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Sustainable Forest Management

The Role of Government Agencies, NGOs, and Local Communities in Western Australia

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Abstract

This article details the engagement by the Department of Physical Geography of Utrecht University in the Netherlands with rural communities and nongovernmental organizations (NGOs) to assist them in gaining a better understanding of the environmental impacts of the management practices of the governmental forest authorities of the state of Western Australia in pursuit of international timber exports. The study commences with a description of the unique characteristics of WA's forest communities. It continues with an account of governmental international forest policy norms and the discourse of sustainable forest management (SFM). This is followed by a delineation of the interactions between the academic community and civil society in their engagement with governmental departments in arguing the case for conservation. The final section makes some concluding observations on the lessons that can be learned from the failure of the state government to ensure the sustainable management of the forests of Western Australia.

Keywords: sustainable forest management, Western Australia, precautionary principle

West Australia's Forests and Australian Forest Politics

At over 2.5 million square kilometers Western Australia (WA) is the largest state of Australia, and together with the Great Dividing Range and the island state of Tasmania comprises the majority of the last remaining forests. The total population is less than 3 million, and most people live along the coast mainly in the vicinity of the capital city of Perth. The forests of WA are isolated from the rest of Australia, with a relatively short history of European settlement, and a long tradition of Aboriginal (Noongar) custodianship. They are under stress from deforestation, degradation, and fragmentation as well as the negative impact of climate change and plant disease (Cunningham 2006). The forest is confined to a narrow strip in the South West corner with the prevailing *Eucalyptus* genus consisting of species found nowhere else and comprising Jarrah (*Eucalyptus marginata*) and Karri (*Eucalyptus diversicolor*). The South West forests have been identified as one of the thirty-four global biodiversity hotspots, recognized for their very high degree of species uniqueness (endemism) and diversity, and being under particular high level of threat (Gole 2006; Conservation



International 2012). Although these forests constitute only 1 percent of WA, it has been argued that they are of critical ecological, social, cultural, and scientific value. Of pre-European karri and jarrah forests, 39 percent and 22 percent, respectively, are protected in current internationally recognized reservation proposals (Conservation Commission 2004, in van der Maesen 2009a).

Across Western Australia, the forests are suffering from drought stress. Forest canopies are thinning out; leaves are turning brown and falling off; trees are dying because of lack of rain. There has been a 20 percent decline in rainfall across the South West over the past thirty years, undoubtedly linked to climate change. Large areas of forest are also suffering from serious insect attack, which turn the canopy brown. This widespread and intense attack is both a sign and a cause of stress on forests. This catastrophic forest decline is a compelling reason to stop logging native forests once and for all (van der Maesen 2014).

The South West has also experienced a long-term climate shift since the early 1970s, resulting in dryer and hotter than average conditions. This shifted baseline, or average, has also led to more frequent extreme events. In 2010, the region experienced the driest and second hottest year on record. These climate changes have resulted in significant decreases in stream-flow for considerable periods. Groundwater levels have fallen by as much as 11 meters in some forested areas, with larger decreases in populated areas. Clearly, soil water reserves have dried out substantially and will likely continue to do so. These often sudden and dramatic shifts in vegetation health, structure, and function have profound consequences on flora and fauna, including many critically endangered species. They have an adverse impact on the regrowth of karri and jarrah trees (Matusick et al. 2012).

Karri and jarrah are very popular for construction and the paper industry. Since the European settlement (1829), the forest region has been subjected to logging. The dominant forestry model used is that of “clear-felling,” whereby forests are almost completely removed. Less than 1 percent of the original forest is left. The logged coupes are left bare and are easily recognized on satellite images. Other coupes are regenerated, resulting in plantations replacing the original native forests (van der Maesen 2014). The timber industry depends largely on public native forests, and direct employment in the forest industry is around 1,000 people, a low figure, and a consequence of the closure of a number of sawmills in 2012 (MacLaren 2014).

