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Systemic forest health: The changing role of public participation in WA forest policy and management

Martin Brueckner
Centre of Excellence in Cleaner Production, Curtin University of Technology, Australia

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ABSTRACT: Notions of holism and systemic health have broadened our understanding of the treatment and prevention of disease. Integral to these concepts is a whole-system perspective, which enables the holistic treatment of health and its dimensions. A perspective such as this demands that the focus be directed at the health of an entire system and that of its constituent parts; their health becomes a prerequisite for the health of the whole (systemic health). In the context of ecosystem health, social and political systems can be understood as subsystems of a wider natural system and their 'health' or 'well-being' as contributing to the health of this broader system in which they are embedded.
In Australia, the relationships between socio-political systems and ecosystems have undergone considerable changes over the last 50 years. Growing levels of environmental awareness, for instance, have led to an increase in public concern about, and scrutiny of, the governance and management of the environment and to a growth in the demand for public participation in environmental policy-making.
Focusing on the social and political dimensions of forestry in Western Australia, this paper examines the notion of systemic forest health against the background of changing public perceptions of forests and their management as well as growing demands by the public for its engagement in political decision-making processes affecting forest health. It is argued that public participation is a vital component of forest health and that meaningful public input is therefore required in political processes working towards the systemic health of ecosystems.

1 INTRODUCTION

In this paper, attention will be drawn to the relationship that exists between socio-political domains and the ecosystems in which they are nested. Focus is directed to environmental policy-making in Australia in the face of a discernible growth in public demand for meaningful input in decisions about the country's natural assets. This paper, concentrating on developments in Western Australia, takes stock of the extent to which these demands are being acceded to by the political apparatus. Case study data will be presented providing insights into the Western Australian Regional Forest Agreement (RFA) process, a national policy initiative designed to end a long-running conflict over native forests. Public perceptions of the RFA process will be presented to gauge the extent to which public participation was allowed to occur in the process as well as to highlight the importance of socially acceptable modes of decision-making relating to forest matters and their relationship to forest health.

It is argued that, in a holistic sense, systemic forest health is contingent on the 'health' of social processes affecting the use and management of the forest estate. A socio-ecological understanding of health as it relates to ecosystems and societies as a whole and an understanding of the changing meaning of health over time may thus be required to secure systemic forest health in the long term.

2 SOME NOTES ON SYSTEMIC HEALTH: ECOSYSTEM-SOCIAL-SYSTEM LINKAGES

Before attention is directed to the concept of systemic health, some comments are warranted on the links that exist between social environments and ecosystems as many parallels exist. Ecosystems are thought of as basic units of a community within the biosphere. Broadly defined, they are thermodynamically open systems in which inhabitants co-exist and exchange matter, energy and organisms (Noss 2000). Similarly, social (human) systems are assemblages of individuals who also engage in exchange; this, however, occurs on the basis of shared understandings and norms with established patterns and hierarchies (Westley et al. 2002). As shown below in Figure 1, ecological systems and social systems share similar characteristics and attributes, which are also exhibited by the interactions taking place between them; however, these interconnections are complex and still poorly understood (Koren and Crawford-Brown 2004).

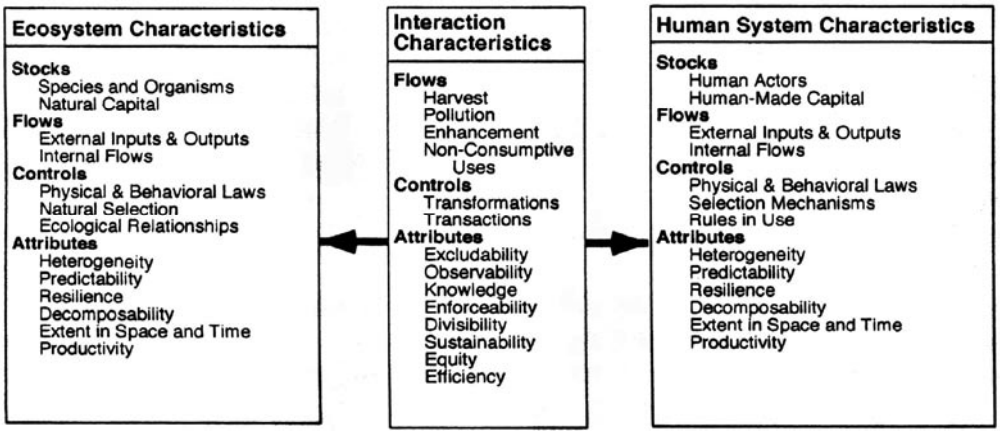

Figure 1. Human and Ecosystem Interactions (Source: Costanza et al., 2001, p.14)

