

# Social impacts of forest policy changes in Western Australia on members of the natural forest industry: implications for policy goals and decision-making processes

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In many countries, timber harvesting from natural forests is accompanied by social conflict that governments seek to mitigate, often through the introduction of policy changes that reduce the forest industry's access to natural forest wood. Forest policy changes often have important implications for businesses and workers dependent on forest resources; however, the social impacts of such changes remain relatively unexplored. We conducted an *ex post facto* assessment of social impacts experienced by members of the forest industry in the Australian state of Western Australia following the introduction of three forest policy changes between 1999 and 2004. Results indicate that the process by which forest policy decisions were made, the nature of the resulting policy changes, and the actions people took in response, together contributed to three key negative social impacts: uncertainty, a perception of injustice, and financial stress. These impacts in turn led to diminished perceptions of industry security, thus discouraging business owners from investing in the industry, rather than encouraging investment, which was a key goal of the forest policy changes. The results highlight the importance of recognizing, avoiding and mitigating negative social impacts associated with policy changes, as these impacts can hinder the realization of policy goals.

## Introduction

Conflicts over the management and use of natural forests occur worldwide (Mola-Yudego and Gritten, 2010). The extent and often the intensity of these conflicts highlight the diversity of actors who hold interests in the way natural forests are used and managed, and the difficulty of balancing the environmental, social and economic values of these forests. Forest conflict may have many triggers, for example, Mola-Yudego and Gritten (2010) identified 13 types of forest-based conflict, including conflict triggered by issues relating to agriculture, conservation, deforestation, indigenous rights and the forest industry. This paper examines conflict associated with wood production from natural forests. Such conflict is driven by multiple factors, but in particular, differing views about the impacts of timber harvesting on environmental values (Schirmer, 2013). Governments often respond to this type of forest conflict by introducing forest policy changes that reduce the area of forest and volume of wood available to be harvested, and increase restrictions on the harvesting that is allowed, in an attempt to address the differing views and values of multiple stakeholders (McDermott *et al.*, 2010).

Forest policy changes are likely to impact on different people differently, depending on their social context, interests and values (Vanclay, 2002). Among the various groups affected by forest policy changes are members of the natural forest industry,

defined in this paper as the business owners, managers and workers whose income is principally derived from the harvesting of trees from natural forests or from the transport or processing of wood from these forests, and the professional staff responsible for overseeing forest management. While it is important to understand and address the impacts of policy changes experienced by all stakeholder groups, there are a number of reasons for focusing on the social impacts experienced by those who derive their livelihood from natural forest wood production. These include: first, an ethical obligation to reduce the negative impacts, and enhance the positive impacts and opportunities, experienced by those affected by policy interventions (Vanclay, 2003; Rowan and Streater, 2011); second, unmitigated negative social impacts may lead to the creation of new conflicts (Marshall, 2007); and third, negative social impacts may reduce the effectiveness of policy decisions, as mitigating responses made by those negatively affected may in themselves counteract some of the intent of the policy change (Lord, 2011). Members of the natural forest industry differ from most other stakeholder groups affected by forest policy change in that the change has the potential to directly and materially affect their principal income-earning activities. An improved understanding of how members of the natural forest industry are affected by attempts to resolve forest-based conflict can help identify how to better support this stakeholder group through such

policy processes, and ultimately achieve more positive outcomes from policy change.

Management of Australia's natural forests [usually described as 'native forests' in Australia (e.g. [Commonwealth of Australia, 1992](#)), including by all those who participated in this research. However, we use the term 'natural forests' in this paper for consistency with international terminology] for timber harvesting has been contentious for some 40 years. Both national (federal) and sub-national (state) governments, each of which has complementary policy roles – the state having primary responsibility for land management, with the federal government having responsibility for various aspects of environmental protection, industry development and social policy – have sought for several decades to address this conflict ([Routley and Routley, 1973](#); [Dargavel, 1995, 1998](#); [Lane, 1999](#); [Hillier, 2003](#); [Musselwhite and Herath, 2005](#)). Multiple policy changes introduced to address conflict in the Australian state of Western Australia between 1999 and 2004 substantially reduced the area of forest in the state's south-west region available for timber harvesting, and thus the level of wood resources available to timber industries. The policies also introduced new regulations for the harvesting and processing of natural forest wood, particularly from 'old growth' forests, defined as 'ecologically mature forest where the effects of disturbances are now negligible' ([JANIS, 1997](#): 14), which have historically been an important source of timber for the natural forest industry. In conjunction with the policy changes, the federal and state governments jointly funded 'structural adjustment packages' to assist members of the natural forest industry to adjust to the policy changes, for example, by assisting them to redevelop their business, exit the industry or find new employment, and to support employment opportunities, and encourage industry innovation, sustainability and international competitiveness ([Commonwealth of Australia and State of Western Australia, 1999](#); [Auditor General for Western Australia, 2005](#)).

This paper presents results of an *ex post facto* (follow-up) social impact assessment (SIA), conducted in 2010–2011, to explore the social impacts experienced by members of the natural forest industry in south-west Western Australia as a result of forest policy changes introduced between 1999 and 2004. The case study is one of two examined as part of a broader study; results from the first case study, in north-east New South Wales on the mid-east coast of Australia, and comparison of the two case studies can be found in [Loxton et al. \(2012, 2013b\)](#).

Our study focuses specifically on impacts experienced by those in the natural forest industry. We acknowledge that the forest policy changes affected many other actors who use and value these forests, such as tourism operators, recreational users, members of environmental non-government organizations, and the general public. Whilst it is relevant and important to assess the impacts experienced by these other groups, the time and resource constraints of our study, which was conducted as part of the first author's PhD, limited it to conducting an in-depth assessment of the processes and experiences of social impacts felt by natural forest industry stakeholders. Thus, this paper does not seek to provide an assessment of impacts across multiple stakeholder groups, but instead reflects the experiences of one group, who were also the focus of most measures designed to mitigate the impacts of policy change ([Commonwealth of Australia and State of Western Australia, 1999](#); [Auditor General for Western Australia, 2005](#)).

Given the focus of this paper on social impacts and SIA, we do not focus on the abundant literature about forest, natural resource or related policy processes, other than to note that we share the widely held understanding of desirable policy processes as being inclusive, iterative and adaptive, and informed by results such as those reported here (see, for example, [Hogwood and Gunn, 1984](#); [Mayers and Bass, 1999](#); [Howlett, 2011](#); [Dovers and Hussey, 2013](#)).

The paper begins by briefly outlining the purpose and process of SIA, the historical and political contexts of the Western Australian natural forest industry, and the adaptive theory-based methodology on which the study was based. The Introduction also reviews the key literature that informed interpretation of research participants' experiences of social impacts. The results examine the three key social impacts experienced by members of the industry: uncertainty and predictability; perceptions of (in)justice, and; financial stress and opportunities. The discussion then explores how these social impacts were generated and experienced, how they interacted, and the implications for policy design and implementation.

