

17 January 2013

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Submission to the Senate Standing Committee on Environment and Communications Inquiry into *'Recent trends in and preparedness for extreme weather events'*.

The Australian Forest Products Association (AFPA) welcomes the opportunity to comment on the Senate's Standing Committee on Environment and Communications (SEC) Inquiry into *'Recent trends in and preparedness for extreme weather events'* (Inquiry).

AFPA is the peak national body for Australia's forest, wood and paper products industry. We represent the industry's interests to governments, the general public and other stakeholders on matters relating to the sustainable development and use of Australia's forest, wood and paper products.

This submission from AFPA is made on behalf of industry and is particularly related to the following SEC terms of references:

- c) *An assessment of the preparedness of key sectors for extreme weather events, including major infrastructure (electricity, water, transport, telecommunications), health, construction and property, and agriculture and forestry; and*
- g) *Any gaps in Australia's Climate Change Adaption Framework and the steps required for effective national coordination of climate change response and risk management.*

The forest, wood and paper products industry and climatic extremes

The forest, wood and paper products industry is one of Australia's largest manufacturing industries with an annual turnover of \$21 billion. It contributes around 0.6 per cent to Australia's gross domestic product and 6.7 per cent of manufacturing output.

Approximately 76,800 people are directly employed in the industry, including 13,200 people in the forestry and logging sectors and 63,600 people in the wood manufacturing sectors (DAFF 2010). The forest, wood and paper products industry is predominately regionally based and socio-economically very important to many rural and regional areas.

AFPA and its members have a substantial interest in, and previous experience with, the adverse impacts of extreme weather events on industry. AFPA members own and/or manage large tracts of commercial hardwood, softwood plantations, and natural forest in all States supplying wood fibre both domestically and for export. In addition, AFPA also represents wood processors including sawmillers, engineered wood and paper product manufacturers which are dependent on this wood fibre supply for value-added production.

Forestry is unique relative to other land-uses such as agriculture, due to the long timeframes between establishment and harvest. The greatest impacts of climate change on forests will be associated with the hotter drier environment, with increased risk of bushfires and cyclonic activity, greater stress on trees increasing susceptibility to pest and disease incursions and decreasing productivity, and greater variability and intensity of rainfall influencing hydrological cycles and potential soil erosion.

AFPA's submission is not exhaustive in its coverage of all the various types of extreme weather events that will impact, and have impacted, on the forest industry. Rather it focuses on the COAG Action Plan and the following three key event categories:

- cyclone preparedness and hydrological benefits from forestry;
- severe bushfires; and
- drought.

Discussion is also focused on the following associated factors:

- soil erosion and water quality; and
- plant pest and disease incursions.

AFPA seeks to make broad comment on these three key categories by highlighting the broad scope of each issue, the lessons already learnt and recent initiatives to mitigate against the adverse impacts from these types of extreme weather events.

1. Action Plan

In 2006 the Council of Australian Governments (COAG) under its '*Plan of Collaborative Action on Climate Change*' committed to establish Climate Change Action Plans for critical sectors of the economy.

The forest industry, governments and other key stakeholders collaborated in drafting the 'National Climate Change and Commercial Forestry Action Plan 2009-1012' (appended as **Attachment 1**) which was finalised in November 2009.

The Action Plan was intended to guide action by industry with the support of governments over the period 2009 to 2012 (in the first instance). It was recognised by all parties that adaptation is an important priority and that it will take time to quantify the risks of climate change and to build adaptive capacity to minimise costs and to take advantage of any climate related benefits.

The Government note the strategies outlined in the Action Plan and support projects that align with actions contained in the Action Plan.

2. Cyclone preparedness and hydrological benefits from forestry

Cyclones are a common feature of climatic events in northern Australia. The increasing climate variability associated with climate change is predicted to result in an increase in the severity of tropical cyclones, with associated higher risks of more severe damage to plantations, industry processing facilities and infrastructure. In recent times severe tropical cyclones, including Larry, Ului and Yasi, have had devastating effects on some timber plantations and plantation trial plots in northern Queensland.

Current projections suggest that the frequency of tropical cyclones may not increase, but are likely to become more intense and impact on areas further south of current ranges. The incidence of tropical cyclones raises a number of important management and operational considerations to minimise commercial losses. These include:

- preventative land management practices (e.g. choice of species, plantation design and location in the landscape); and
- contingency and operational planning, such as the ability to conduct salvage logging with suitable infrastructure and access to markets.

With that in mind, Timber Queensland in conjunction with the Queensland Government recently engaged a consultant to assess the impacts of cyclones and prepare a guidebook '*Weathering the Storm - Best Practice Guide for Timber Plantations in Tropical Cyclonic Areas of Queensland*' (the Guide) appended as **Attachment 2**. Although focused on northern Queensland, the Guide is broadly applicable to other localities in northern Australia.

