Submission to Regulation of Australian Agriculture – Productivity Commission Draft Report

Centre for Ecosystem Science, UNSW, Australia

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Executive Summary

The Centre for Ecosystem Science (CES), UNSW Australia, supports legislative and other instruments of government that effectively regulate threats to biodiversity conservation, founded on a strong evidence base while supporting socio-economic values of society. Current rates of loss of biodiversity around the world, including Australia are unprecedented. The continued loss of biodiversity in Australia indicates a clear need to assess the effectiveness of the legislative and regulatory frameworks that implement biodiversity conservation and management and its interface with other economic activities. CES welcomes the opportunity to provide a submission to Productivity Commission's draft report on Regulation of Australian Agriculture.

Improved efficiency for Australian agriculture depends on sustainability of ecosystems and their dependent biodiversity. Much of this underpins economic productivity in the form of ecosystem services, such as soil stability, pest control, pollination and good water quality. Further, unsustainable land and water practices can incur long term economic and social costs which future generations of Australians will bear. Impacts of unsustainable agricultural land use practices on biodiversity and its conservation are well understood, supported by a strong scientific evidence. The complexity of the issue and the potential impacts of draft recommendations in the Productivity Commission's report underestimate the potential impacts and consequence not only on the environment but also economic and social productivity. Consequently, the Centre for Ecosystem Science, UNSW Australia cannot support the recommendations of the draft report of the regulation of Australian Agriculture in their current form.

This submission provides comments on the three key issues related to management of ecosystems and their related biodiversity, land use regulation, environmental regulations and on farm regulation of water which reflect the scientific expertise of the Centre for Ecosystem Science. Comment is provided for each of the recommendations, findings and information requests. In addition, the submission further identifies contextual issues which are largely ignored by the report in relation to the responsibilities of Australian Governments.

Centre for Ecosystem Science, UNSW Australia

The Centre for Ecosystem Science (http://www.ecosystem.unsw.edu.au) is a research centre with five major programs focused on biodiversity of ecosystems: wetlands and rivers; terrestrial ecosystems; marine ecosystems; remote sensing and GIS and conservation policy and management. It has 81 members (18 research staff, a centre manager, 12 research assistants, 11 postdoctoral fellows, and 39 associate researchers) as well as 32 postgraduate students. It has strong links with governments, providing research relevant to management and policy of ecosystems. It has considerable scientific experience in the management and

understanding of biodiversity, including native vegetation management. It has a strong focus on applying world's best practice to the science and management of ecosystems at landscape scales.

Introduction

Australia's natural resources – native vegetation, soils and water – underpin the sustainability and long-term productivity of its agricultural sector. They also make an invaluable contribution to well-being and quality of life of rural families, as well as a drawcard for visitors who contribute to income streams in regional economies, through industries such as tourism and fishing. Australian governments, supported by a broad base of Australian communities, have developed an efficient regulatory infrastructure designed to protect these natural assets to ensure that they continue to produce these benefits over the long-term for all stakeholders. In short, the regulations ensure against wasteful and destructive short-term exploitation of Australia's natural resources that preclude future benefits for other stakeholders and generates costs (mostly as liabilities for taxpayers) for rehabilitation.

The draft recommendations of the Productivity Commission's draft report, into regulation of Australian Agriculture, fail to recognise the valuable contribution that existing regulations make to the Australian community and economy. Erroneously the Commission's recommendations are predicated on the belief that land use and environmental regulations are an impediment to agriculture. To ensure that Australian agriculture becomes more productive, the draft report needs a more balanced perspective on the trade-off between short-term and long-term benefits of native vegetation, soils and water to rural communities, and the important contribution of regulations in supporting those benefits. In short, the benefits of environmental and land use regulation to protect biodiversity greatly outweigh its costs (see http://www.nespthreatenedspecies.edu.au/publications-tools/).