### Social impact assessment

SIA addresses principles of equity and sustainable development ([Vanclay, 2003](#); [Vanclay and Esteves, 2011](#)) through the prediction, mitigation, management and monitoring of social impacts that arise from the development and implementation of policies, plans, projects and programs ([Vanclay, 2003](#)). It helps to guide policy development by drawing attention to the diverse needs, values, vulnerabilities and opportunities of those who stand to be affected, either positively or negatively, by the outcomes of a policy process. Results of *ex ante facto* (before the event) SIAs are an important source of information that can inform policy processes, and suggest avenues for the mitigation of negative, and enhancement of positive, social impacts, as discussed in relation to the Australian forest industry by [Loxton et al. \(2013b\)](#). However, *ex ante facto* SIA is limited by the complexity, uncertainty and long time frames involved in many policy processes, the range of factors influencing people's experiences of change, and the unpredictability of future events and responses, which mean that social impacts are not static and often occur differently to those predicted in *ex ante facto* SIA ([Geisler, 1993](#)). Monitoring of these impacts and evaluation of mitigation measures through *ex post facto* SIA is therefore essential to provide information required for the adaptive management of social impacts ([Geisler, 1993](#)) and to improve future SIAs and the design of future policy and mitigation measures ([Lavallée and André, 2005](#); [Petajajarvi, 2005](#); [Storey and Noble, 2005](#); [Noble and Storey, 2005](#)).

Previous SIAs examining reduced access to natural resources, such as forests or fisheries, suggest that SIA contributes key information regarding how reduced resource access will influence businesses' profitability or income; how best to assist business owners, employees and families affected by the changes, and; the conditions required for the effective implementation of mitigation measures that also contribute to the goals underlying the change, particularly the successful implementation of new policy ([Smith et al., 2003](#); [Marshall, 2007](#)). SIA and associated mitigation measures can therefore contribute to key sustainable development outcomes, and go beyond the mitigation of negative impacts to provide for and enhance positive social impacts ([Geisler, 1993](#);

Rowan and Streater, 2011; Vanclay and Esteves, 2011). Social impacts are commonly defined as:

consequences to human populations of any public or private actions – that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society (ICGPSIA, 2003: 231).

Social impacts take many forms. Impacts may be quantifiable and tangible, such as income loss; or symbolic and intangible, such as anger or fear (Lockie *et al.*, 1999; Walker *et al.*, 2000; Williams and Schirmer, 2012). They can have profound consequences for a person's wellbeing: for example, social impacts relevant to this paper, including financial stress, job uncertainty, underemployment and unemployment are all empirically associated with negative physical and mental health outcomes (Sverke *et al.*, 2002; D'Souza *et al.*, 2003; Adam and Flatau, 2006; Kahn and Pearlman, 2006; Karsten and Klaus, 2009).

Social impacts are subjective experiences. This means a person's perception of the impact of a change may not correlate with independent evidence; nevertheless, recognizing these perceptions is important because they determine how a person experiences and responds to that change (Taylor *et al.*, 2004; Williams and Schirmer, 2012).

As well as being subjective in nature, social impacts are not experienced in a linear or simple fashion. Social impacts resulting from changes such as the forest policies examined in this paper are experienced well before those policies are implemented. They begin with the announcement or prediction of future change and develop as changes are negotiated and implemented (Walker, 2010; Loxton *et al.*, 2012). In addition, social impacts occur as a result of the conflict that triggers a policy response. Furthermore, social impacts do not occur in isolation. Instead they are experienced cumulatively, and interact with other past, current and anticipated future changes (Duinker and Greig, 2006; Canter and Ross, 2010; Ehrlich, 2010; Franks *et al.*, 2010b), for example, a person who loses his employment will experience negative social impacts more intensely if other unrelated events have already reduced the likelihood of them obtaining alternative employment. These interactions mean that multiple individual impacts accumulate, and may be felt more strongly than if each were experienced in isolation (Geisler, 1993; Franks *et al.*, 2010a).

The way a social impact is experienced will be influenced by perceptions of justice. These include procedural justice – people's perceptions of the fairness and justice of decision-making processes (Lind and Tyler 1988; Brueckner *et al.*, 2006; Gross, 2007), including how they have been treated during the public participation processes commonly conducted prior to forest policy change (Moote *et al.* 1997; Carr *et al.* 1998; Race and Buchy, 1999); and distributive justice – the fairness of the substantive outcomes of the decision-making process (Lind and Tyler 1988; Marshall, 2007). While public participation is an important tool, it must be conducted well in order to be effective and just. Moote *et al.* (1997) suggest five criteria required for effective public participation: efficacy – i.e. those interested in the outcomes of the process accept the outcomes; representation and access; information exchange and learning; continuity of participation; and shared decision-making authority.

Individuals' experiences of social impacts are also influenced by actions taken to respond to predicted or experienced changes and impacts. Any given impact or change may lead to a range of responses, depending on factors such as the provision of mitigation measures, and individuals' goals, skills (Loxton *et al.*, 2012) and confidence in the future, which assists people to accurately assess risk and successfully adapt to policy change (Marshall, 2007).

### Case study background

Prompted by >20 years of contestation over the management of Australia's publicly owned natural forests (Dargavel, 1998; Lane, 1999), a series of assessments of forest values and reviews of forest policy and management were conducted in the period 1996–2001 in most of Australia's commercially important natural forest regions (Commonwealth of Australia, 2011). These assessments and reviews were conducted jointly by the federal and relevant state governments, reflecting their shared but differentiated responsibilities for forest policy and management (Commonwealth of Australia, 1992; Dargavel, 1998). They formed the basis for formal, 20-year agreements, 'Regional Forest Agreements' (RFAs), between the federal and state governments.

The Western Australian natural forest industry was and remains based almost entirely on publicly owned and -managed forests; there are almost no privately owned natural forests with commercial wood resources (Ryan *et al.* 2003). The south-west region of Western Australia encompasses all the commercially productive area of natural forest in the state, and is referred to in this paper as the Western Australian RFA region. The region also supports a plantation forest industry, comprising both publicly and privately owned and managed plantations (Commonwealth of Australia and State of Western Australia, 1998), but this industry is outside the scope of this paper.

In the Western Australian RFA region, as in other Australian states, the process involved a 'Comprehensive Regional Assessment' of the multiple values of natural forests, conducted from 1996 to 1998 (Commonwealth of Australia and State of Western Australia, 1998); the establishment of a 'Comprehensive, Adequate and Representative' conservation reserve system; the development and implementation of 'Ecologically Sustainable Forest Management' regimes outside reserves; and the identification and fostering of industry development opportunities (Commonwealth of Australia and State of Western Australia, 1999). The goals of the RFA process were to reduce social conflict over natural forest management, provide guaranteed (albeit reduced) wood supply and thus greater certainty to industry, and protect environmental and other values (Lane, 1999; Commonwealth of Australia, 2011). The process emphasized public participation in its assessment and decision-making phases, although the adequacy of the participatory and other elements of the process has been questioned (Lane, 1999; Brueckner *et al.*, 2006). While this paper does not evaluate whether the RFA achieved the goals listed above, it does consider whether experiences of social impact may have assisted or hindered the achievement of these goals.