The Guide reviews the impacts of tropical cyclones on the timber-growing sector in northern Queensland. It aims to provide useful guidance to small and large growers on the factors that need to be considered when growing trees in this region.

Factors explored in the Guide include: tree species, plantation design, timber plantation age, location in the landscape and management (silvicultural) practices.

Northern Australia is relatively underdeveloped, offering opportunity for expansion of economic land-use activities (such as forestry), due to its increased water availability and high productivity potential. Therefore, challenges such as cyclones (and associated impacts such as intense rainfall events and local flooding) must be appropriately considered and addressed to facilitate further sustainable development in northern Australia.

The forest industry has considered lessons learnt in Queensland in the development of the industry guide for cyclone areas. Industry urges the Government to take similar steps to identify and mitigate the impacts of increased severity of cyclones on broader land-use activities and infrastructure in northern Australia

3. Bushfires

Australia's hot and dry climate is highly susceptible to bushfires. Many forest ecosystems are dependent on fire disturbance for growth and regeneration. Fires create a disturbance mosaic across a forest landscape and the effects of fire can be beneficial or detrimental to forest ecosystems, dependent on factors such as scale, frequency and intensity.

In recent years, forest fires have increased in intensity and scale in southern Australia. High intensity 'mega-fires' (e.g. 2002-3 NSW/ACT fires; 2009 Victorian Black Saturday fires) have caused significant damage to lives and property, biodiversity, watersheds, and natural resource dependent industries such as agriculture and forestry.

In the wake of these extreme fire events, there have been several inquiries, including the House of Representatives Select Committee Inquiry 2003, the COAG National Inquiry on Bushfire Mitigation and Management, the ACT Coroners Inquiry into the 2002-2003 Bushfires, the 2009 Victorian Bushfires Royal Commission and the 2009 Senate Inquiry into Bushfires in Australia. Many key stakeholders (including AFPA) have previously submitted detailed constructive comments to these inquiries. These inquiries have generated a large number of recommendations to mitigate or reduce the risk of future high intensity 'mega-fires'. Key recommendations with relevance to forest management include: the implementation of prescribed burning targets, including the timing and targeting of this prescribed burning; and a program of adequate fire access and suppression infrastructure in high risk areas.

Many of the recommendations from these inquiries and reports remain to be adequately resourced or implemented.

The Government should undertake a review of the recommendations of recent bushfire inquiries, with the objective to identify priority actions that need to be resourced and implemented.

Many fire experts and stakeholders attribute the disturbing trend of increasingly large scale and intense forest fires to the lack of a comprehensive landscape approach to fire risk management. They argue there has been a gradual shift in fire management policy toward fire suppression and response at the expense of longer term fire prevention and fuel reduction. High fire risk is attributed to a passive land management approach that has altered natural fire regimes and allowed an excessive build up in forest fuel loads.

While on-site risks for plantations and managed natural forests are primarily managed through regulation and prudent commercial practice, the broader risks from passively managed public land remains an issue.

Effective bushfire management appears to be a problem of social and political commitment to effective preventative land management rather than a case of scientific and operational complexity. A well-coordinated land management strategy could help reduce fire risk, complement climate change policy and provide multiple economic, environmental and public safety benefits.¹ From an AFPA perspective, these issues and potential land management solutions are usefully summarised in the attached policy article appended as **Attachment 3**.

Other fire related issues include:

- *Regional variation for risk assessment* - Fire risk assessment as it relates to zoning and impacts on building regulations should be based on robust science. Harmonisation of risk assessment and regulation is a worthy objective up to a point. However regional variation within risk assessment that considers the nuanced differences between regions should continue to be an important consideration (i.e. key differences in fire risk, timing, weather and conditions between Victoria and Queensland);
- *Salvaging resources* - In the aftermath of an extreme weather event (i.e. fire) the forest industry has found there are significant operational difficulties and potential significant loss in the value of timber products arising from the salvage of a damaged timber resource. These include difficulties in marketing, processing the damaged wood, and long-term storage of damaged timber. If the extreme weather event is large enough an entire regional industry sector may be significantly affected or even closed (i.e. post Canberra 2002-3 fires).

¹ Stephens M 2010. , 'Bushfire, Forests and Land Management Policy under a Changing Climate', *Farm Policy Journal*, 7 (1): 111-19.

Industry and Government should consider these issues further and undertake additional collaborative work in this area.

- *Fire-line communications:* Following previous Inquiry recommendations there has been significant progress with addressing aspects of early fire warning communications via radio, web and text messaging. One area of communications identified by forest industry fire managers as being deficient is the ability for fire-fighters to communicate in a timely fashion along the active fire-line and back to fire command during suppression activities via mobile phones.