Human-environment relations are reciprocal, as humans shape, and are shaped by, their environment (see 'flows' in Figure 1). Unsurprisingly, therefore, connections also exist between the health of both systems. The health of ecosystems is seen as a state of dynamic equilibrium, gauged by the capacity for renewal, for recovery from a wide range of perturbations, and for retention of ecosystem resiliency (Rapport 1989, 1998). Human health, whilst traditionally quite narrowly considered a disease-free state of existence (Mathers and Douglas 1998), is also increasingly understood in terms of capacity and resilience and to be inescapably linked to ecosystem health and environmental health (World Health Organisation 1986; Ewert and Kessler 1996; van Leeuwen et al. 1999; World Health Organisation 2002).[1]

[1] Contemporary discussions about health have broadened considerably to include Indigenous notions of health, the concept of well-being, environmental health, ecosystem health as well as notions of sustainable resource use, social justice and equity (for a detailed discussion see Sustainable Communities Network, 2003).

The reciprocity in human-environment relations, however, is relative. In fact, it would be wrong to suggest a non-hierarchical relationship between social and environmental systems. While poor social and economic conditions can contribute to environmental problems (see Butler 2000), socio-economic systems are intimately dependent upon ecological systems (Lubchenco et al., 1991; Rapport 1998; Karr 2000). In short, humans depend on nature but nature does not need us! Consequently, the relationship between social systems and their environments is perhaps best understood in terms of nested hierarchies or structures (Noss 2000), an enveloping of smaller social systems by a larger environmental system (see also Figure 2).[2] A conceptualisation such as this not only more accurately reflects the interconnections and dependencies that exist in human-environment relations but also helps overcome problems associated with the common disaggregation of social and environmental systems.

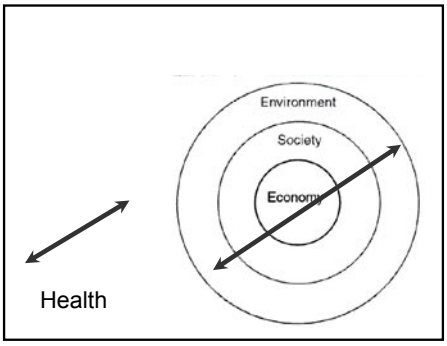

Figure 2. Nested Structures (Source: adapted from Giddings et al. 2002, p.192)

As shown in Figure 2, health cuts across social and environmental systems, which implies that human health can be understood in terms of environmental health and vice versa. It is this socio-ecological view which encapsulates the health of both social and environmental systems that gives rise to the notion of systemic health. Within this perspective, the health of a system is contingent on the health of, and processes within, its constituent parts. Accordingly, socio-political processes are liable not only to affect the *health* and *integrity* of social systems but also to have an impact on the health of the systems' broader environments. In other words, environmental health is contingent on healthy social processes and policies.

In this paper, environmental policy-making serves as an example of a social process impacting on forest health. More specifically, in what follows, forest policy in Western Australia (WA) is examined in the face of changing public demands to be included in the political process. A brief review of the history of forest policy will help place the ensuing discussion in context.

3 BIRTH OF A CONFLICT: CHANGING VALUES AND POLICY RESISTANCE

Following World War II, commercial forest use in WA was largely driven by a very high local demand for native hardwoods due to the post-war housing boom (Robertson 1956). Government policy focused primarily on supply management using immigration labour programmes and government subsidies to increase capacity of the still war-affected timber industry (Cresswell 1989).

[2] The notion of nested structures also applies to social systems, within which social actors are seen as components (subsystems) of, and to be affected by, broader social structures which again form subsystems of larger systems (see Bronfenbrenner 1979).