The RFA process was described at the time as the 'largest inter-governmental natural resource planning process undertaken in Australia' (McDonald, 1999: 299). A key outcome of the Western Australian RFA, concluded in May 1999, was a reduction in the area of public natural forest available for harvesting by

~150 000 ha (12 per cent), and the concomitant transfer of this area to conservation estate (Australian Labor Party, 2001).

Despite their strengths, many RFAs – including that for Western Australia – were criticized by stakeholders for failing to adequately meet conservation goals (Brueckner *et al.*, 2006). In Western Australia, this criticism contributed to two subsequent policy changes.

First, the conservative Western Australian state government that had negotiated the RFA amended the RFA in July 1999, <2 months after it had been concluded. The amendments included the transfer of a further 9500 ha of wood resource-rich old growth karri (*Eucalyptus diversicolor*) and tingle (*E. jacksonii* and *E. guilfoyle*) from the production to the conservation estate. This decision had major wood supply implications, and was popularly referred to by those in the natural forest industry as ‘the backflip’ (National Association of Forest Industries, 1999).

Two years later, in the 2001 state election campaign, the opposition Western Australian Labor Party proposed a *Protecting Our Old Growth Forest Policy* (OGP), to completely end the harvesting of old growth forest in Western Australia (Australian Labor Party, 2001). The Labor Party won the election and quickly enacted the OGP.

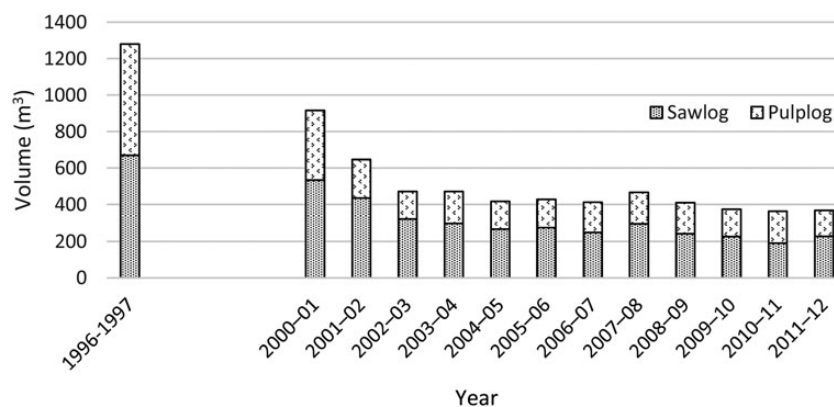
Taken together, the three policy changes outlined in Table 1 – the RFA, the amended RFA, and the OGP – increased the area of the

public forest conservation estate by ~70 per cent, and reduced the allowable annual harvest of the principal commercial species (karri and jarrah, *E. marginata*) by some 64 per cent (data derived from Commonwealth of Australia and State of Western Australia, 1998; Conservation Commission of Western Australia, 2003), with the total volume of hardwood sawlog and pulplog harvested declining from 1.28 Mm<sup>3</sup> in 1996–1997 (Commonwealth of Australia and State of Western Australia, 1998) to 472 Km<sup>3</sup> in 2003–2004 (ABARES, 2013) (Figure 1). Impacts on employment have not been quantified, nor the impacts on the number of operating businesses or their profitability, beyond Schirmer’s (2008) finding that total employment in the Western Australian forest industry declined by 8.5 per cent between 2001 and 2006, despite substantial but unquantified growth in plantation industry employment.

The policy changes also introduced new forest management and harvesting regulations, such as the requirement for the natural forest industry to harvest and process species and grades of wood not used as frequently in the past, and measures to encourage investment and innovation in downstream processing technologies required for ‘value adding’. These new regulations were implemented through the 2004–2013 Forest Management Plan (Conservation Commission of Western Australia, 2003).

**Table 1** Forest policy decisions introduced in Western Australia (1999–2004)

Policy decision	Date	Description
Western Australian Regional Forest Agreement	May 1999	A formal, 20 year agreement between the Western Australian and Australian (federal) government specifying the tenure and management of south-west Western Australia’s public natural forests. The Western Australian RFA was informed by a joint federal-state ‘Comprehensive Regional Assessment’ of forest values conducted during 1996–1998.
Amended Regional Forest Agreement	July 1999	Unilateral amendments made by the Western Australian government to the original Regional Forest Agreement, increasing the area of natural forest protected from harvesting.
<i>Protecting Our Old Growth Forest</i> policy	February 2001	A state Labor Party policy to cease all remaining old growth forest harvesting, implemented after the change of Western Australian state government in February 2001.
Forest Management Plan 2004–2013	2004–2013	Developed by the Conservation Commission to give effect to the amended RFA and to the <i>Protecting Our Old Growth Forest</i> policy. The Plan sets out forest management practices for the years 2004–2013, and performance indicators to assess and monitor implementation. The Plan will be followed by a subsequent 10-year plan, the Forest Management Plan 2014–2023.



**Figure 1** Volume of hardwood sawlog and pulplog harvested from public natural forests 1996–2012 (Commonwealth of Australia and State of Western Australia, 1998; ABARES, 2013). Note: Data for 1997–1998 and 1999–2000 were not available.

From this point, we refer to the policy measures listed in Table 1 collectively as ‘the 1999 – 2004 forest policy changes’.

While these policy changes could be viewed as a single, evolving policy (Mayers and Bass, 1999), we refer to them as three separate, although interlinked, policies because they involved separate policy processes, and participants in our study perceived and discussed them as three separate events.

Since the three policy changes described above, policy related to the natural forest industry in Western Australia has remained relatively stable. The three forest policy changes have been given effect primarily through implementation of the 2004–2013 Forest Management Plan (Conservation Commission of Western Australia, 2003), which was under review at the time the research was conducted, as part of the preparation for the successor 2014–2023 Forest Management Plan (Conservation Commission of Western Australia, 2013).

A Forest Industry Structural Adjustment Package (FISAP), developed by the federal and state governments as part of the RFA process, was implemented from December 1995 to June 2007. The FISAP comprised four programs to support industry restructuring and assist people and communities affected by the changes:

- (1) Business exit assistance for businesses that closed,
- (2) Industry development assistance to assist businesses to invest in new technology and equipment,
- (3) A worker assistance program to provide additional redundancy payments, training and other support to workers who lost their jobs, and
- (4) Community assistance to provide support to towns affected by industry changes (Auditor General for Western Australia, 2005).