The closure of sawmills is symptomatic of a sector that has been increasingly dominated by export-oriented felling of native forests to create wood chips for international pulp and paper markets, notably Japan. In some areas, up to 90 percent of trees felled are identified as pulpwood. The impact of industrial logging, it has been asserted, destroys natural ecosystems, damages water catchments, and restricts opportunities for recreation and tourism with a negative result for many local communities (Walker 1997). A majority of Australians have expressed their opposition to the logging of native forests, resulting in four decades of forest conflict referred to by some commentators as the “forest wars” (Ajani 2007).

Following the federal election of a conservative coalition government in 1997, community forest campaigning entered a new phase. One key element had been the implementation of the Regional Forest Agreements (RFAs), which were agreements

between the federal and relevant state governments for logging public forests. These allowed for unlimited exports of wood chips and created a precedent for the future use of public forests. Most environmental groups refused to participate in RFA negotiations and public consultation processes, on the grounds that environmental assessment was carried out using existing, inadequate data that made the impact of logging appear minimal (Walker 1997).

This article provides relevant information for social quality thinking and its policy applications. This theory argued that we have to change the traditional three-pillar distinction as introduced by Brundtland c.s. in the late 1980s – namely, between the economic, social, and environmental dimensions of sustainability – into a four-pillar distinction, namely, the socio-economic, socio-political, socio-cultural, and socio-environmental dimensions of sustainability. The adjective “social” used in mainstream discourses lacks a heuristic meaning and prevents a real understanding of the role of the political powers and of communities and local and national NGOs (editorial, IJSQ, 2015). In this article especially, the role of the main actors in both dimensions concerns the heart of the matter with regard to the destruction of the old-growth forests in Western Australia. It will also implicitly clarify the role of knowledge institutes in this process of deforestation concerning the position of communities.

Forest Management, Sustainability, and Intergovernmental Forest Policy Norms in the Wake of UNCED

UNCED, or the “Earth Summit,” Rio de Janeiro (1992), was critical to the international policy community’s response to environmental degradation, including deforestation, and to popularizing the concept of sustainable development. Unlike UNCED’s handling of the issue areas of desertification, biological diversity, and climate change, it was unable to create legally binding requirements for forests, only a *Statement of Forest Principles*.

UNCED also legitimized the idea of voluntary approaches to environmental problem solving, as seen in the output of the Rio negotiations, Agenda 21. Businesses and industry were exhorted to implement methods of clean production and hazardous waste production (Clapp 1999). Voluntary standards – not indicating specific levels of environmental performance epitomized by the ISO “14000” Series (environmental management systems) – became the major business and industry response (Hortensius 1999). On the national, governmental level, a number of forums were established in the wake of Rio to operationalize “sustainable forest management” (SFM) through the use of criteria and indicators (C&I) for sustainability, referred to in Agenda 21 (Ozinga 2001: 23). The Europeans coordinated their efforts via the Ministerial Council for the Protection of Forests in Europe (MCPFE) and developed C&I for sub-national and forest management unit levels and a set of Pan-European Operational Level Guidelines (PEOLG) (Elliott 2000: 50–51). These were voluntary, intended to meet international commitments, but due to the non-legally binding nature of the *Statement of Forest Principles* were indicative only, not as mandatory regulations, and not to be used to determine SFM (MCPFE 1998: 258–259).

During 1994–1997 twelve countries negotiated an international framework of criteria and indicators for temperate and boreal forests, including Australia, referred to as the Montreal Process, covering 60 percent of global forests and nearly half the world's timber trade (Commonwealth of Australia n.d.: 1). Sustainable forest management was undefined and no prescriptive, performance-based measures regulating SFM were included. The Montreal Process was described as representing “a common understanding of what is meant by sustainable forest management,” while C&I were characterized as “tools for assessing national trends in forest conditions and management, and provide a common framework for describing, monitoring and evaluating *progress towards* sustainability at the country level” (Commonwealth of Australia 1997: v). Confusingly, it was also asserted that all criteria, taken together, contributed to SFM (Commonwealth of Australia n.d.: 1). Consequently, an intergovernmental policy response, with no legally binding provisions became the internationally recognized system for demonstrating sustainability, yet were specifically developed for national forest managers and owners, and international forest policy decision makers in mind, as the PEOLG demonstrated (MCPFE 1998: 259).