The three groups of regulations examined by the Commission are critical instruments that enable landscape-wide planning in the public interest. They produce public-good outcomes that cannot be achieved through lone actors in a de-regulated system. Management of natural resources and the environment needs to consider the complex relationships among all levels of biodiversity, integrated with biological and non-biological processes.

Biodiversity is also increasingly recognised as a critical requirement for humans, providing fertile and stable soils, clean air and water and assisting with pollination and pest management of agricultural crops. There are also strong non-use values and benefits, often linked to deep cultural values of society. The loss of species has global consequences because biodiversity promotes ecosystem functions and services that are essential for human well-being and economic productivity (Hooper et al. 2005, Cardinale et al. 2006). There is considerable interaction between agricultural processes of vegetation clearing and water management and impacts on biodiversity, founded on a strong base of science.

The same risks and activities that erode agricultural productivity through overexploitation also threaten Australia's biodiversity. Biodiversity is an asset of the entire Australian community, and Australia is a signatory to international agreements that mandate its protection. Much of the Australia's current regulatory infrastructure is critical in giving effect to implement Australia's international obligations. There is currently large scale global loss of biodiversity (Butchart et al. 2010) resulting from major threatening processes directly or indirectly attributable to human impacts, including habitat loss and degradation, invasive species, pollution, overharvesting, climate change and disease (Kingsford et al. 2009). Of these, the most serious impacts relate to habitat loss and degradation, compounded by climate change. Much of animal biodiversity is highly dependent on native vegetation (Bennett 2016). Between 1972 and 2014, more than 7.2 million ha of primary forest was cleared across Australia, about 7% of the available forest (Evans 2016). In 2015, Eastern Australia, including NSW, was identified as one of only 11 regions of the world undergoing high deforestation and the only one in a developed country (WWF 2015).

Such deforestation includes vegetation clearing or land clearing and destroys habitats contributing to serious declines in woodland birds and reptiles (Garnett et al. 2011, State of the Environment Committee 2011, Bradshaw 2012). For example, it was estimated that about 100 million native birds, reptiles and mammals were killed because of destruction of their habitat in NSW between 1998 and 2005 (Johnson et al. 2007). There was no measurement of considerable impact on invertebrates, which provide many ecosystem services. The loss of such habitat threatens the continent's biodiversity, affecting 60% of Australia's nearly 1700 threatened species (Radford et al. 2005, Department of the Environment, Water, Heritage and the Arts 2009, Natural Resource Management Ministerial Council 2010, State of the Environment Committee 2011, http://www.environment.gov.au/cgi-bin/sprat/public/publicspeciessolrsearch.pl.) These species are listed; many more have yet to be assessed and many more have not been named. The protection of biodiversity which is not yet threatened is equally important, to avoid increasing lists of threatened species (Department of the Environment, Water, Heritage and the Arts 2009; Doherty et al. 2015, Niebuhr et al. 2015, Woinarski et al. 2015).

The removal of habitat through agricultural clearing of native vegetation destroys the dependent plants and animals, increases risks to wildlife from introduced predators, impacts surface and groundwater-dependent ecosystems, and fragments habitat so that individuals are unable to move through the landscape. It reduces the resilience of biodiversity to cope with a climate change (Reside et al. 2012, Travis et al. 2013) and has a long-term legacy of ongoing adverse impacts on biodiversity, including extinction debt (Tilman 1999, Ford et al. 2009, Kuussaari et al. 2009). Much of this global loss is occurring at small spatial scales, not landscape scales. Cumulative loss can be considerable due to the small decisions made. It is critical to implement local actions to sometimes effect global sustainability for some species and ecosystems.