The FISAP was expanded when the OGP was introduced in 2001, and its name was changed to the ‘Protection of Old Growth Forests Policy Funding Package’. While funding arrangements were altered, little change was made to the support measures, and participants in this study did not discuss the name change but instead referred to it by its original name. We therefore also use the original title throughout this paper.

Two studies relevant to the research reported in this paper have been conducted in Western Australia since the 1999–2004 forest policy changes. Soon after the policy changes but prior to the implementation of the 2004–2013 Forest Management Plan, Coakes Consulting (2002) conducted a socio-economic assessment of the likely impacts of the Plan for the two relevant Western Australian government agencies, the Conservation Commission and Forest Products Commission. Their report identified a number of issues associated with the introduction of the RFA, including first, that the lengthy anticipation phase during the policy design process led to difficulties for businesses in planning future activities, and second, that industry members were concerned by the restricted resource access and the decreased membership of industry representative groups as former members left the industry, and believed that the government was not sufficiently fulfilling its promise of encouraging alternative employment opportunities. Brueckner *et al.* (2006) studied the perceptions of a broad range of stakeholders involved in the RFA process, focussing on its governance and participation aspects. They reported that a lack of trust between stakeholders, and poor communication, information sharing and transparency all contributed to a lack of public

acceptance of the RFA outcomes. Both these studies were conducted before the longer term implications of the policy changes were apparent to members of the Western Australia natural forest industry, reinforcing the utility of research examining longer-term outcomes such as that reported here.

## Research approach

An adaptive theory approach (Layder, 1998) was used to qualitatively assess the social impacts experienced by members of the Western Australian natural forest industry as a result of the development of the RFA, amended RFA, and OGP, and their implementation through the 2004–2013 Forest Management Plan. Adaptive theory encourages the simultaneous development of theory and analysis of data through an iterative process in which prior theory is used to guide data analysis, while the process of data analysis is used to critique and adapt prior theory (Layder, 1998).

The research reported here was conducted as part of a larger study involving a second Australian case study region. The same methods were used for both case studies; they are summarized below and described in more detail by Loxton *et al.* (2012).

## Data collection

Semi-structured interviews were conducted between May and November 2010 with 39 participants representing the breadth of the Western Australian natural forest industry, including harvest and haulage contractors; processors involved in sawmilling and furniture making; government employees involved in forest management, planning and regulation; and representatives of peak industry bodies (Table 2). Several participants had changed roles within the industry or community since the RFA process, including some who had exited the industry. As explained previously, the aim was to sample a diversity of those who had been working in the natural forest industry, rather than other stakeholder groups or a representative sample of the broader Western Australian population.

Participants were identified using a snowballing method, in which initial contacts were asked to identify other potential participants (Faugier and Sargeant, 1997; Stehlik, 2004). Our sampling, consistent with our qualitative approach, sought to achieve representation of the diversity of changes experienced by those within the natural forest industry as a result of the three forest policy changes (Faugier and Sargeant, 1997). We identified the range of typical types of employment in the industry, and sought a sample from all of these (for example, forest managers, harvest contractors, sawmill employees and managers). We also sought to interview both those who had chosen to stay in the industry and those who had exited the industry as a consequence of the 1999–2004 forest policy changes, as we expected they would have experienced different impacts.

When seeking new interviewees, we asked participants to identify new prospective interviewees who had similar and different experiences of the RFA to their own. We also asked them to describe the range of impacts they had observed for others as well as themselves, as a further means of sampling this diversity of experiences. The reliance of the sampling method on social networks led to some difficulties in contacting people who had left the natural forest industry or moved from their earlier community; however, many people who had exited the public natural forest sector had

**Table 2** Description of study participants

Study participants ( <i>n</i> = 39)	Description of participants	Change in forest industry role since implementation of the 1999–2004 forest policy changes
Contractor (8)	Contractors involved in the harvest and haulage of wood resources sourced from publicly owned natural forests prior to the RFA process. Of these participants, all but two were owners of their business.	One continued working in natural forests and expanded his business; one transferred to the mining industry. The remainder downsized the natural forest part of their business or left their original job, but maintained forest industry activity, predominantly in the plantation industry. Most accessed support through the FISAP.
Processor (13)	Six participants owned businesses involved in sawmilling and further processing of wood sourced from publicly owned natural forests. Seven participants worked at sawmills or other processing mills, of which six had a management or supervisory role. Their roles varied, and included sawmill workers, furniture makers, supervisors and managers.	Two business owners closed a business while four remained open and developed their business through value adding. Four workers with management roles remained at their original business. Two workers left their original job (one voluntarily) and found new employment in forest-related employment. One worker had moved to the area since the RFA. Nine participants accessed the FISAP.
Community representative (6)	Members of the community who supported the industry and its role in the community through a formal leadership position or on a voluntary basis.	All continued their involvement in their community. One accessed the Worker Assistance Package.
Industry representative (6)	Represented the forest industry and its members through peak representative groups.	All continued their role representing the forest industry.
Industry consultant (3)	Participants with previous or current involvement in the forest industry through their professional capacity.	Two continued their role as consultants. One is no longer working as a consultant.
Government employee (3)	Participants involved in forest policy and management processes in their capacities as government employees.	Two continued their role, one participant left his role to work in alternative forest-related employment.

since become active in the plantation sector or maintained their networks through other means.

While a qualitative sample does not seek representativeness in the quantitative sense, it does aim to achieve understanding of the diversity of experiences (Faugier and Sargeant, 1997; Guest *et al.* 2006). We evaluated the sample achieved with this in mind, considering how likely it was that the full diversity of experience was captured. The key perspective that was likely underrepresented in our interviews was that of forest industry members who had involuntarily exited the natural forest industry as a consequence of the 1999–2004 forest policy changes, and who had since experienced long-term un- or under-employment. Several individuals identified by other interviewees as having this experience declined to participate in the research, explaining that they did not want to discuss their negative experiences. This suggests our sample does not fully represent this type of negative experience of the 1999–2004 forest policy changes. None of the other perspectives identified by industry members were missing from our sample.

Three questions guided the interviews:

- (1) What is your experience of the Western Australian forest industry?
- (2) What changes have you seen in the industry over time?
- (3) How have you been affected by, and responded, to those changes?