In Australia the Montreal Process was designed as an essentially passive and non-prescriptive approach to management, which effectively permitted the state and territories to continue implementing existing forestry regimes but now under the title of SFM. Regional (sub-national) level criteria and indicators of SFM continued this approach, and were an attempt to integrate the RFA processes with its international commitments under the Montreal Process. As a signatory to Montreal the Commonwealth government committed itself to implementing the process domestically. Under the National Forest Policy Statement, the Federal, or Commonwealth government, committed itself to signing RFAs with the states, whereby it would progressively remove itself from the forest policy equation by lifting annual export wood chip license restrictions in exchange for a comprehensive, adequate, and representative (CAR) reserve system for Australia's forests (Commonwealth of Australia 1992: 11–25).

This “passive” approach reflects the process of developing sustainable forest management in the RFAs. Existing forest management, with some minor modifications, it was argued, met many of the “expectations of a system designed to meet ecologically sustainable forest management” (Tasmanian PLUC 1997: x). Clear-felling, cable-logging on steep slopes, native forest substitution with plantations, and chemical use were justified as normal forest management:

Overall, the State and Territory legislation and the policies and procedures adopted by managing agencies are designed to ensure maintenance of the productive capacity of public forest and woodland available for timber production. ... Forest planning is very well developed and the tight control over public land use by State and Territory agencies means that plans are implemented. (Commonwealth of Australia 1997: 46)

In October 1997 Australian environment groups were invited to Canberra to comment on the national implementation of Montreal. In particular, they objected strongly to the use of Montreal to justify the application of the RFAs in all the forested

states, but were ignored, and only succeeded in securing the following statement in the final document:

The RFAs provide a basis for measuring the progress towards sustainable forest management, but it is also recognised that they *are not in themselves a surrogate for sustainable forest management*. The Montreal Process criteria and indicators provide a basis for the ongoing assessment of the state of Australia's forests, and their contribution to society over time. ... Use of guidelines and codes of practice, along with use of indicators, are complementary ways of improving forest management. Monitoring can provide a basis for adapting forest management, where required. However, guidelines and codes of practice *are not in themselves indicators of the quality of forest management*. (Commonwealth of Australia 1998: viii)

Internationally, and within Australia, forest owners and managers began to use C&I as the basis for setting forest management standards and related national forest certification schemes (Humphreys 2006: 20). Only government and the country's forest industry associations were responsible for overseeing the development of the Australian Forestry Standard (AFS) (Edwards 2003: 3). Australian environmental NGOs (ENGOs) withdrew from negotiations in 2002, condemning the system as a "rubber stamp for forest destruction" (ACF et al. 2005). The AFS consultation and assessment processes were heavily criticized by ENGOs for "misrepresenting community participation" and for "gross misrepresentation about the motives for ENGOs' withdrawal from the scheme" (TWS 2005: 18). Environmental groups have remained disengaged from governmental and industry processes of setting forestry standards and related certification schemes to the time of writing, largely over disagreements with government and industry as to what constitutes sustainability.