Although it was already recognised in the 1950s that forest production represented a "far greater output than the forests of the State 32 maintain" (Forests Department 1953, p.1), the unprecedented demand for timber meant that there was no public mandate for a reduction in the cut or the introduction of conservation measures.[3]

Throughout the 1960s and 1970s, public attitudes towards forest management and use began to change as the pro-development mindset was increasingly challenged (Lothian 1994; Worth 2004). This period was marked by an intensification of industrial forest exploitation in Australia, which in Western Australia meant further mechanisation of timber cutting operations and the advent of bauxite mining[4] and woodchipping (Carron 1985). At the same time, however, scientific connections were made between industrial activity and environmental deterioration (see for instance Carson 1962). In WA, for example, the effects on native flora caused by the fungus responsible for dieback (*Phytophthora cinnamomi*) became very apparent and could clearly be linked to the mining and timber cutting activities in the state. The conflux of industrialisation and environmental change triggered a social re-definition of environmental value. Against the background of an emerging environmental movement and a bourgeoning number of environmental publications (see Hardin 1968; Ehrlich 1970; Meadows et al. 1972; Mesarovic and Pestel 1974) voice was given to a conservation theme, which called for the protection of native flora and fauna. In Australia, these value shifts triggered public disquiet over numerous environmental issues and a growing distrust towards environmental policy at State and Federal levels. Increasingly, calls were made for more environmental protection and greater access to political decision-making processes affecting environmental outcomes.

While public participation is a recognised element in Australia's environmental and planning law (Taberner et al. 1996), the country's track record on public participation relating to environmental issues is far from exemplary. With the exception of provisions for objections (mining legislation) and appeals (planning legislation) there is little scope for community involvement within Australia's natural resource legislation (Conacher and Conacher 2000). Underlying this situation of limited public access is a belief in the separation between the country's legislators and their electorates. At the Federal level, community involvement is seen as a threat not only to the Westminster system, which is built on vertical ties, reciprocal control, and a distrustful political style (Barber 1984), but also to the country's economic advancement, the darling of the administration. The situation at the State level is similar, where development-driven governments are compared to "plebiscitary dictatorships" and their policy-making described as "rigid" and "hostile to criticism" (Walker 2002, p.282). On the whole, there is an anti-participatory sentiment in Australia's environmental policy realm, which is also reflected in the recent changes to pieces of environmental legislation around Australia. States such as Western Australia, New South Wales, and Victoria changed various parts of their environmental legislation, all effectively reducing the public's opportunity to participate and/or object (Raff 1995; Stein 1998).

Predictably, against this political background, the forest conflict in Australia became increasingly entrenched. Over the last 30 years, many government initiatives at the State and Federal level, which were intended to resolve or at least dampen these controversies, largely failed and even, at times, increased the conflict (Dargavel 1998). These often ad hoc crisis-management attempts ostensibly lacked an understanding of the symbolic and ideological factors involved in the forest disputes (Syme 1992; Lane 1999). They also tended to ignore public/stakeholder views to the extent that these attempts at crisis resolution were dubbed *participatory rituals* (Mercer 1995). As a result,

[3] It needs to be noted here the Forests Department at the time stressed in its annual reports the need for greater emphasis to be placed by government on reforestation efforts and forest management to stem overcutting and maintain forest productivity (see for instance, Forests Department, 1952; 1953). In fact, concerns about indiscriminate timber felling date back much further (see von Müller, 1879; Royal Commission on Forestry, 1903).

[4] A large extent of the northern jarrah forest of Western Australia is covered under a mineral lease granted to Alcoa World Alumina in 1961. The company has been surface mining the area since 1963, currently affecting around 550 hectares of forested land per year (see Gardner & Stoneman, 2003).

by the late 1980s, the forest debate represented the country's single most controversial environmental issue, and it became clear that by the turn of the decade a national policy framework was needed to resolve the forest conflict.

In 1992, the announcement of the National Forest Policy Statement (NFPS) heralded a new national approach to forest use, conservation, and management. The NFPS spoke of conflict resolution and certainty for all stakeholders via improved forest reserve systems, industry competitiveness and ecologically sustainable forest management practices. RFAs were meant to be the vehicles for the realisation of the new forest policy. RFAs represented individual, 20-year-long agreements entered into by the Commonwealth and States and Territory Governments, which sought to regulate native forest use, conservation, and management in delineated forest areas. In recognition of past mistakes, the process formula promised explicitly "extensive public consultation" and envisaged "enabl[ing] the community to make … considered contribution[s] within the land use decision-making process and to forest management issues" (Commonwealth of Australia 1992, p.38). Indeed, during the WA RFA process the public was consulted through a wide range of mechanisms, including RFA-related research reports and information kits, an information line, a video and newsletters, fortnightly RFA updates published in the State's daily newspaper as well as local papers and a RFA internet website. In addition, three consultative reference groups were formed, community heritage workshops and public meetings were convened, and surveys and interviews were conducted as part of the RFA's social assessment component. However, what did RFA stakeholders think about these attempts at community consultation?