The questions encouraged participants to speak about their experience of the industry as a whole, rather than specifically about those related to the policy changes. Asking participants about the totality of changes they had experienced over the time they had been involved in the natural forest industry, before increasing the focus

of the interview on the RFA, amended RFA and OGP, provided a broader understanding of the context in which the policy changes occurred, and the interactions that occurred between policy changes and other changes and issues influencing the natural forest industry. This is consistent with impact assessment theory, in which cumulative impact assessment approaches increasingly recognize that external pressures occurring at the same time as a policy change may affect how that policy change is experienced (Franks *et al.* 2009, 2010a,b; Loxton *et al.* 2013a). Probing questions were asked as necessary to follow-up and clarify participants' answers and encourage participants to provide further details about their experiences, consistent with standard semi-structured interview techniques (Rapley, 2001). In particular, probing questions were used to ask participants about both the negative and positive impacts they had experienced, encouraging those who initially spoke of experiencing one type of impact to consider whether they had also experienced others (for example, a person who described solely negative impacts would be asked in probing questions whether they experienced any positive impacts). Interviews were recorded and transcribed, except for three interviews in which only notes were taken, as the participants declined to be audio recorded. Other data sources, including media articles, parliamentary records, and reports and documents produced during the RFA process, provided contextual detail and assisted the development of probing questions.

### Data analysis

Data collection and analysis were conducted iteratively (Layder, 1998). Emerging and prior theories were tested through interviews

and questions, and reflections were recorded after each interview as ‘memos’, both to capture initial thoughts and prepare for subsequent interviews. The use of memos continued through the research process to record enquiries about the data.

The main form of data analysis involved coding, a process in which segments of the text are labelled (‘coded’) to classify them according to the themes and patterns emerging from the data. Transcribed interviews and other notes were initially read and ‘pre-coded’ (Layder, 1998). This was followed by a formal coding phase in which prior theory was used to help explore and interpret the data. Codes were gradually added as new themes were identified in the data, while other codes were pre-formed based on prior theory and results from the first case study. The data analysis process was assisted through the use of NVivo software, a tool that helps to organize text and assign segments of text to codes, which are then compared as part of the analysis process (Bazeley, 2007). This exploratory, qualitative approach allowed a focus on the meanings and perceptions that people gave to their experiences (Lockie et al., 1999; Vanclay, 2002; Williams and Schirmer, 2012).

Thematic network analysis (Attride-Stirling, 2001) was used to guide the data analysis process. Over time ‘basic’ themes, which were based on the initial coding, were progressively grouped into a network of ‘organizing’ themes, and then into overarching ‘global’ themes. Codes were grouped based on their similarities, differences and connections, for example, based on a common emotion (e.g., frustration or confidence), change (for example, job loss or job gain), or action/event (for example, a policy change or public participation process). Text that indicated a divergent perspective to that of the more common view was also included, to ensure that the results reflected both participants’ common and dissimilar perspectives.

## Results

This section reports study participants’ experiences of social impacts associated with the 1999–2004 forest policy changes, up to the time they were interviewed in 2010. While participants experienced a wide range of specific types of changes as a consequence of the policy changes – ranging from job loss to expansion of their business activities – these various changes led to impacts which fell largely into three types of intangible impacts, or felt experiences, centred on: uncertainty and predictability; perceptions of (in)justice; and financial stress and opportunities. We have structured the results based on these three emergent ‘global’ themes. This approach to exploring social impacts follows the argument of key SIA theorists that social impacts are the physically or perceptually felt experience of change (Vanclay, 2002). These global themes emerged from a number of ‘basic’ and ‘organizing’ themes identified in the analysis process, as presented in Figure 2. The three themes, all of which interact, are explored below, focussing on how and why each type of impact emerged, how participants responded, and the factors that helped, hindered and motivated these responses. These impacts and associated responses also led to additional impacts, such as those felt by workers’ or business owners’ families, but these are not described in detail here.

The majority of impacts discussed below are negative, reflecting the general nature of participants’ experiences. Positive impacts are also described in cases where participants identified them; however, in this case study, few positive impacts were reported by participants. This is in contrast to the results of a companion case study in a different region of Australia (Loxton et al. 2012;2013b), in which natural forest industry participants reported more positive impacts.

As discussed in the Research Approach section, our results focus only on members of the natural forest industry; it is likely that

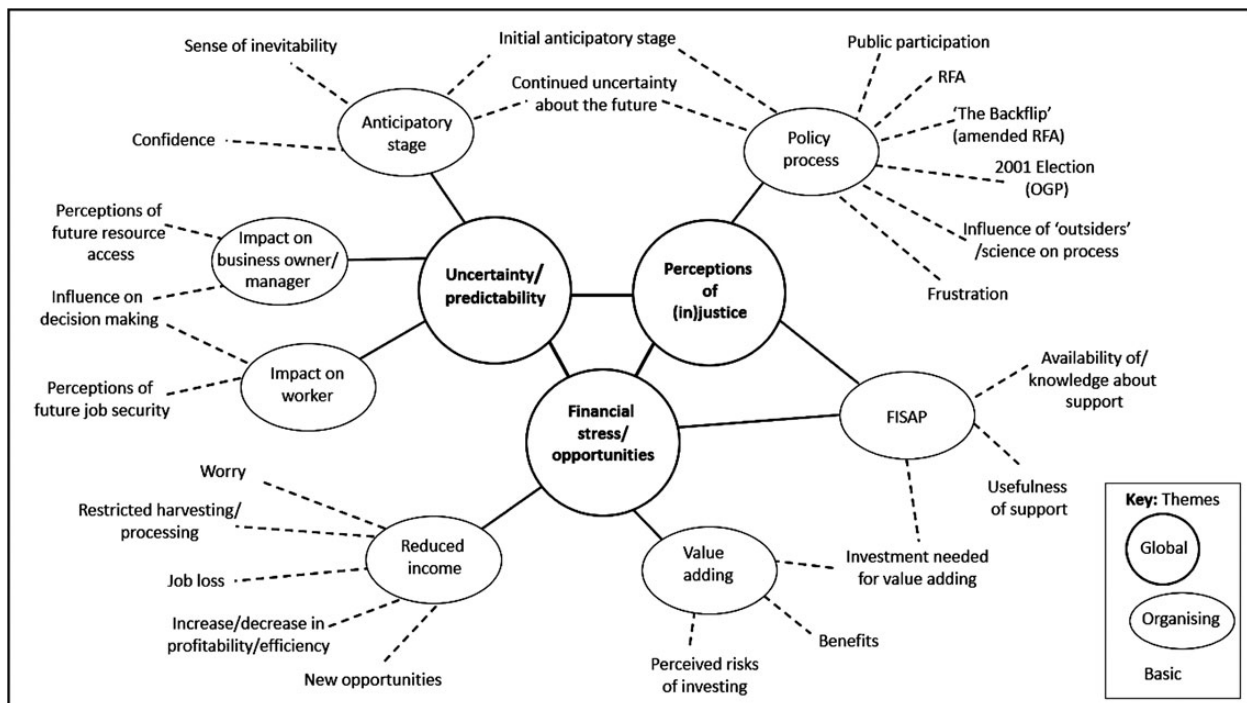


Figure 2 Thematic network displaying a selection of global, organizing and basic themes.

members of the community with other types of connections to south-west Western Australia's natural forests would have experienced a different set of changes and impacts as a result of these forest policy changes.