The transfer of timely and accurate fire and weather information by adequate mobile phone coverage enables fire managers to manage suppression activities more effectively based on up-to-date information. Many high risk bushfire prone areas do not have adequate mobile phone coverage and this is a significant barrier to effective fire suppression and management activities. Advantages of improved communication include increased safety of resources, an optimal positioning of resources, and more rapid effective responses. A review of mobile phone coverage in and around high risk bushfire prone areas should be undertaken with the objective to identify priority areas for improved coverage.

A national strategy (i.e. a 'National Fire Initiative') should be developed and implemented to assist with the reform of public land management for effective fire management, being a partnership between the federal, state and territory governments. This should take a holistic view across the landscape, incorporating collaborative action across land tenures and managers, and focused on the span of activities from management to prevention to suppression.

Such a strategy could build on the still relevant COAG (2004) recommendations following the 2003 fire season in southern Australia. These included:

- develop national principles to promote shared goals;
- use a risk management framework across all activities;
- adopt an adaptive management approach that takes on new information;
- undertake more research into the characterisation of fuel loads and landscape scale studies into fire behaviour and responses to management; and
- develop 'burning guides' and a zoning approach to the classification of fuel management areas.

The range of potential fire mitigation measures include land-use zoning and planning, use of fire breaks and access trails, grazing, ecological burning, fuel reduction burning, vegetation clearing and thinning.

Prescribed burning is generally recognised as the most cost-effective means of achieving fuel reduction at a landscape scale. However given climate policy considerations there may be a range of new and innovative options for managing fuels with multiple benefits, such as the mechanical removal of biomass for renewable energy to reduce potential fuel loads and assist in the further development of low-cost renewable energy options.

Initiatives in the United States have focused on the multiple benefits that can be obtained from more integrated land management to reduce fuel loads and severe fire risks. Since 2003, the Healthy Forests Initiative² has been a high level national policy framework directed to tackling the disturbing trend of more severe forest fires and restoring degraded forests. This has involved thinning projects for woody biomass and other products in many forest areas managed by the US Forest Service and other State Government agencies in order to deliver multiple goals.

These goals have included severe fire risk reduction, renewable energy, forest health, carbon mitigation and timber industry development. For example, the Collaborative Forest Landscape Restoration Program³ has allocated \$US 400 million over 10 years to undertake forest restoration and biomass harvesting for renewable energy, with an aim to decrease fire suppression costs by 50 per cent.

The costs of fires in California were recently estimated at \$1.2 billion per annum which has prompted more direct action with respect to renewable energy policy and land management. The 2012 Californian Bioenergy Action Plan⁴ identified that forestry harvesting and processing residues were an underutilised source of renewable energy that can provide multiple social and environmental benefits, by reducing the risks of severe fires and related human health and ecosystem damage.

These types of innovative approaches and priorities for preventative land management for fire in the United States may provide a useful model for Australia, given a similar range of issues and fire prone landscapes.

The Government should review, develop and implement a well-coordinated land management strategy to reduce severe fire risks and promote multiple economic, environmental and public safety benefits.

4. Drought

Natural forest and plantations are vulnerable to harm from both extreme weather events (e.g. bushfires, cyclones) and long-term effects of a changing climate such as more frequent drought, especially as a dry-land agricultural land-use activity.

² <http://www.forestsandrangelands.gov/resources/>

³ <http://www.fs.fed.us/restoration/CFLRP/>

⁴ http://www.resources.ca.gov/energy_and_climate_change.html

Forecast changes in rainfall, temperature and weather patterns can produce a range of productivity and other impacts depending on industry sector and geographic region. A changing climate imposes significant challenges and some opportunities for the forest and forest based industries in dealing with these changes.

Rainfall variability and drought has long been a part of the Australian climate. However, it is the scope for extended drought and more extreme temperatures of longer duration that presents some significant challenges for the forestry and agricultural sectors.

In collaboration with relevant researchers, industry practitioners and companies involved in climate change issues and adaptation responses, AFPA recently managed a three year project to enhance the industry's ability to reduce the harmful effects of, and exploit the opportunities from, a changing climate. This work was supported by funding from the Australian Government Department of Agriculture, Fisheries and Forestry under its Australia's Farming Future initiative.

The '*Plantation Forest Industry Climate Change Adaptation Handbook*' (the Handbook) appended as **Attachment 4**, was prepared as part of the project to promote awareness of future climate change scenarios and relevant adaptation management options and strategies, which can be used to improve adaptive capacity in dealing with climate change.

While many of the generic principles are relevant to the industry value chain as a whole (e.g. growing, processing and distribution), the initial focus of the handbook is on the forest plantations sector, reflecting a research and policy focus on this particular sector. Presently, there is a limited amount of scientific and other technical information on adaptation options for the native forest sector and broader processing issues, which is identified as a research gap. Based on this work, consideration should be given to the development of active adaptation strategies applied to all tenures of natural forests in order to understand and mitigate the impacts of extreme weather events on the broader landscape.