Defining and assessing SFM poses many difficulties. The concept is young and the timescales are long. To adequately assess whether a forest is managed sustainably takes centuries, and more time has passed since these discussions began in the 1980s. Globally, forests are also managed on the basis of sustained yield, meaning that consistent volumes of timber are removed annually. At times this terminology is confused with sustainable yield, but both terms imply continuity of production, not other values. The term ecologically sustainable forest management has arisen to include all forest values: economic, social, and environmental. But this term has also been co-opted by governments as the discussions above have demonstrated. Environmental NGOs prefer to promote the term "responsible forest management" to encompass definitions that reflect their conceptions of sustainability, and that they consider to have been developed during and subsequent to UNCED. Consequently, they define responsible forest management as being environmentally sound, economically viable, and socially responsible (FERN 2001: 10). This conception also takes the precautionary principle into consideration, which argues that where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (EPA 2013:). These differences in conceptions of what constitutes SFM have led NGOs to develop their own forest management standards and certification programs, in collaboration with sympathetic social and economic interests (Cadman 2011: 30–33).

This contestation between different conceptions of forest management has led forest policy scholars to identify two sets of concurrent, and competitive norms for SFM. They refer to one of these as “economistic,” which is exemplified by the Montreal Process, and has emerged largely from the forest industry sector. The other norm is “eco-social,” which they attribute to environmental NGOs, and see expressed within the Forest Stewardship Council (FSC) and its Principles and Criteria for “well-managed” forests (Gale and Cadman 2013: 181). They stress the importance of determining which social actors support which sets of international norms and, in the absence of genuinely reflexive policymaking, call into question “the degree to which international norms actually reflect a genuine global consensus” (p. 181). This contestation is exemplified by the campaign to protect the southwest forests of WA from the forestry agencies of the state government on the one hand, and the interventions to conserve these forests by the Dutch government in association with the scientific community and civil society on the other.

The Western Australian Forest Campaign

The Western Australian forest campaign has a long history, going back to the state’s first forest conservator, who tried unsuccessfully to have some forest conserved in the 1890s when it became obvious that forests were disappearing at a great rate but there was no regulatory system in place. His successor battled politicians, the timber industry, and agriculturalists to legislate forest conservation in 1918. The drive to protect Western Australia’s forests has waxed and waned over the years, but started again in earnest in the mid-1970s. In 1975, there was a radical change in logging practices in Western Australia’s old-growth forests with the advent of wood chipping at a new mill in Manjimup, ostensibly to use the large amounts of “waste” timber generated from logging. Community concern over clear-felling and wood chipping began to grow and, in 1974, the South West Forests Defence Foundation and the Campaign to Save Native Forests were formed. In that period the Department of Conservation and Land Management (CALM) was established, paradoxically mandated to both log and protect Western Australian native forests. The wood chip license was extended for another fifteen years in 1987 after a perfunctory public consultation, and the Shannon National Park was established in 1988 after a big internal conflict in the Labor Party.

In 1987, CALM called a public meeting in Bridgetown. CALM wanted to inform the community of its new ten-year logging plan and was seeking public comment for the first time. It encouraged the formation of “Friends” groups to engage in the management of the public forests. After a meeting with CALM, there was a community meeting and the Bridgetown Greenbushes Friends of the Forest (BGFF) was established. Bridgetown lies at the heart of the extensive jarrah forest running from north of Perth down the length of the Darling Scarp. BGFF’s objectives were primarily local, seeking to protect a higher proportion of natural forest and improve the quality of the natural environment. Relations with CALM started well but gradually

deteriorated when it became apparent that CALM was more interested in the commercial aspects of forest harvesting than in conservation.

Local forest groups began forming in the South West of Western Australia, and eventually came together in 1990 as the West Australian Forest Alliance (WAFA). The alliance was formed to provide for an umbrella body for the many community groups in Perth and throughout the South West concerned with forest conservation. It is dedicated to the protection of Western Australia's native forest and woodlands and promotes ecologically sustainable forest management. It was founded to coordinate the activities of all local community groups, and to develop and implement an overall strategy for the forest campaign. The meetings are held on a rotational basis throughout the South West. These were well attended, with the aim to raise community awareness and concern about the old-growth forests and the growing support for challenges to CALM's forest management practices.