In what follows, stakeholders' perceptions of these participatory measures are presented. They will provide insights into the extent to which the RFA was seen to have delivered on its promise of inclusiveness.

4 UNHEALTHY PROCESSES: PUBLIC REACTIONS TO PERCEPTIONS OF EXCLUSION

The data presented below are based on a series of interviews conducted as part of a project investigating the Western Australian RFA process (see Brueckner 2004). In light of existing space limitations the information provided below is abridged, and only a selection is offered of three themes pertaining to public participation that emerged from the research. These themes are based on the work done by McCool and Guthrie (2001) and are reflective of forest stakeholder issues identified by other authors (e.g. Tuler and Webler, 1999):

- Accessibility of process
- Power to influence process and outcomes
- Accessibility of information

Selected quotes shown below are taken from RFA stakeholder interview transcripts. However, due to confidentiality issues surrounding the research project on which this paper is based, individual data sources are not divulged.

4.1 *Accessibility of process*

In relation to the accessibility of the RFA process, it was the level or quality of access that proved to be contentious. All RFA stakeholders were invited to participate via public meetings, submissions, and what was called the Stakeholder Reference Group (SRG). The SRG was a consultative forum designed to advise the RFA Steering Committee which was staffed with bureaucrats from both the WA and the Commonwealth government and in charge of overseeing the RFA process. According to RFA process management, making available these participation options to members of the public meant that "everybody [got] a fair go". However, many stakeholders sought access to the actual decision-making process, and the SRG was not viewed as a decision-making body. Due to its all-encompassing nature (e.g. "this Mickey Mouse Committee [SRG] of everybody from the prospectors to anyone who was nominated") the SRG was perceived to be irrelevant to the process. This appeared to be one of the reasons why most environment groups boycotted the RFA because

they were seeking admission to the Steering Committee, a move rejected by both the State and the Commonwealth government (e.g. "they formed the Steering Committee and left conservationists out of it"; "conservation groups boycotted the RFA process because they believed that they ought to have been on the Steering Committee itself").

Access in terms of timing, location and advertising of meetings was also rated poorly. Meetings were considered to have been poorly publicised and at too short a notice (e.g. "We would get notice at the last moment"; "there was inadequate lead-time given, the publicity was not good"). Also, many SRG meetings were held in the state capital (while most public meetings were held in the state's south-west), which inconvenienced many SRG members who were living in the southern parts of the RFA area; especially, in view of meetings being postponed or cancelled at short or – on occasion – no notice (e.g. "There was no real effort, even though we as stakeholders had raised in the meetings that they needed to give at least one month notice for people to be able to put it in their diaries and arrange absence from work"; "they would basically invite everyone up from the south-west for a key-stakeholders meeting and then 24 hours beforehand cancel it").

Complaints were also common about the perceived haste with which the process progressed and the rushed nature of meetings and their scheduling (e.g. "meetings were called … at too short a notice"; "things were really rushed"), which raised suspicion as to why the process was hurried (e.g. "People get very concerned if they are being rushed too much"; "apparent rush and pressure on to get it all over and done with then that actually constrains the process and provides or legitimises the whole argument that we don't have time to have broad-scale community consultation").

4.2 *Power to influence process and outcomes*

The effectiveness of stakeholder input via the SRG was considered very limited as the SRG was believed to be neither a truly participatory nor effective forum in terms of affecting process outcomes (e.g. "[The Stakeholders Reference Group was] never going to be the actual place where major decisions were made"; "a government that is very much top-down"). In particular, local council and environmental group members expressed a sense of disempowerment (e.g. "They did not have ownership of it"; "it's a terrific example of disempowerment"). Their concerns were related to decision-making, being listened to, and having an impact on the final outcome, which was not felt to have been the case (e.g. "It was always talk-down: You sit down, and we will tell you, and you listen"; "The public rebelled against this because they were not part of the decision-making process"). In contrast, process managers saw RFA stakeholder input as meaningful and having had an impact on the final RFA outcome (e.g. "all issues raised were considered and discussed"; "we have actually moved green because of those people who actually did participate in the debate").