Removal and degradation of native vegetation can also have considerable impacts on agricultural productivity. Maintenance of biodiversity should not be seen as an alternative to maintaining agricultural productivity; indeed agricultural productivity is dependent on maintaining biodiversity. With the clearing of native vegetation, there is increased erosion and reductions in the fertility of Australia's ancient and fragile soils (Ludwig and Tongway 2002, State of the Environment Committee 2011), increasing salinity (Walker et al. 1993, Lambers 2003, Nulsen 2012), increasing drought (McAlpine et al. 2009, Martin and Watson 2016), reductions in animals that pollinate and control agricultural pests (Whelan et al. 2008, Isaacs et al. 2009, Kunz et al. 2011) and reducing condition of livestock (loss of shade and increased wind). Globally, there is a net imbalance between rates of erosion and replenishment of soil, resulting in a net soil loss (Montgomery 2007).Native vegetation also forms a major carbon sink, reducing Australia's emissions, with clearing of vegetation compromising the nation's delivery of commitments under four major international treaties: the Convention on Biological Diversity, the World Heritage Convention, the Convention to Combat Desertification, and the Framework Convention on Climate Change. For example, greenhouse emissions in the base year of the Kyoto Protocol (1990) were about 25% of the country's emissions (Macintosh 2012). Continued and increasing removal of forests, woodlands and grasslands increases the cost of restoring landscapes and reduces the chance of success. For example, the Australian Government has committed to plant 20 million trees by 2020 (http://www.nrm.gov.au/national/20-million-trees).

This submission provides comments on the three key issues related to agricultural regulation, identified by the draft report on regulation of Australian agriculture by the Productivity Commission. The key issues, their findings and draft recommendations related to: land use regulation, environmental regulations and on farm regulation of water. Further, the submission points out some current government responsibilities which do not seem to have been adequately covered by the draft report in terms of impacts of recommendations on environmental status and risk. The submission reproduces the draft recommendations, findings and information requests directly (italicised) for land use regulation, environmental regulation and on-farm regulation of water.

1. Land use regulation

Much of the world's biodiversity and ecosystem processes are supported by areas which are not explicitly set aside for conservation. This is why land use regulation is so critical to long term environmental sustainability. Many freehold and leasehold areas also provide ecosystem services that support human communities, economies and urban and agricultural communities. Much of this dependency was not adequately recognised in the draft report, its findings or recommendations.

Draft recommendation 2.1

"Land management objectives should be implemented directly through land use regulation, rather than through pastoral lease conditions. State and territory governments should pursue reforms that enable the removal of restrictions on land use from pastoral leases."

Draft Finding 2.1

"Pastoral leases offer less security of tenure than freehold land, creating uncertainty for leaseholders and investors. In general, converting pastoral leases to freehold facilitates efficient land use."

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There was insufficient quantitative evidence provided by the draft report to support this draft finding. It was not clear what type of question was asked of leaseholders in terms of their security. More problematically, this type of question may relate to how leaseholders perceive their rights to change land use radically and, given they do not have ownership, how this may encumber them. This may be positive in ensuring there is a 'brake' on unsustainable land uses over large areas of leasehold land in Australia. There is also no reference to potential rights of Traditional Owners and governments in terms of access to such land for regulation or collection of data.

Altering from leasehold to freehold may also remove the opportunity of governments to enter into stewardship arrangements that provide incentives to leaseholders to engage in sustainable land use practices. There have been some leases which have been surrendered for overgrazing, causing erosion and considerable damage to fragile landscapes. Changing from leasehold to freehold reduces options for governments to ensure return to sustainability. Leasehold and freehold systems exist around the world in urban centres and rural settings. There is no evidence that one is more sustainable or intrinsically better than another.

Greater security of tenure is an oft-reported myth that is not supported by a rigorous analysis of the literature. Converting crown (public) land to private ownership advantages one section of the community over another and is inequitable even for rural producers because adjoining landholders are likely to have a greater capacity to take up crown land adjoining their own leases.

Public access will be reduced (e.g. camping, recreation, beekeeping). Currently under the Crown Lands Act anyone is permitted access to crown land as long as they remain on the road reserve. With a change in ownership, access will be denied to a large number of people (travellers, campers). It will also restrict access by travelling stock during dry times if lands are no longer owned by the crown.