Interventions in forest industry activities commenced in Balingup in 1993, when a group of people halted the wood-chip train en route from the Manjimup wood mill to the port of Bunbury, by lying on the tracks and waiting for the police to remove them. In early 1994, national environmental NGO The Wilderness Society activists, who had experience in direct action, were invited to an important WAFA meeting in Margaret River to discuss the possibility of moving the campaign toward non-violent direct action (NVDA) in the forests as part of a strategy to build overall campaign momentum and support. Non-violence trainers from the organization Groundswell ran sessions in NVDA, consensus decision making, conflict resolution, and community building (Lee and Maddock 2006). The Giblett Forest Rescue Campaign of 1997–1998 occurred against this backdrop (Paulin 2006: 110). Actions there resulted in live television broadcasts, allowing the public to see the extent of clear-felling at a time when the WA and federal governments were finalizing of the RFAs. BGFF continued its own activities, and community conflict with CALM escalated when the agency was taken to the Supreme Court of Australia over logging Hester Block, a forest close to town. Subsequent court cases followed (Frith 2008)

In 2001, the Labor Party went to the state election and won on a platform of saving old growth forests. As a result, the Gallop government, with the political support of the Greens, and widespread community endorsement, ended broad acre clear-felling in native forests, and some forest areas became national parks. After the new election in 2003 in which the Liberal Party was returned, logging in unprotected jarrah and karri forests intensified. It was claimed that the government was logging native forests, with karri trees up to 600 years old. For the majority of the West Australian public, this is unacceptable. BGFF's next campaign was the attempt to halt logging in the Greater Kingston forest blocks in the vicinity of Bridgetown (Frith 2008).

At the time of writing WAFA has twenty-six member groups, including BGFF, and the campaign has intensified to conserve the last forest blocks of Arcadia, Challar, Helms, and Mowen, which were identified for logging in 2013 by what is now referred to as the Forest Products Commissions (FPC 2013). In a report to the government, the Auditor General (an independent organization) stated that forest managers routinely ignored environmental protection measures and confirmed allegations that the FPC had overlooked breaches of environmental regulatory violations. It was

further recommended that the next Forest Management Plan be reviewed after five years. Environmental groups have called for more strictly enforceable regulations and new ones to protect remaining native forests and the wildlife and habitat they contain (WAFA 2014).

Scientific Activities, Outcomes, and Interactions with Australian Authorities

In 1985, ENGO Friends of the Earth (FoE) in the UK proposed what has been claimed to be the first modern timber certification and labeling scheme as part of a campaign to save tropical rainforests. Consumers in Britain and Continental Europe were encouraged to avoid purchasing tropical timber produced on a non-sustainable basis, and the organization launched its own Good Wood Programme (Cadman 2011: 31). In 1991, one year before the Earth Summit, FoE Netherlands (known as Milieudefensie) began to explore methods for achieving sustainable development in the developed world. In their discussions with NGOs and governments from poorer countries they came to the shared opinion that the high consumption of commodities in rich industrial countries, including timber, was one of the principle barriers to sustainable development. In 1992, they published a landmark study: *Action Plan for a Sustainable Netherlands*, which they provided as their submission to UNCED (van der Maesen 2010).

Dutch NGOs signed an agreement with the Dutch government and timber importers in 1993, which established a 1995 deadline on the importation of unsustainable timber into the Netherlands. Following the UK model, Milieudefensie launched a similar program in the Netherlands: Heart for Wood (1993–1999) in cooperation with NOVIB (OXFAM) and the Worldwide Fund for Nature (WWF). This program was supported by the Dutch government and the International Union for Conservation of Nature (IUCN) (van der Maesen 2010). In 1991, in the early stages of discussions with NGOs, the Dutch government adopted a policy aiming to terminate as soon as possible, the claim on primary forest for timber production. (van der Maesen 1999b). Hydraulic engineers used mainly tropical hardwood *azobé* derived from Cameroon for the construction of canal linings, floodgates, and bridges. The Western Australian government introduced karri timber as a good alternative.