### *Uncertainty and predictability*

The theme of uncertainty and predictability emerged in almost all interviews, with the majority of participants reporting that the 1999–2004 forest policy changes increased uncertainty, and very few that it had increased their ability to predict future opportunities and changes within the industry. Types of uncertainty reported included uncertainty about future resource access, business opportunities or challenges, and employment and income security. Some of these concerns had existed prior to the RFA process and policy changes, and were often associated with uncertain market conditions and the short-term contracts that regulated access to timber. However, participants reported that these existing uncertainties were exacerbated by the RFA process and the rapid succession of policy changes.

Uncertainty was particularly high during the anticipatory phase, in which policy changes had been proposed but were yet to be finalized. Many participants felt unable to make decisions during this phase, as one participant explained: 'we knew that there was change, what could we do about it? Very little. Sit back and say, "tell us what the changes are and then we can react"' (Processor/owner 3). This uncertainty regarding future access to natural forest wood resources affected participants differently depending on their role in the industry. Some business owners and managers worried they would be unsuccessful in their tender for log allocation (saw/processing mill) or for harvesting and/or haulage work (contractors), or that they would have difficulty meeting the new regulations associated with forest management, harvesting and processing. Other mill owners and managers were confident that they would receive the quantity of resource they required, but worried about potential changes to the price and quality of the wood that might result from the policy changes. Workers felt varying levels of confidence in their job security depending on factors such as their knowledge about their employer's plans, their skill base and local employment options and the strength of their connections to the natural forest industry.

Although most intense in the anticipatory phase, perceptions of uncertainty regarding natural forest resource access, price and quality have continued to the present. Two interdependent factors have contributed to this. The first is that the implementation of policy outcomes through 10-year Forest Management Plans means that participants anticipate changes with each new Forest Management Plan. The second factor related to uncertainty about future policy, and was associated with concerns about the use (and often perceived misuse) of scientific evidence. Many participants felt that forest policy decisions were based more on public perception than scientific evidence, and hence that future decisions – including those embedded in the next Forest Management Plan – were unpredictable as they would again be based on public opinion more than scientific evidence. Participants generally felt that they had little influence over future policy processes or decisions, as illustrated by a mill worker's comments:

whatever the future brings, it brings ... It's out of our control ... And no matter what you hear, what you watch on telly

[television]. They base it, down the track, they usually base it on, they're going to put it on a polling day or after the election (Mill worker 7).

These experiences of uncertainty suggest a continuing anticipatory phase as members of the industry constantly expect future change, but are uncertain about the nature of these changes, resulting in a situation where 'the industry lacks confidence' because of the constant uncertainty (Contractor 4). In some cases this uncertainty has discouraged business investment, particularly when coupled with the impacts of continued negative financial impacts resulting from previous policy changes, and other financial and political factors, for example, a processor said his business 'definitely will not [be] investing anymore' in new equipment, partly as he felt the government did not support the industry (Processor/owner 3). In other cases, continued uncertainty has encouraged people to make important decisions: for example, a mill manager felt that continued job insecurity encouraged some of his mill workers to take up alternative employment because 'they don't like living not knowing the future' (Mill worker 1 – manager).

### *Perceptions of (in)justice*

Similar to the theme of uncertainty and predictability, the theme of perceptions of (in)justice was dominated by negative experiences, in which participants reported a sense of injustice at the processes by which the 1999–2004 forest policy changes were developed and implemented, the responses required to adjust to them, and the impacts they had experienced as a result. The policy changes were widely perceived as being unfair and, to some degree, unnecessary because participants felt the industry was already well managed. Three factors specifically contributed to participants' perceptions of injustice: the role of public participation in decision-making processes, the additional restrictions introduced by the policy decisions following the initial RFA, and the effectiveness of the design and implementation of mitigation measures associated with the policy changes.

Many respondents were emotionally impacted by their participation in the politically charged decision-making processes leading to each of the RFA, the amended RFA and OGP. Participants from all industry sectors felt their points of view were not adequately heard or respected, and that scientific knowledge had not been used appropriately. Rather, they felt decisions were made to appease environmental groups and gain votes in urban areas, leading an industry representative to refer to the process as a 'largely a charade' because he felt decision makers 'had decided [what] they were going to do already' (Industry representative 2) rather than being genuinely interested in using outcomes of the consultation process. Feelings of injustice were also associated with the speed with which the amended RFA and OGP followed the RFA. The high expectations placed on the RFA contributed to the extent to which these subsequent changes were perceived to constitute broken promises, as:

the theory behind the RFA was that this would be the mother of all agreements. It would satisfy everybody and that would be the end of it – wouldn't talk about the industry again (Mill owner 4).

While many felt that people from outside the community and industry had been given too much say in the RFA process, others



expressed more positive, or at least accepting, views. For example, a contractor who had ended his work in natural forests and shifted to new work in the plantation sector explained the OGP decision, saying:

the government went to the electorate very clearly saying what they wanted to do in terms of managing native [natural] forests, and they were voted in... so you have to accept that, that's how democracy works (Contractor 3).

A sense of injustice was also evident in the level of frustration expressed about the forest management outcomes of the policy decisions. The greater restrictions on forest management that followed the 1999–2004 forest policy changes were considered unnecessary and unreasonable by many interview participants, particularly as they considered Western Australia's natural forests to be well-managed prior to the changes. The belief that prior management was appropriate meant some participants felt the changes imposed on them were unjust; for example, a member of a family business explained that 'the biggest thing is getting your mind around the change and I think that's where my father found it difficult... why? Why do we have to change?' (Contractor 4). However, a diversity of views were expressed: several contractors and ex-contractors suggested that the forest management changes were justified, while some mill owners and managers felt the RFA had delivered good changes, but that the further changes associated with the subsequent two policy changes had been unnecessary. Those who felt that change was unnecessary also considered that the impacts they experienced were similarly unnecessary, and hence expressed a stronger sense of injustice.

A key factor associated with feelings of injustice was the availability, eligibility criteria, and use of mitigation measures provided through the FISAP. While interview participants identified positive impacts associated with these mitigation measures, which are discussed in the following section, widely held perceptions that the distribution or amount of funding was unfair contributed to a sense of injustice and associated negative impacts. Industry representatives and those who had exited the industry, in particular, raised ethical concerns that some beneficiaries had been undeserving of FISAP support, while others whom they considered to have deserved FISAP support were ruled ineligible. A common perception was that 'a number of very tiny millers who didn't have contracts, in the end didn't qualify, and they felt that they had been badly treated' (Industry representative 2). A range of participants also expressed concerns that some business owners had been ineligible for funding. An industry representative reflected on this, describing them as being 'totally depressed, dazed, [as they] just had no understanding and conception of where the justice was' (Industry representative 3).

### *Financial stress and opportunities*

Business owners, workers and their families commonly reported experiencing financial stress due to factors such as increased debt, reduced profit and income loss arising partly or wholly from the 1999–2004 forest policy changes. Few described experiencing new financial opportunities. Financial stress from forest policy changes was often exacerbated by unrelated financial pressures, with some businesses experiencing financial stress prior to the RFA process.