The following excerpt (refer page 10 of the Handbook) provides a summary of the main conclusions and insights into plantation forest adaptation:

Successful adaptation will require both strategic and operational planning at the individual enterprise level as well as across the industry more widely, and will depend on time scales and the degree of current and future impacts [Figure 13].

Adaptation options for plantations currently growing will be more limited than those for future plantings. In the short term, adaptation will revolve around managing risks and vigour such as managing drought risk through thinning regimes and weed control, fire risk through residue management, and vigour through fertilising, weed control and pest management (Pinkard et al 2010). These sorts of responses should be sufficient to deal with small incremental changes in climate, but may not be appropriate responses to extreme weather events.

Over the longer term, as climate change progresses, more complex responses will be required, such as deployment of new genetic material, product diversification, development of new practices and products or changes in the distribution of plantations. These sorts of responses are likely to provide additional benefits but at a greater cost than initial within-rotation adaptations (Pinkard et al 2010).

Successful adaptation may require integration across all facets of timber production, from seedling production to processing. Developing adaptation strategies will be complex, requiring strategic planning to assist in operational decision-making by a range of enterprises and stakeholders (e.g. industry, researchers, governments).

In particular, the Handbook highlights the importance of a risk management approach for enterprises, planners and policy makers. At an enterprise level, planning for risk and uncertainty as a consequence of a changing climate should be adopted as part of an overall approach to sustainable forest management.

The likelihood and significance of impacts can then be explicitly incorporated into adaptation strategies. The downside risks of climate change as well as the upside opportunities from a changing climate should be part of an on-going adaptive or environmental management system. A proactive rather than reactive approach to adaptation is required which monitors continuously what does and does not work, and allows for the costs and benefits of different management options to be taken into account.

The Government consider the principles and adaptive framework contained in the Handbook and support projects that will consider and address adaptation options for the forest industry and broader processing issues.

5. Plant pest and disease incursions

As a consequence of extreme weather events such as cyclones, bushfires and drought, the increased stress on trees can make forests increasingly susceptible to plant pest and disease incursions. As such, the forest industry has a long history of operational pest and disease management, capacity and response to deal with such incursions. AFPA is also heavily engaged in the national biosecurity framework and is a member of Plant Health Australia and is a signatory to the Emergency Plant Pest Response Deed, to assist national coordination of related biosecurity issues.

6. Soil erosion and water quality

AFPA members are significant land, forest and plantation managers. Forest and plantation management plays an important positive role in improving water quality, salinity and erosion control, both before and after extreme weather events. The establishment of plantations and sustainable management of natural forests have the potential to mitigate extreme weather events, such as intense rainfall, floods and drought (and associated erosion and water quality issues), by:

- regulating and mitigating soil erosion (impacting on sustainability of the landscape, soil fertility and water quality);
- regulating and mitigating soil salinity (impacting on sustainability of the landscape, soil fertility and water quality);
- improving water quality into key catchments;
- provision of shade and shelter for livestock; and
- carbon cycling and contribution of forestry activities to carbon sequestration to help mitigate future climate change (e.g. soil and carbon retention).

Government to lead a more targeted and balanced approach to land-use management and policy development in Australia. Plantations and forestry have the potential to deliver important environmental and related benefits including improved water quality, livestock productivity; soil erosion control, improved vegetation and soil condition. These benefits can help mitigate against some of the adverse impacts from extreme weather events such as intense rainfall events, floods and drought.

Summary

AFPA appreciates the opportunity to comment on the SEC Inquiry into 'Recent trends in and preparedness for extreme weather event'. The forest industry has significant experience and capacity in dealing with climate variability and the incidence of extreme weather events at an operational level. Furthermore, the industry is increasingly engaged in a number of collaborative research, capacity building and policy initiatives to more adequately manage for, and anticipate, these extreme events.

AFPA strongly urges Governments at all levels to consider and support these types of initiatives and to adopt key recommendations as they relate to the forest industry and related industries and communities. AFPA would be available to discuss the issues raised in the submission in more detail and welcomes opportunities to provide further comment.

[End]

Attachment 1: (2009). *'National Climate Change and Commercial Forestry Action Plan 2009 - 2012'*

Attachment 2: Select Carbon (2012). *'Weathering the Storm - Best Practice Guide for Timber Plantations in Tropical Cyclonic Areas of Queensland'*, Timber Queensland.

Attachment 3: Stephens M (2010). Bushfire, Forests and Land Management Policy under a Changing Climate, *Farm Policy Journal*, 7(1): 11-19.

Attachment 4: Stephens M, Pinkard L and Keenan R (2012). *'Plantation Forest Industry Climate Change Adaptation Handbook'*, Australian Forest Products Association, October.