In 1992, the Division of Roads and Hydraulic Engineering of the Dutch Director-General of Public Works and Water Management (RWS-DWW), Friends of the Earth, Netherlands (Milieudefensie), the Department of Physical Geography of Utrecht University, and Knowledge Centre of the Ministry of Agriculture initiated an independent study concerning the ecological sustainability of forest management in the jarrah and karri forests of South West WA. A number of specific questions were formulated by RWS-DWW in cooperation with the National Reference Centre for Nature, Forests and Landscape of the Dutch Ministry for Agriculture, Nature Management and Fisheries (van der Maesen 1999c).

Senior staff members of the Department of Physical Geography of Utrecht University consequently received a commission from the Dutch government to

initiate the investigation as part of an ongoing university study in land use changes since 1992 and on the impact of the logging of native forest on the environment. Terms of Reference for a special mission were formulated, and discussed with and accepted by the Conservation and Land Management in Western Australia. These included twenty-three questions to evaluate forest management practices: regional planning, ecology, economy, social structure, and legality. The Dutch government *Policy Paper on Tropical Rainforests* as well as the guidelines, criteria, and indicators of the International Timber Trade Organisation and the Forest Stewardship Council were to be consulted as guidelines for determining the extent to which forest management maintained existing biodiversity. Significantly, there was no agreement between CALM and the Dutch government regarding the application of the guidelines, criteria, and indicators, and there was no consensus on definitions of the word “sustainability” at the commencement of this investigation. In case an evaluation of forest management had to be made, the only possibility was to use available information of CALM. The investigation had a broad all-encompassing basis embracing both environmental and societal relevance. A multidisciplinary scientific study was conducted in cooperation, as far as possible, with local communities, conservation groups, and the timber industry. Forest management was the focus, addressing the basic question as to whether the current forest management was sustainable (van der Maesen 1999d).

Preliminary examination of NASA satellite images appeared to demonstrate the degradation and fragmentation of native forests in WA over a long period of time. Researchers from the department cooperated closely with Western Australian environmental groups and local communities. The international and the Netherlands divisions of Friends of the Earth (with headquarters in Amsterdam) played a significant role in raising both national and international awareness of the escalating loss of forests.

Between 1992 and 1996 600 square kilometers of predominantly karri and jarrah forests were surveyed. From the satellite imagery it was possible to determine forest condition using the Normalized Difference Vegetation Index, which differentiated between cleared land, regrowth, and old-growth forest types. Ground-truth investigations were undertaken in approximately 300 blocks of roughly 2,000 hectares (a block is a compartment or coupe, available for wood production). Forest condition was verified in each block on the basis of randomly selected transects across vegetation types. Within each transect, it was possible to determine on the ground whether the satellite imaging was accurate. Based on the satellite imagery, and using ground-based verification methods it was also possible to determine land use change over time. This was undertaken using research assistance from local community members. Each survey period was approximately three months in duration. Having verified the methodology and collected the data across the forests of the South West it was subsequently possible to analyze forest cover change from satellite imagery alone, a process that continued until 2014. Throughout the whole period 1992–2014, randomly selected seedlings were also measured in harvested compartments to determine the mean annual increment (MAI) of regrowth. Control plots in unlogged forest were also randomly selected. Water quality was sampled from streams located within forest blocks, before and after forest harvesting. More than 2,000 individual

samples were collected with the assistance of a masters student, and tested with the assistance of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) (De Jong and van der Maesen 2006). All field data and photos were subsequently handed over to the Dutch government's Department of Public Works and Water Management (RWS-DWW)

Analysis of the data collected across the entire survey period (1992–2014) revealed that approximately 2,000 hectares of forest (or one forest block) were harvested annually. By the end of the survey period those forests that were not securely reserved in either national parks or other conservation areas had been subjected to forestry activities, with the exception of some small pockets. Measurements of seedlings further revealed that generally across forests, MAI in logged areas was less than in the control plots. Water sampling demonstrated an increase in water salinity after logging. This revealed that stream salinity increased after logging. These data made it possible subsequently to analyze forest cover change from satellite imagery alone, using a desktop study up to 2014. These investigations revealed the MAI in the logged areas was on average smaller than in the logged areas. The investigations concluded that the logging of karri and jarrah forests was ecologically unsustainable, that inadequate monitoring processes were in place, and that an independent, internationally based certification system should be established to streamline any further investigations into the suitability and sustainability of Western Australian timber (van der Maesen 1999). The methodology and its results were independently verified by the Dutch organization Koninklijke Nederlandse Heidemaatschappij.