Draft recommendation 2.2

"State and territory governments should:

• ensure that, where reforms to Crown lands confer additional property rights on a landholder, the landholder pays for the higher value of the land and any costs associated with the change (including administrative costs and loss of value to other parties)

• set rent payments for existing agricultural leases to reflect the market value of those leases, with appropriate transitional arrangements."

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It is difficult to understand how this recommendation would work in practice. Conferring additional property rights on a landholder may be attractive to a landowner but options for paying government for the additional value will be difficult to implement. It would be considerably difficult to identify potential costs particularly to the environment and ecosystem services as well as other parties. It would likely consume considerable resources of governments and landholders attempting to identify what these costs would be which will alter geographically and with the nature of the holding and likely resources affected (e.g. rivers, land).

A key area of concern is the implication for Travelling Stock Routes (TSRs). Most crown land is in better condition than freehold land, given the lower levels of over grazing. TSRs have become a critical biodiversity resource as they are often the only remaining areas of native vegetation in highly fragmented landscapes. Conferring additional property rights over these Crown land areas will severely impact on an already severe rate of loss of biodiversity, particularly in highly fragmented environments that have been substantially cleared. There will be inevitable negative consequences for nearby farmers as well, given the range of biodiversity services offered by different animals and plants. For example, birds use these areas and then feed on pests of agricultural crops. Further, crown lands, particularly TSRs, provide a benchmark against which degradation in adjoining freehold land can be assessed. This has a real value in the community because it allows the community to see how their management is tracking in relation to other sites and regions.

The value of many crown lands for the provision of ecosystem services is likely to be far greater than their market value for pastoralism. Profits from grazing on existing crown land (e.g. NSW Western Lands lease) have been steadily declining for years. Any rents should reflect current condition of reserves and there should be caveats that require lessees to retain these areas of crown land in the same or better condition when they were handed over. Rent payments for leases should reflect the market value but these should also recognise the investments of leaseholders in sustainability measures (e.g. retention of native vegetation). This could be an excellent mechanism for providing sustainability incentives to landholders for their practices, saving governments investment in the

environment (e.g. threatened species) as well as providing public ecosystem services (clean water).

Information request 2.1

What are the advantages and disadvantages of 'right to farm' legislation? Are there any other measures that could improve the resolution of conflicts between agricultural and residential land uses?"

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'Right to farm' is assumed to be the social licence provided by governments to practice the production of food and fibre for communities in Australia and globally and contribute to the economy. These rights will necessarily be constrained not simply by markets but also public good issues (e.g. sustainability of the environment) and also affected by examples of market failure where environmental problems (externalities) and associated costs need to be met by taxpayers and their governments.

There is a need for residential communities to understand the importance of farming in providing food and fibre and to plan for the urban footprint. If urban expansion increases and affects agricultural land, then production of food and fibre needs to be offset, potentially within cities. There is increasing focus internationally on the ability of cities to also grow food and fibre. In expanding Sydney, there are clear conflicts between the expansion of housing and loss of both conservation (e.g. Cumberland Plain Woodland) and agriculture. Loss of agricultural production in greater Sydney leads to pressure to expand agriculture elsewhere, probably in areas of lower resource quality requiring more development and contributing to greenhouse emissions with increased 'food miles". Similarly, in coastal northern NSW, loss of agricultural land to development involves some of the most fertile soils in the country.

Draft finding 2.2

Regulation and policies aimed at preserving agricultural land per se can prevent land from being put to its highest value use.

A right of veto by agricultural landholders over resource development would arbitrarily transfer property rights from the community as a whole to individual landholders.