Financial stress related to the 1999–2004 forest policy changes began during the anticipatory phase preceding the RFA decision and continued after the policy changes were announced. For example, some business owners were financially impacted by environmental protests that temporarily halted harvesting operations, or loss of productivity when their workers took part in pro-industry rallies. This stage was also associated with difficulty making business investments due to the uncertainty described above, and stress associated with fears of potential future income loss.

Once introduced, the policy changes led to longer term impacts. Financial stress was described as resulting from, first, reduced access to wood supply, which led to reductions in the availability of harvesting and haulage work, and changes in the quantity, quality and price of wood available to processors. Managers of sawmills and other wood processing facilities reported a variety of views regarding the impact of these changes, illustrated by the following two quotes:

The price of the material has escalated... and the grade of material, grade of quality of timber that we're receiving from the major timber mills is certainly not the quality it was going back ten years ago (Processor/worker 6).

The resource is still there. I don't know that the resource has changed a huge amount; it's what we have to do with it that has changed a lot (Processor/worker 4).

Secondly, financial stress occurred as a result of new requirements introduced in the policy changes that required businesses to invest in new equipment to meet the new harvesting guidelines (contractors), or to expand their downstream processing capacity (processors). While FISAP funding assisted these investments, it covered only a proportion of the total amount required, with businesses required to fund the remaining costs. Some mill owners felt that their investment had not provided the expected benefits due to the higher input costs involved, which led some participants to rename the 'value adding' policy objective as 'cost adding' (Mill owner 3; Industry representative 1). Others felt more positively about the funding they received, for example, one participant explained 'We were lucky enough to get a grant... and it was very good at the time' because it allowed them to update machinery (Contractor 4).

Some businesses chose, or were forced, to close; either because they did not want, or felt they could not, adapt successfully to the policy changes, or because they failed to tender successfully for work in the industry. The financial impacts experienced by business owners and workers due to business closure and subsequent job losses depended on several factors, including the diversity of a business' activities, its financial situation before the closure, level of financial support received through FISAP, and an individual's ability to find new work. Job loss provided some participants with new opportunities, which were often supported by FISAP funding. For example, business owners often managed several types of business activities, and some were able to expand other activities as their work in the natural forest industry ended. In other cases, people found new employment quickly, either due to their diversity of skills, because their skills were applicable to other industries such as mining, or because the FISAP assisted them to gain training, relocate for new work, or begin a new business. While this resulted in short-term stress, in the longer term they have experienced

maintenance of their business income or employment. Despite these positive examples, participants frequently reported that they had observed others who had not experienced the same positive outcomes. It was difficult to verify this perception, as those who had experienced long-term unemployment or underemployment were difficult to identify; as noted earlier, it is likely these people were among those who declined to be interviewed.

Families experienced a mix of positive and negative financial and other impacts as a result of financial stress and new opportunities. Some participants spoke of the benefits to their family that came as a result of downsizing or closing. For example, one participant explained that previously 'the business was encroaching on the family' due to the long hours involved, but that his new employment enabled him to spend more time with his family (Contractor 5). In other cases, negative impacts such as reduced business productivity, efficiency and profitability had significant negative impact on the family, particularly if multiple family members were involved in the business.

Increased competition associated with the expansion of domestic Australian downstream processing required under the forest policy changes, and with cheaper imported products, added to businesses' financial stress. While not directly caused by the 1999–2004 forest policy changes, this increased competition led to frustration as participants felt they had accommodated the policy changes, but had not received the financial benefits they expected due to these market pressures. Continued uncertainty about the future, as discussed above, has led to continuing financial stress. At the time of interviewing, some businesses were delaying investment prior to the announcement of the 2014–2023 Forest Management Plan, while other business owners reported experiencing continuing pressure due to financial debt incurred in part due to the investments required of them as part of the policy changes.

## Discussion

Our results highlight the complex ways in which changes resulting from policy decisions are experienced. Rather than being a linear process, social impacts depend not only on the nature of the specific policy changes, but also on the context in which they occur, an understanding increasingly emphasized in impact assessment literature (Geisler, 1993; Kennett, 1999; Baxter *et al.*, 2001; Duinker and Greig, 2006; Canter and Ross, 2010; Ehrlich, 2010; Franks *et al.*, 2010a;b; Loxton *et al.* 2013a). For example, those who reported experiencing financial stress as a consequence of the RFA often also described non-RFA related factors that exacerbated their experience of financial stress. Furthermore, the experience of financial stress contributed to a sense of injustice and uncertainty for many, highlighting the interaction between impacts and additional influences other than the 1999–2004 forest policy changes.

Our findings suggest that the combination of negative impacts experienced by participants often reduced their ability to adjust to the policy and social changes they experienced, with implications for the individual members of the natural forest industry, the future of the industry as a whole, and the policy process. At the same time, the interrelatedness of impacts suggests that successfully managing one type of impact can help reduce the adverse influence of other negative impacts. For example, successfully

managing financial stress through appropriate and transparent structural adjustment may also reduce perceptions of injustice. In addition, managing negative impacts can assist those affected to maximize the benefits of new opportunities, including the provision of structural adjustment measures, providing an avenue through which SIA can enhance positive impacts (Rowan and Streather, 2011; Vanclay and Esteves, 2011). For example, the results suggest that a lack of confidence in the predictability of future resource supply diminished some of the positive opportunities provided through FISAP. This is supported by Marshall (2007), who found that confidence in the future assists people to accurately assess risk and successfully adapt to policy changes. Further research is needed to better understand why some people experience multiple interacting negative impacts and difficulty adjusting to change, while others – in this case, few of those interviewed – experience fewer negative and more positive impacts.

The emphasis on negative social impacts reported in this case study contrasts with the findings of the companion case study, undertaken in the upper north-east New South Wales RFA region, where many participants had initially experienced negative social impacts, but had successfully responded to the changes and experienced longer term positive impacts (Loxton *et al.*, 2012). One of the notable differences between the two case studies is that, unlike Western Australia, the forest policy framework in New South Wales was not altered significantly once the RFA was signed. Other factors that may have contributed to the differences observed between the two case studies are that south-west Western Australia is more isolated, and has less access to alternative forest resources on private land than upper north-east New South Wales (Ryan *et al.*, 2003). Further research is required to better understand when and why a similar style of policy change results in more negative or positive impacts in differing contexts.