Many stakeholders believed that the RFA process was entirely controlled by the Department of Conservation and Land Management (CALM), WA's chief negotiating agency at the Steering Committee level (e.g. "the community sees CALM as the people that drove that process"). Due to perceptions of the Department's pro-industry bias many stakeholders felt the process was catering merely to industry demands and effectively ignoring the views of the environment movement and the wider community (e.g. "It seemed to exclusively look at the needs of the timber industry"; "[the outcome] was totally controlled again by the timber industry").

Finally, during the public comment period when members of the public were asked to respond to the RFA Public Consultation Paper, more than 30 000 submissions were lodged with the authorities; an unprecedented number of public responses. A large number of interest groups voiced their concerns about a range of process-related aspects as well as the choice of, and scientific basis for, reserve and forest use options proposed for adoption (see for instance Baile et al. 1998). In May 1999, the Commonwealth and the WA State government signed the WA RFA, a policy document which stakeholders saw to have little resemblance with what the public wanted. The RFA was therefore criticised for failing to take into consideration the views and aspirations of its stakeholders and received widespread condemnation (e.g. "… what you are saying to the community is:

get stuffed, basically"; "There was no admission that the vast majority of submissions on the RFA were opposed to what the RFA was suggesting").

4.3 *Accessibility of Information*

In terms of access to published information RFA process managers believed that the relevant data were made available to RFA stakeholders (e.g. "[the] information that has been provided to the public, both the assessment information and all the other information is much greater than you would have in most other government processes"), despite admissions to occasional delays in the publication process ("e.g. Some of the data did not get out as early as we would have liked but we made a choice that it was better to get out sufficient data rather than to get out something that was really half-baked earlier").

Then again, stakeholders acknowledged that data were being made available. However, stakeholder disquiet arose over the timing of data publication (e.g. "The documentation was nowhere available until the last moment"), the type of information (e.g. "the information that the Commonwealth officers had that might therefore be in the public domain was very, very tightly controlled as well and limited"), and the quality of the data (e.g. "the public as a whole and other institutions never really had an entree into the debate because of the quality of the information available to them"). Furthermore, there were questions about the data sources and the way information came together (e.g. "the public did not get an opportunity to actually see how all of the information that came out of the working groups and the technical groups and the public comment on the options paper had been addressed until they were given a document, which says that it has been signed"). Among stakeholders, including industry representatives, there was a strong sense that data publication was poor, not just to the general public but to SRG members especially (e.g. "[Stakeholders] did not get proper access to information"; " Stakeholder Group …[did] not have … access to all of the information"). Similar concerns were raised in connection with the type of data that was made available. Stakeholders felt that the published information was of limited usefulness because of concerns about accuracy and the format in which it was presented. (e.g. "the material we had presented to us was very difficult for the layperson to understand because of gaps and imprecision in the materials"; "After a session with these people you had to say that that is not right. Straight away you got a doubt about what the other information is like").

5 SYSTEMIC FOREST HEALTH: A CASE FOR ADAPTIVE POLICY

Due to immense public pressure the State government amended the WA RFA only eight weeks after it was originally signed. Furthermore, at the State elections in 2001 the government was defeated, to some extent because of the controversial nature of its forest policy (Worth 2004). The stakeholder perspectives presented above in part offer an explanation for the public reaction to the RFA and its outcomes. These perspectives are analysed below, and attention is directed to the implications flowing from the RFA for systemic forest health in WA.

It is evident from the data above that there was a disparity between the views held by RFA process management (essentially the policy makers) and stakeholders regarding the inclusiveness of the process. On the one hand, both governments with their respective departments defended the process, arguing that the degree of consultation was appropriate (e.g. "huge amount of public consultation"). On the other hand, RFA stakeholders by and large demonised the process (e.g. "the process was so perverted") suggesting that they were not listened to, marginalised, and excluded from the actual decision-making, resulting in an overall lack of ownership (e.g. "there has been no community ownership of it"). RFA process managers believed they had involved the community through consultation and communication (e.g. "… consultation … that could be just simply putting out a report to the public and receiving written submissions. I mean that's the minimum that would be required to meet the public consultation guidelines or the term public consultation"). It was therefore not surprising that stakeholder input was restricted to the SRG, public meetings, and public comments on the options paper as active stakeholder participation would have gone far beyond

the prescribed scope of the RFA process and standard government procedure. Stakeholders, in contrast, seemed to have been hoping to play a more active role during the WA RFA which they viewed as a more transformative process, an avenue to accomplish their particular ends (e.g. the cessation of old growth logging). However, transformative powers, the powers to initiate change, were vested with process managers and political decision-makers who were unwilling to relinquish these powers. This resulted in a sense of powerlessness among stakeholders and a further rise in already high tensions in the forest debate. In summary, RFA stakeholder responses and the political fallout from the RFA outlined above seem to indicate that the WA RFA did not meet a sufficient level of social and political acceptability and failed to bring an end to the distrust between the government and society. The question of interest at this point is how the WA RFA process and its outcomes relate to systemic forest health.

