwa. Hawaii is an especially interesting case study because of the intensive development that has taken place there.

Trusteeship law is being used in Hawai'i to recover in-stream water flows by Indigenous Hawaiian groups. They are litigating for the recovery of water rights which are protected in the constitution. Article XI provides that all public resources be held in trust by the state for the benefit of its people. A specific provision for water is 'to protect, control, and regulate the use of Hawaii's water resources for the benefit of its people'. Their cause derives from Hawaiian traditions and the Constitutional status of water as a Public Trust. The fact that trusteeship is a constitutional concept allows campaigners to seek redress in law.

The notion of water as a public trust is set against a background of commercialization of resources through foreign settlement. Two divergent traditions have created a chasm between public good interests and commercial, privatised interests. Rivers that have been deprived of their flows by commercial users no longer support traditional agriculture. These issues are at the heart of the critical loss of the integrity of rivers in Hawai'i, as documented in *Olaka Wai* (Sproat, 2009). The spiritual and traditional aspects of water guide modern-day Hawaiians in using the law to reinstate trusteeship over water. Traditionally water is a physical manifestation of the deity Akua Kāne, who carries the authority of trusteeship over water for communal benefit. (Sproat 2009:5). This spiritual association meant that water could not be commodified or reduced to physical ownership.

Trusteeship law is being taken up as a mechanism for safeguarding the earth's ecosystems. In the US a coalition of green groups is calling for a declaration of the atmosphere as a public trust, in the face of the failure of the government to protect the atmosphere.

I.B.ii. Dilemmas which have been mentioned

- The important protections of private property against the need for collective property rights with legally enshrined restraint on resource exploitation
- Individualized entitlement of rights against the imperatives of collective responsibility
- The moral imperative of ethics and the need to develop legal capacity for collective forms of accountability for maintaining the viability and integrity of ecosystems
- Economic development interests (which are based on resource exploitation) versus biophysical limits
- Democratic forms of governance are based on 3 or 4 electoral cycles which are not calibrated to the long term challenges of environmental governance and climate change
- Western forms of governance do not (in the main) connect social, environmental and ecological systems. There is poor appreciation for the links between poverty, inequality and pressures on environmental resources.
- Developing countries are compelled to address poverty through economic development and resource exploitation.
- Local systems of governance and management often in conflict with centralized government interests.
- A dilemma which emerges through these studies is the tension and conflict between local forms of authority and being over-ridden by state agencies. Here are two examples from Aotearoa New Zealand: one of a failed protocol for collaboration, the other shows conflict between conservation and tribal interests.

In the Lake Taupo area collaborative protocol was created between a department of Justice and tribal leaders in the Lake Taupo area for management of rivers, which flow through Justice Department land. The protocol involved agreements for riparian strips and no logging along the rivers. The agreements were pragmatic and did not seek to address issues of land ownership, but were forged to give priority to the river ecosystems. The protocol was effective for many years. Subsequently it fell into disuse because of breaches to the agreements by the government department. Ultimately it was vulnerable to being over-ridden by changes in Departmental policy, by changes in staff and by inadequate accountability for the sustaining protocol.

Lake Taupo is a major watershed in the North Island of New Zealand. The Justice Department and the Department of Conservation are major Government stakeholders. This is an area of extensive tribal estates in land and water. In what may seem a strange division of property rights, which is historic, Ngati Tuwharetoa

own the lake beds and river beds and the Crown (government) has control over the water columns. It is an area of major conservation estates as well as of energy generation. The area has large native forests; large commercial pine plantations and the rivers and wetlands have extensive colonization by willows, an invasive species in NZ. Department of Conservation has taken the view that the willows, as an invasive species, need to be removed for the purpose of restoring native vegetation, and for clearing the rivers of the willow root systems, which are deemed to be blocking the water, flows in the rivers and wetlands. Willow control in wetland areas and river reaches is mostly achieved by poisoning. The South Taupo wetland is in Māori ownership and is thus designated private land. Some tribal groups cases are engaged in willow removal either in collaboration with the Department of Conservation or independently.