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Measurement of highest value is particularly important. Current cost benefit economic analyses predominantly focus only on relatively short term time frames (e.g. life of a mine) and do not adequately measure the long-term costs, including opportunity and social costs of development. This applies both to discussions about differences between rural and resource development but also to environmental impacts of both resource developments and also farming. Increasingly, environmental costs are mounting and costing considerable

amounts to tax payers (e.g. Murray-Darling Basin Plan). Ideally, economic and value based arguments need to be within a long time frame and so there is understanding of the impacts over decades and centuries of changes to land use, not simply short term.

The right to veto transfer to farmers would shift this right from the community (represented by politicians) to farmers and would necessarily establish a precedent which would be particularly dangerous for long term sustainability. It is critical that governments take a broad view and establish policies in this area which can reflect the public interest and incorporate public good and not just a simplistic measurement of value.

2. Environmental regulations

There is increasing recognition that loss of biodiversity is occurring across all of the world's ecosystems and a predominant focus on conservation of species is not sufficiently effective in protecting the world's most important areas of biodiversity (Butchart et al. 2010). This has meant more attention by legislators and regulators on larger habitats or ecosystems. Vegetation clearing is widely acknowledged as the most severe and immediate threat to biodiversity, nationally and globally (Bradshaw 2012, Hansen et al. 2013). For example, in the two decades since enactment of threatened species and vegetation management legislation, the NSW government has reported clearing of one million hectares of native woody vegetation, representing more than 5% of the remaining forests and woodlands (OEH 2014). The clearing of non-woody vegetation is not reported by government, but likely to be substantially greater than losses of woody vegetation (defined as >20% projective foliage cover), because most of the undeveloped land perceived to be suitable for cropping or intensive grazing is vegetated by native open woodlands, grasslands and shrublands that naturally have less than 20% woody cover.

The high ongoing rates of loss are not so much a failing of existing legislation, but rather ineffective implementation and regulation of provisions and inadequate resourcing of compliance, the regulation of threats. Rather than improving efforts to arrest ongoing rates of vegetation clearing, the draft report into regulation of Australian Agriculture recommends removal of regulations which protect ecosystems for the long term and their poorly measured and appreciated ecosystem services.

Draft recommendation 3.1

"The Australian, state and territory governments, in consultation with natural resource management organisations, should ensure that native vegetation and biodiversity conservation regulations:

• are risk based (so that landholders' obligations are proportionate to the impacts of their proposed actions)

• rely on assessments at the landscape scale, not just at the individual property scale

• *consistently consider and balance economic, social and environmental factors."*

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A risk based approach is recommended but there should be landscape scale implementation. There are well established protocols and methods for assessing risk of extinction (Keith et al. 2013, Bland et al. 2016). This is further complicated because clearing of vegetation at a very small local scale can have global, national, state and bioregional consequences for biodiversity and ecological integrity (Fischer et al. 2010), causing range contractions and fragmentation of populations. For example, numerous native plants found only in NSW (many currently listed as threatened but many not) are only found in a few sites. Many of these sites are on leasehold or freehold private land, contributing to the complexity of this issue. Loss of any one of these sites can dramatically increase extinction risk for the species, with consequent bioregional losses of biodiversity and likely reductions in ecosystem services (e.g. by reducing food for pollinators of food crops). Small clumps of native vegetation can also be important for soil nutrients (Eldridge and Wong 2005) as well as conservation of biodiversity (Gibbons and Boak 2002, Gibbons et al. 2008, Manning et al. 2006, 2013).

There needs to be a combination of local and landscape scale assessment, not simply one scale and this will vary dependent on the potential impact. The definition of landscape scale is also important. Large properties in Australia may contain more than one ecological landscape, with quite different issues related to land management, requiring a different process of assessment and approval for development. The landscape scale needs to be ecologically defined. Assessment of risk for environmental regulations should use global best practice, which requires understanding of the distribution and abundance of different vegetation and other biotic communities affected by agricultural developments. It is particularly important to identify ecological communities at high level of risk of extinction which can be affected if regulatory powers are devolved to the farm scale.