Previous sections have drawn attention to the changing nature of the relationship between Western Australians and their forests. The growing visibility of environmental change coupled with scientific insights into the connections between human activity and this change occurring had an impact on how society perceived its interactions with nature and on perceptions of how these interactions should be governed. What once was a sole exploitation-driven resource perspective on forested landscapes became gradually challenged and in part replaced by a view championing the conservation of forests and respecting environmental non-use values. This value shift translated into growing demands for active input by members of the electorate in the political decisions affecting the use and management of WA's native forest estate and other ecosystems which themselves were undergoing change. As a result, conflict arose as new, emerging values clashed with entrenched perspectives on human-environment relations. Past political attempts at resolving these conflicts failed because of an inability to actively adapt to these socio-ecological changes, because reductionist, administrative mindsets maintained a view of nature as being abundant, stable and unchanging. In other words, environmental change and social reactions to it were largely ignored by the people within static, inflexible administrative structures.[5] Therefore, with regards to the WA RFA, adaptability to socio-ecological change was likely to be the litmus test for the policy's social acceptability and its effectiveness.

The social changes described above can be interpreted as a societal redefinition of systemic forest health over time. As was mentioned previously, the concept of health has become much broader, today going far beyond narrow, bio-medical definitions. New insights from increasingly inter-disciplinary health research and an exposure to a growing plurality of views within health debates actively change society's understanding of health. As a result, calls are made for new or different forms of treatment, therapy and preventative care as well as changes in the way health services are administered and delivered. Analogously, perceptions of forest health and the linkages that exist between ecosystems and human health have changed. More is known about nature and the way humans interact with it, which explains why calls are made increasingly for different approaches to environmental policy and new modes of political decision-making. Health is a dynamic concept and its meaning is socially constructed according to context (e.g. culture, location, spatial and temporal scales, etc.).[6] In WA, changes in environmental awareness and perceptions of forest health meant that political processes were increasingly expected to adapt to new community values and socially re-defined notions of systemic forest health.

Changes to the concept of systemic forest health were shown to be understood in terms of a greater involvement of forest stakeholders in decision-making processes on forest policy. In this context, the WA RFA case study pointed to a non-, or mal-, adaptive policy response, essentially overriding stakeholder aspirations and thus rendering the WA RFA unhealthy and harmful to the systemic health of the RFA forest areas. This is not to suggest that all outcomes of the RFA were

[5] This is not to suggest there was no political change occurring in WA throughout the 1970s, as this period saw the establishment of a Ministry for the Environment and an Environmental Protection Authority as well as a range of forest conservation measures such as the creation of National Parks; however, many of these changes were the result of much public pressure.

[6] Universal rights to health are recognised (see World Health Organisation, 1978; 1986).

poor or the process itself an unmitigated failure (on the efficacy of the WA RFA see Brueckner 2004; Worth 2004). The emphasis here, however, is more on the social dynamics the process created and the resultant socio-political tensions as they relate to the broader aspects of forest health. The RFA process led to much stakeholder uncertainty, which resulted in forest protests, commercial boycotts, mass rallies, even violence. Systemic forest health was therefore affected by derailed socio-political processes that developed in response to what was perceived as a maladaptive forest policy process. This illustrates that 'unhealthy' policy can become a vector of societal dis-ease and thus impact adversely on systemic environmental/ecosystem health. The WA State elections in this regard acted as a form of health intervention, triggering a change in state forest policy and in the power structures responsible for the status quo. As a result, conservative forest policy was replaced with a more aggressive policy, bringing about the cessation of old growth forest logging and a reduction in the allowable cut for jarrah and karri hardwoods. While these developments are evidence of a dramatic change in forest policy in Western Australia, it remains to be seen whether lessons in relation to responsiveness and inclusiveness were learned from the WA RFA as they pertain to policy processes, their outcomes and systemic forest health.