Ngā Runuku is a subtribe, which contests the wisdom of removing willows. They manage the willows and waterways through principles of kaitiakitanga (obligations and responsibility for stewardship). They have prioritized the importance of temperature for river dynamics. Water temperature influences the velocity and turbulence of water and the processes of sedimentation and removal of willows effects water temperature though increased exposure to the sun. The Kaitiaki (guardian) is cognizant of climate change and mindful of the significance of retaining shade-bearing trees for their cooling effects on water, and of planning for the resilience provided by established trees in the face of anticipated uncertainties of droughts and floods.

This Māori group have drawn different conclusions for management from those with conservation interests. They consider that willows are serving several functions including holding riverbanks and providing cooling shade in the wetland and rivers, a view supported by other researchers. They support a system of succession planting for gradual replacement of willows by native species.

In spite of seeking to engage with local government and other statutory agencies to achieve greater community and professional knowledge of the function of willows and achieve a transitional strategy of willow replacement, willow management has continued to involve poisoning and removal, which has left river banks denuded. Subsequent attempts to engage multiple stakeholders in sharing interests, knowledge and aspirations have been difficult to achieve. In the face of this, the Hapū (sub-tribe) decided to proceed with research to provide evidence for the alternative management system.

I.C. Cultural attitudes that determine these priorities

Cultural attitudes are a strong theme of this paper.

Western Systems – key themes:

Barriers

- Separation of nature and culture

- Individualized systems – including economic system premised on self-interest, freedom, competition.
- Sectorial separation and fragmentation with poor capacity for integration
- Dominance of private property.

Possibilities

- Development of Ecosystems knowledge with associated priorities of linking social-ecological systems. Goals of collaboration, integration adaptive governance.
- Trusteeship law as basis for legal frameworks for stewardship of common property
- Indigenous Systems - key themes:
- Indigenous traditions of obligation for collective benefit and forms of accountability with systems of Adaptive governance
- World views of an Inter-related universe
- Collective land tenure with localized form of authority and management
- Integrative metaphysics based on relationships between human communities and the natural world environments in which we live.

Weaving of knowledge and experience across disciplinary boundaries reflects as the natural world which contains borders such as between the sea and land, mountains and flatland, and between knowing and ignorance. A ‘holistic’ view of the world and of knowledge is not blind to parts, boundaries, borders and thresholds but rather sees these parts both as ‘wholes’ in themselves as well as parts of larger wholes. Understanding *relationship* is the key to understanding this world.

What suggestions emerge for creating cultures of responsibility?

The imperative of joining ecological systems with social systems

Centralized systems of governance at state and global levels need to facilitate the local forms of environmental management – which is known to be the most effective for environmental benefit. At the same time, centralized governance need to retain mandated capacity for leadership on commitment to priorities for the health and viability of biophysical systems with timely responsiveness to environmental challenges.

Development of environmental governance to meet the challenges of sustainability (as ecological responsibility) need to go hand in hand with strategies to reduce social inequalities.

Collaborate with environmental lawyers to develop notions of trusteeship for application across biophysical systems essential to life such as air.

Develop forms of collective accountability for the stewardship of environmental ecosystems.

Facilitate much higher profiles for indigenous knowledge systems of environmental governance to care for the planet

Collaborate with environmental education organizations programmes to care for the planet

A major step is to interpret climate and ecosystems science for social sectors, with proposals for social policy development and governance.

Forms of collective land tenure and of collective accountabilities need to be developed.

Discussion on Future Strategy

Work in partnerships with key organizations, such as ECO, to engage an ethics of responsibility to meet social , economic and environmental challenges

Engage with IUCN and Landcare (NZ) to develop policy frameworks to implement responsibility

Co-host workshops in the Pacific region on integrated systems for environmental outcomes. Also on sustainable development to address poverty, economic aspirations and biodiversity conservation

Lead research on policy development based on collective forms of responsibility. An example is on the links between ecosystems and human welfare. The progress in measuring poverty needs to be paralleled with identifying the correspondence between the ‘natural capital’ of the biophysical environment and human wellbeing.

Work with our capacity in the social sciences to interpret the science of climate change for social areas such as education and health, with proposals for governance, management and policy.

Publish papers and do conference presentations to disseminate conceptual frameworks of ethics of responsibility (relational, collective)

Host cross-sectorial collaborative workshops to make progress on linking social and ecosystems responsibilities and develop a methodology for conflict resolution based on responsibility ie through prioritizing the integrity of environmental ecosystems.

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