Sustainability definitions are plagued by the sometimes competing consideration of economic, social and environmental factors. Even the listing order of these factors in this recommendation can imply that there is a priority and when the inevitable competition over economic and social or economic and environment or social and environment comes into play, then the order is taken as explicitly providing direction. As mentioned in this submission, the world is experiencing unprecedented biodiversity loss with the environment losing many of its ecosystem services affecting economic and social factors increasingly. There is clearly a need to consider all factors but traditionally and operationally, economic and social factors continue to command priority over environmental factors. Further the time frame for decisions on such priorities are generally short term. So market failure due to environmental externalities are seldom factored into these equations (e.g. mining disasters, impacts of water resource developments).

Draft recommendation 3.2

"The Australian, state and territory governments should continue to develop market-based approaches to native vegetation and biodiversity conservation. Where the community is seeking particular environmental outcomes, governments could achieve them by buying environmental services (such as native vegetation retention and management) from existing landholders."

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There is little evidence that market based approaches to native vegetation and biodiversity conservation have worked. Market based mechanisms should also use world's best practice, recognising the complexity of environmental interactions and the long term losses of biodiversity and ecosystem services. A key starting point are the fundamental best-practice principles of offsets which include (Maron et al. 2012, Maron et al. 2015a, Maron et al. 2015b, Maron et al. 2015c, Maron et al. 2016):

a. the mitigation hierarchy, in which impacts are first avoided or minimised to the fullest extent possible, and offsets are implemented to compensate for residual impacts only after avoidance and minimisation has been demonstrated;
b. substitution of 'like for like', whereby offsets must be for the same type, composition and structure of vegetation lost;
c. offset actions and their outcomes must be additional to those that would have occurred if the development had not taken place;
d. offsets must be maintained in perpetuity, ensuring that offset gains are secure for the future; and
e. no net loss, ensuring the gains from offsets must at least balance the losses of biodiversity caused by the development

In principle, offsets may benefit biodiversity conservation as long as losses are compensated for by equivalent or greater gains, and take into account the five principles listed above, as well as the risks of offset failure (due to limited restoration technologies) and multi-decadal lags typically experienced in realisation of ecological function, structure and composition in restored ecosystems. For species, offsets are not constrained by locality, and thus may be located hundreds of kilometres from the location of losses. These set an extremely low standard for likeness, and provide for substantial losses of local and regional biodiversity, and hence losses at bioregional and state scales.

Draft recommendation 3.3

"The Australian, state and territory governments should review the way they engage with landholders about environmental regulations, and make necessary changes so that landholders are supported to understand the environmental regulations that affect them, and the actions required under those regulations. This would be facilitated by:

• recognising and recruiting the efforts and expertise of landholders and community-based natural resource management organisations

• building the capability of, and landholders' trust in, environmental regulators."

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This remains one of the most important and critical issues but it needs to be in the context of understanding the background and potential impacts of policies that change long term sustainability and social and economic costs to society. This recommendation is to be supported in this context and it shows why processes, such as Landcare have been so successful and should continue to be supported. It also provides an opportunity for incentive funding to be provided for the management and setting aside of areas for biodiversity conservation for particular landholders who are contributing significantly to the public good, especially if biodiversity benefits are secured in perpetuity.

4. On-farm regulation of water

There are large areas of river catchments which are affected by land use changes particularly agriculture. Flows of rivers, water quality and sedimentation nutrient processes are complex with considerable interactions at large and small spatial scales and often long temporal scales. Large areas of the Australia are composed of floodplain areas where the management of flows is critical (Bino et al. 2016). For example, most of the wetland areas in the Murray-Darling Basin are floodplains (Kingsford et al. 2004) that are on leasehold olr freehold land, not conservation areas (Nairn and Kingsford 2012) and where on farm regulation of water can have considerable impacts.