6 CONCLUSION

It is recognised that the health metaphor is limited in that one could think of a number of 'unhealthy' socio-political constructs under which forests could thrive, demonstrating that in an absolute sense the health of constituent parts is not necessarily a prerequisite for the health of larger encompassing systems or the systemic health of the whole. It might even be far-fetched to argue that socio-political processes per se affect forest health in any meaningful way. The metaphor is useful, however, as a prompt for thinking about the connectedness of systems and the interconnections and hierarchies that exist between them. The WA RFA lacked this degree of reflexivity.

The paper here offers a prompt for future forest (environmental) policy, suggesting that any policy-making aimed at systemic forest health in the future will depend on an ability to devise policies that are both inclusive and responsive to socio-ecological change. In this context, an appreciation of the historical development of change will be required to make sense of current trends and to predict future developments. Also, a commitment to adaptive learning and the maintenance of open structures will be essential as philosophical resistance and closed political structures will otherwise militate against any attempts to alter the status quo.

REFERENCES

Baile, I. 1998. *Response to Towards A Regional Forest Agreement For The South-West Forest Region of Western Australia - A Paper to Assist Public Comment*. Perth: W.A. Farmers Federation, Beekeepers Section.

Barber, B.R. 1984. *Strong Democracy. Participatory Politics for a New Age*. Berkeley: University of California Press.

Bronfenbrenner, U. 1979. *Ecology of Human Development: Experiments by Nature and Design*. Cambridge, MA: Harvard University Press.

Brueckner, M. 2004. *Openness in the Face of Systemic Constraints: On Science, Public Participation, and the Western Australian Regional Forest Agreement.* Unpublished PhD thesis, Consortium for Health and Ecology, Edith Cowan University, Perth.

Butler, C. 2000. Inequality, global change and the sustainability of civilisation. *Global Change and Human Health,* 1(2), 156-172.

Carron, L.T. 1985. *A History of Forestry in Australia*. Canberra: Australian National University Press.

Carson, R. 1962. *Silent Spring*. New York: Penguin Books.

Commonwealth of Australia. 1992. *National Forest Policy Statement*. Canberra: AGPS.

Conacher, A. & Conacher, J. 2000. *Environmental Planning and Management in Australia*. Melbourne: Oxford University Press.