Based on the outcomes of the reports, the Dutch government announced its decision in 1995 not to purchase karri timber. The minister for Transport, Public Works and Water Management sent the Conservation Council of Western Australia a copy of its letter to the Department of Conservation and Land Management advising its decision: "The Ministry will not buy timber from primary (i.e. old growth) forest, and since all export karri timber comes from old growth, the Dutch Government will not purchase it" (at that time a 6 million florin contract) (van der Maesen 1999). The government claimed that they would only buy timber from sustainably managed regrowth certified by an independent recognized agency. Karri timber did not meet this criterion. They also stated that more independent research was required into ecologically sustainable forest management, including biodiversity, buffer zones, diseases, groundwater and salinity, prescribed burning, climate change, and the impact of forest-related activities on local communities (van der Maesen 1999e).

The decision of the Dutch government not to buy karri timber was of major significance. First, it set a precedent not only for Dutch municipalities, which were refusing to purchase karri timber, but also for some European countries and other parts of the world because the Netherlands was regarded, at that time, as an important country in setting environmental standards. Second, within Western Australia the government, associated politicians, timber industry, and timber workers would no longer be able to claim with any justification that karri forest management was sustainable just because CALM claimed it was. Third, during this five-year investigation, CALM and the timber industry had every possible opportunity to convince researchers that CALM's forest management in the karri forest was managed

sustainably but were unable to do so. Fourth, a further outcome from the findings of the report that British Railtrack, a UK company supplying the national rail infrastructure with karri sleepers, also made a decision to cancel its contract with the WA government, worth £2 million per annum (van der Maesen 1999e).

Conclusion and Recent Developments

This article is focused specifically on sustainable forest management in public native forests. It is based on research in Western Australia during the period between 1992 and 2014. Sustainability has become a popular concept among policymakers, bureaucrats, and technocrats. But in the process, the concept of sustainability or sustainable development has often been misconstrued by government agencies and the timber industry (Hager and Burton 1999). This particularly applies to the use of the term “sustainable forest management.” On the basis of the studies conducted in South West Western Australia, the conclusion is that the definition must embrace more than simply the sustainable yield of timber. Forests should be managed to meet economic, political, cultural/spiritual, and ecological considerations of present and future generations.

In socio-economic terms, Western Australia’s timber industry depends largely on public native forests. Besides providing very few jobs, it has costly impacts on other potentially sustainable industries such as tourism, recreation, wine making, beekeeping, and the plantation industry. The focus of the government on the potential of “value-adding” industries based on native forests is too great and the issue of subsidized royalties was not addressed. Many other costs of native forest logging are not debited to the industry (MacLaren 2014). The question arises why state governments and the federal government in particular subsidize the destruction of native forests such as in the South West of Western Australia. The economic concerns are that royalties do not cover costs of regeneration and road construction and that land clearance is rewarded by tax incentives (Lane 2014a). Instead the assessment should involve weighing up the potential economic and regional development opportunities arising from the management of native forests for the protection of their carbon values. The end of old-growth logging will boost forest tourism and other local industries that have laid the foundations for the diversification of the South West region’s economic base. The logging of public native forests by the government agency has turned a substantial natural asset into a liability and is now an unsustainable, loss-making exercise. There are also substantial but difficult to quantify costs of environmental damage such as increased soil erosion and salinity, reduced water catchment quality, and the loss of wildlife, biodiversity, and species (Lane 2014b). The official analysis also does not take into account many financial and environmental benefits that would flow from significant cessation in logging native forests (Lane 2015a).