The negative social impacts discussed in this paper are significant because they are associated not only with reduced ability to adapt to change, but are also likely to be associated with negative health impacts. For example, job uncertainty has been linked to reduced physical and mental health in employees in many occupations, including both blue and white collar employees (Sverke *et al.*, 2002; D'Souza *et al.*, 2003). The extent to which uncertainty affects health outcomes is influenced by the length and severity of the financial stress that people experience (Kahn and Pearlin, 2006). Furthermore, job insecurity is associated with reduced organizational effectiveness, particularly in workplaces employing a high percentage of manual workers (Sverke *et al.*, 2002), suggesting that long-term job insecurity may in turn have negative impacts on forest industry businesses. The uncertainty and financial stress that members of the natural forest industry have continued to experience since the start of the RFA process is likely to adversely influence their well being, and also reduce their ability to adapt to change and operate efficiently. These findings support previous calls for the increased integration of health and SIA (Rattle and Kwiatkowski, 2003). Our exploratory approach, which involved open-ended questions, enabled us to identify this area as one of importance, but not to specifically evaluate health and wellbeing outcomes for the people interviewed.

The findings add to previous research that has found that the processes used to design and implement policy are as important as the policy itself (e.g. Hogwood and Gunn, 1984; Mayers and Bass, 1999; Muhammed *et al.*, 2005; Marshall, 2007; Gross, 2007;

Dovers and Hussey, 2013). Many participants felt they had not been given a sufficient voice in the RFA public participation process. Furthermore, industry members deeply involved in the development of, and committed to, the RFA felt a sense of injustice that their work and contributions were, in their perception, devalued by subsequent changes that they felt did not draw on the extensive consultations undertaken in the RFA process. Brueckner *et al.* (2006) reported that representatives from conservation groups also felt excluded from the RFA process, indicating that similar perceptions of injustice were experienced by other stakeholders. Together, these findings suggest that the public participation process failed to meet Moote *et al.*'s (1997) criteria for effective public participation.

Participant's perceptions of injustice, as well as uncertainty, have continued over the long-term. The Western Australian RFA aimed to provide long-term stability and security to the natural forest industry (Commonwealth of Australia and State of Western Australia, 1999), and to achieve the goal of the Australian National Forest Policy to encourage 'significant long-term investments in value-adding projects' (Commonwealth of Australia, 1992: 15), while balancing the full suite of forest values. Our results suggest that the social impacts resulting from the 1999–2004 forest policy changes have likely hindered these goals from being fully realized in Western Australia. This is largely because the policy changes introduced after the RFA substantially reduced both trust in government, and the perceived future predictability of wood supply. This lack of trust has continued over the long term among members of the natural forest industry, despite the mitigation mechanisms offered, suggesting that social impacts identified through *ex ante facto* SIA, such as the difficulty business owners experienced planning for future business activities (Coakes Consulting, 2002), have continued over the longer term.

These findings highlight the difficulty of managing large-scale policy processes, particularly given their long time frames, complexity and uncertainty (Geisler, 1993). They also highlight the importance of doing so, as perceptions of injustice and lack of transparency can be long-lasting, and increase the future costs of managing social impacts (Marshall 2007).

Theories of procedural and distributive justice (Lind and Tyler 1988) help to explain why experiences of injustice were so dominant in the impacts described by participants. Focussing on both procedural and distributive justice highlights the importance of people being given a voice and respect in public participatory processes to enable them to be fully engaged over the long term (Moote *et al.*, 1997; Gross, 2007; Marshall, 2007), and to ensure that outcomes of decision-making processes are considered equitable (Gross, 2007). Greater attention during the policy development phases to procedural justice and equity would likely have reduced perceptions of injustice and uncertainty about the three forest policy changes, and thus some of the barriers to adapting successfully to these changes.

The long-term nature of the social impacts we identified serve to encourage policy makers and others involved in future policy change processes to anticipate, recognize and manage the negative social impacts that stem from these processes. Our results reinforce those from other industries and geographies: for example, negative perceptions of policy have been found to reduce compliance in the Australian fishing industry (Minnegal and Dwyer 2008), and overly complex regulation of the forest industry in

Honduras and Nicaragua made smaller-scale timber producers more vulnerable to illegal timber traders (Richards *et al.*, 2003). It is also important that policy processes be designed and implemented with an understanding of the region or industry's historical context, including the impacts of previous policy processes and changes on stakeholder groups, the influence of external factors unrelated to policy processes, and the cumulative and interacting effects of change (Franks *et al.*, 2010a;b; Loxton *et al.* 2013a). Achieving this understanding is difficult, particularly when combined with the need to maintain policy flexibility and the adaptive management of natural resources while also meeting the needs of the natural forest industry, which values consistent policy. The complexity of the issue suggests the need for further research on the relationship between policy processes and resulting social impacts (Lord, 2011), particularly how the complexity and rapidity of policy change influences experiences of social impacts. One potential approach is the development of social impact management plans (Franks *et al.*, 2009; Esteves *et al.*, 2012) and other measures which explicitly acknowledge the need for the adaptive management of social impacts, a logical extension of the use of adaptive management processes used in environmental resource management more broadly (Geisler, 1993).

This paper has focussed on the impacts of the 1999–2004 forest policy changes in Western Australia on members of the natural forest industry. Other stakeholder groups such as the environmental movement, tourism industry and Indigenous people, were also actively involved in these forest policy processes and experienced social impacts as a result of both the process and their outcomes (Brueckner *et al.* 2006). Further work is required to understand the social impacts of the 1999–2004 forest policy changes on the broader community of forest stakeholders, and to guide future forest policy processes.

## Conclusions

The long-term social impacts experienced by members of the Western Australian natural forest industry as a consequence of the 1999–2004 forest policy changes resulted from a combination of the process by which policy changes were negotiated and implemented, and the nature of the policy changes themselves. Impacts were further influenced by the way in which people responded to the changes they anticipated or experienced, regardless of whether these responses were assisted by mitigation measures. Participants experienced a range of negative social impacts linked to uncertainty, financial stress and a sense of injustice. Positive impacts linked to increased predictability and certainty, financial opportunities, and justice were less common. The results suggest that the long-term impacts of uncertainty, financial stress and injustice may have hindered the successful realization of policy goals aiming to achieve forest industry stability and encourage innovation and industry development, despite the availability of financial assistance to support these objectives. These findings highlight the importance of recognizing and managing the social impacts that arise during all stages of the policy process and the need to ensure that the process of negotiating outcomes between conflicting interests does not hinder the acceptance and implementation of the resulting policy. Contrasting results found in a companion case study in another Australian RFA region suggest that long-term negative impacts on members

of the natural forest industry were not an inevitable outcome of forest policy changes associated with the RFA process.

The findings of this study also demonstrate the learning opportunities presented by *ex post facto* SIA. While the impacts experienced by members of the natural forest industry were varied, and not all negative, greater attention to the principles of procedural and distributive justice, and to the insights gained from *ex post facto* SIA, would assist policy makers to design and implement forest policy changes that both realize policy goals and impact less negatively on members of the natural forest industry. Although the results reported in this paper are from one case study region in Australia, they have relevance to similar policy processes in other sectors and geographies.

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## Conflict of interest statement

None declared.

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