Costanza, R., et al. 2001. Ecosystems and human systems: a framework for exploring the linkages. In J. A. Wilson (Ed.), *Institutions, Ecosystems, and Sustainability* (pp. 4-20). London: Lewis Publishers.
Cresswell, G.J. 1989. *The Light of the Leeuwin. The Augusta-Margaret River Shire History*. Margaret River: The Augusta-Margaret River Shire History Group.
Dargavel, J. 1998. Politics, policy and process in the forests. *Australian Journal of Environmental Management,* 5 (March), 25-30.
Ehrlich, P. 1970. *The Population Bomb*. New York: Ballantine Books.
Ewert, A.W. & Kessler, W. B. 1996. Human health and natural ecosystems: impacts and linkages. *Ecosystem Health,* 2(4), 271-278.
Forests Department. 1952. *Report on the Operations of the Forests Department*. Perth: Forests Department.
Forests Department. 1953. *Report on the Operations of the Forests Department*. Perth: Forests Department.
Gardner, J. & Stoneman, G.L. 2003 (7th-9th July). *Bauxite Mining and Conservation of the Jarrah Forest in South-West Australia.* Paper presented at the IUCN and the International Council of Mining and Metals (ICMM) Workshop: Mining And Biodiversity Conservation: Best Practice Dialogue Progresses, Gland, Switzerland.
Giddings, B. *et al*. 2002. Environment, economy and society: fitting them together into sustainable development. *Sustainable Development,* 10, 187-196.
Hardin, G. 1968. The tragedy of the commons. *Science, 162*, 1243-1248.
Karr, J.R. 2000. Health, integrity, and biological assessment: The importance of measuring whole things. In *Ecological Integrity. Integrating Environment, Conservation, and Health* (pp. 209-226). Washington, DC: Island Press.
Koren, H.S. & Crawford-Brown, D. 2004. A framework for the integration of ecosystem and human health in public policy: two case studies with infectious agents. *Environmental Research, 95*, 92-105.
Lane, M.B. 1999. Regional Forest Agreements: Resolving Resource Conflicts or Managing Resource Politics. *Australian Geographical Studies,* 37(2), 142-153.
Lothian, J. 1994. Attitudes of Australians towards the environment. *Australian Journal of Environmental Management, 1*, 78-97.
Lubchenco, J. *et al*. 1991. The Sustainable Biosphere Initiative: An Ecological Research Agenda: A Report from the Ecological Society of America. *Ecology,* 72(1), 371-412.
Mathers, C. & Douglas, D. 1998. Measuring progress in population health and wellbeing. In R. Eckersley (Ed.), *Measuring progress: Is life getting better?* Collingwood: CSIRO Publishing.
McCool, S.F. & Guthrie, K. 2001. Mapping the dimensions of successful public participation in messy natural resources management situations. *Society and Natural Resources, 14*, 309-323.
Meadows, D. *et al*. 1972. *The Limits to Growth: A Report to the Club of Rome's Project on the Predicament of Mankind*. London: Pan.
Mercer, D. 1995. *A Question of Balance. Natural Resources Conflict Issues in Australia* (2nd ed.). Sydney: The Federation Press.
Mesarovic, M., & Pestel, E. 1974. *Mankind at the Turning Point. The Second Report to The Club of Rome*. New York: Club of Rome.
Noss, R. 2000. Maintaining the ecological integrity of landscapes and ecoregions. In D. Pimentel, L. Westra & R.F. Noss (Eds.), *Ecological Integrity: Integrating Environment, Conservation and Health* (pp. 191-208). Washington, DC: Island Press.
Raff, M. 1995. Pragmatic curtailment of participation in planning in Victoria. *Environmental and Planning Law Journal,* 12(2), 73-77.
Rapport, D.J. 1989. What constitutes ecosystem health? *Perspectives on Biology and Medicine, 33*, 120-132.
Rapport, D.J. 1998. Defining ecosystem health. In D.J. Rapport, R. Costanza, P.R. Epstein, C. Gaudet & R. Levins (Eds.), *Ecosystem Health* (pp. 18-33). Carlton (VIC): Blackwell Science, Inc.
Robertson, J.R. 1956. *A history of the timber industry of Western Australia.* Unpublished Thesis, University of Western Australia, Perth.
Royal Commission on Forestry. 1903. *First Progress Report of the Royal Commission on Forestry: Final Report*. Perth: Government Printer.
Stein, P. 1998. 21st Century challenges for urban planning - the demise of environmental planning in New South Wales. In B. Gleeson & P. Hanley (Eds.), *Renewing Australian Planning? New Challenges, New Agendas* (pp. 71-81). Canberra: Research School of Social Sciences - ANU.
Sustainable Communities Network. 2003. *Sustainable Communities and Health Inequalities: Position Paper*. Perth: SCN.

Syme, G.J. 1992. When and where does participation count? In M. Munro-Clarke (Ed.), *Citizen Participation in Government* (pp. 78-98). Sydney: Hale and Iremonger.
Taberner, J. *et al.* 1996. The development of public participation in environmental protection and planning law in Australia. *Environmental and Planning Law Journal, 13*(4), 260-268.
Tuler, S. & Webler, T. 1999. Voices from the forest: what participants expect of a public participation process. *Society and Natural Resources, 12*, 437-453.
van Leeuwen, J.A., *et al*. 1999. Evolving models of human health toward an ecosystem context. *Ecosystem Health,* 5(3), 204-219.
von Müller, B. F. 1879. *Report on the Forest Resources of Western Australia*. London: L. Reeve.
Walker, K.J. 2002. Uncertainty, epistemic communities and public policy. In J. W. Handmer, T. W. Norton & S.R. Dovers (Eds.), *Ecology, Uncertainty and Policy. Managing Ecosystems for Sustainability* (pp. 261-290). Harlow, UK: Pearson Education Ltd.
Westley, F. *et al*. 2002. Why systems of people and nature are not just social and ecological systems. In L. H. Gunderson & C.S. Holling (Eds.), *Panarchy: Understanding Transformations in Human and Natural Systems*. Washington: Island Press.
World Health Organisation. 1978. *Declaration of Alma-Ata*. Alma-Ata, USSR.
World Health Organisation. 1986. *Ottawa Charter for Health Promotion*. Retrieved 23rd May, 2003, from http://www.who.int/hpr/archive/docs/ottawa.html
World Health Organisation. 2002. *Health in Sustainable Development Planning: The Role of Indicators*. Geneva: WHO.
Worth, D. 2004. *Reconciliation in the Forest? An exploration of the conflict over the logging of native forests in the south-west of Western Australia.* Unpublished PhD, Murdoch University, Perth.