The draft report into regulation of Australian Agriculture illustrates the problem by using an example from northern New South Wales of the problems of managing water to the environment. Interrupting or changing flow patterns of rivers and their floodplains not only causes long term ecological impacts but also socio-economic impacts. For the example used in the draft Productivity Commission Report, critical information was missing to allow for an objective assessment of the issue and the policy constraints placed on delivery of environmental water by Governments. These include:

- the catchment context of the water provided to the wetland in relation to water rights. Was this water that was diverted from downstream environments and users? Or were these water rights owned by the landholder? If the former, then there is a downstream cost. Even if the water was naturally flowing across the landholder's floodplains, there may be a cost to the environments on the holding. Only allocated water is free of these constraints.
- Many Australian organisms are adapted to periods of drying and flooding. There is often a perception, not supported by scientific evidence, that ecosystems need to be flooded all of the time. Without knowing what stage the organisms were in for this

particular wetland, it is not possible to be definitive about whether the provision of the water was a positive or a negative benefit to the frogs and waterbirds.

This brief analysis demonstrates the complexity of the management of water. This cannot be easily avoided by reducing regulations. There is little doubt that there are considerable challenges to managing water but the regulations are often attempting to incorporate ecological complexity.

Draft Finding 4.1
"Complexity and ongoing changes in water regulation contribute to the cumulative burden of regulation on farm businesses. However, the diversity of Australia's river catchments makes streamlining and harmonising regulation difficult. More flexible governance arrangements may be needed to develop locally appropriate regulatory settings for accessing water.

Draft Finding 4.1
"The Australian Government should implement the findings of the Interagency Working Group on Commonwealth Water Information Provision to reduce duplicative and unnecessary water management information requirements imposed on farm businesses."

Centre for Ecosystem Science Response

There are necessary regulations and policy frameworks that focus on water management, understanding not only the spatial but also the temporal complexity of river and groundwater flow regimes. It is critical that the Interagency Working Group not only has the expertise to apply these complex structures to policies but also recognise the challenges of large spatial (catchment) scales and the importance of all parts of a flow or flooding regime. Regulation is critical for water management, both on farm to protect floodplain ecosystems and ecosystem services and also downstream in a catchment context. Flexibility in government regulations needs to reflect this complexity while also allowing for the use of water for positive environmental purposes. Government responsibilities not adequately covered

5. Government responsibilities

The draft report by the Productivity Commission on regulation of Australian Agriculture did not adequately consider the range of responsibilities which are directly relevant to recommendations and could be affected if some of the regulations were adopted, particularly for environments. These include aspects of Ecological Sustainable Development and Australia's commitment to the Sustainable Development Goals.

Ecologically sustainable development

Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

(a) The precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

(b) Inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

(c) Conservation of biological diversity and ecological integrity.

(d) Improved valuation and pricing of environmental resources."

Ecological sustainable development remains one of the most important principles of modern management of natural resources in Australia, relevant to international best practice. There is insufficient reference to this widely adopted and practiced commitment to ecologically sustainable development in the draft report.

United Nations Sustainable Development Goals
On the 17th September 2015, 193 United Nations Countries, including Australia, signed up to the 17 Sustainable Development Goals http://www.un.org/sustainabledevelopment/sustainable-development-goals/). Two goals are particularly relevant to draft report by the Productivity Commission into regulation of Australian Agriculture.

Goal 13 commits nations to "take urgent action to combat climate change and its impacts".

Goal 15 commits nations to "sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss". It has 12 relevant targets to the draft report.

Relevant targets of Sustainable Development Goal 15

- "By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements";
- "By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally;"
- By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

- By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
- Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
- By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species
- By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
- Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems
- Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation
- Deforestation and desertification – caused by human activities and climate change – pose major challenges to sustainable development and have affected the lives and livelihoods of millions of people in the fight against poverty. Efforts are being made to manage forests and combat desertification. Micro-organisms and invertebrates are key to ecosystem services, but their contributions are still poorly known and rarely acknowledged."

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