Forests are community assets. Therefore, it must be ensured that community consultation is easy to understand and that local communities as well as Indigenous people (Noongar) have active and ongoing involvement in forest activities. The government, after publishing its draft plans such as Forest Management Plans, invites

the general public to make submissions; however, any criticisms or suggestions are routinely ignored. There is no genuine scientific debate, and furthermore, local communities fail to understand the incomprehensible information provided by the government. Officially, public submissions are acknowledged, but suggested changes are never implemented (WAFA 2014). Stakeholders with vested interests, such as the timber industry, have the resources to pay expensive consultants to make submissions. The most obvious conclusion after many years of intensive study of this process is that local communities, NGOs, and the scientific community have no substantive input into governmental decision making. The only remaining instruments left to local communities and NGOs is to engage in non-violent action to protect their remaining old-growth forest. The role of the above-mentioned groups should be added in this context, both national and international groups, because they coordinate and raise awareness of the social and environmental issues related to the logging of public native forests in Western Australia. Their support is crucial to local communities in their battle against the government logging agencies and international corporations.

In this context, the role of communities should be both underlined and problematized. Politicians speak of the consistency of their actions with “the community,” often taking for granted that they are knowledgeable about what the community that elected them wants. Besides “the local community,” which is bounded by a particular space, also included are representatives of other “communities” of interest, birdwatchers, timber workers, and so on. This case study supports the conclusion that community engagement is a cornerstone of sustainable development. It is based on the concept of encouraging an active citizenry, empowered to make choices and become involved in decision-making processes, that contributes to effective implementation at the local, national, and global levels (Paulin 2006). Without this support, purely “economistic” interests will prevail at the costs of native forests globally.

On an environmental level, because of climate change, especially decreasing rainfall, and the impacts of pests and diseases including increasing numbers of fungal pathogens, a forest that is logged will not regrow to its original size, health, and structure, so logging cannot be sustainable. Too much emphasis is placed on the extractive use of forests as a management objective at the expense of other management outcomes such as ecosystem health, maintenance of biological diversity, and protection of cultural/spiritual values, even where legislation requires that these objectives be given a higher priority in management planning. Environmental concerns to be addressed are soil erosion, declining soil fertility, reduction in water quality, depletion of plant and animal species, and the introduction of weeds and fire. Among many critical forest management issues is a lack of proper understanding of the functioning of the whole ecosystem (Lane 2015b). Here “controlled” burning of forests is of great concern. The knowledge of the impact of fire on some species may be adequate but many other impacts are still unknown, including concerns about economic, socio-political, and socio-cultural impacts. The information provided by various sources on carbon pollution from forest management activities is so selective as to be seriously misleading. It is unacceptable and does not comply with the precautionary principle.

For the Western Australian government, there must be a recognition that subsidized loss-making environmentally destructive work does not justify protection of jobs. The timber industry must be restructured to meet the environmental, social, political, and cultural interests of society, as well as economic imperatives. There must be full recognition of the essential role played by mature forest ecosystems in ecosystem services, especially wildlife habitat, carbon storage, and water supply, and this should be translated into policy (Lane 2015c).

At an academic level, the investigations into forest management in South West WA demonstrated that its forest management was ecologically unsustainable. Independent research conducted by universities is needed to support environmental groups and local communities, for they need scientific expertise such as remote sensing, data gathering, and field surveys. The scientific community should deliver its assistance to these communities to help them maintain their role, thus contributing to overall sustainability. At the same time, the scientific institutes depend on financial resources to conduct research. This support derives from key economic and political players. These key players must allow the academy to play its own research-driven role in balancing the interests of business and society. Multidisciplinary studies, such as the one documented in this article, require financial support, and without it, the essential role of the academic community in speaking truth to power will be significantly undermined.

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