National Farmers' Federation submission to the Senate Inquiry into 'The Adequacy of the regulatory framework governing water use by the extractive industry'

16 January 2018

NFF Member Organisations

The National Farmers' Federation (NFF) is the voice of Australian farmers.

The NFF was established in 1979 as the national peak body representing farmers and more broadly, agriculture across Australia. The NFF's membership comprises all of Australia's major agricultural commodities across the breadth and the length of the supply chain.

Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. These organisations form the NFF.

The NFF represents Australian agriculture on national and foreign policy issues including workplace relations, trade and natural resource management. Our members complement this work through the delivery of direct 'grass roots' member services as well as state-based policy and commodity-specific interests.

Statistics on Australian Agriculture

Australian agriculture makes an important contribution to Australia's social, economic and environmental fabric.

Social >

There are approximately 85,681 farm businesses in Australia, 99 per cent of which are wholly Australian owned and operated.

Each Australian farmer produces enough food to feed 600 people, 150 at home and 450 overseas. Australian farms produce around 93 per cent of the total volume of food consumed in Australia.

Economic >

The agricultural sector, at farm-gate, contributes 2 per cent to Australia's total Gross Domestic Product (GDP). The gross value of Australian farm production in 2016-17 is forecast at 58.5 billion – a 12 per cent increase from the previous financial year.

Together with vital value-adding processes for food and fibre after it leaves the farm, along with the value of farm input activities, agriculture's contribution to GDP averages out at around 12 per cent (over $155 billion).

Workplace >

The agriculture, forestry and fishing sector employs approximately 304,200 employees, including full time (217,000) and part time employees (87,200).

Seasonal conditions affect the sector's capacity to employ. Permanent employment is the main form of employment in the sector, but more than 28 per cent of the employed workforce is casual.

Environmental >

Australian farmers are environmental stewards, owning, managing and caring for 48 per cent of Australia's land mass. Farmers are at the frontline of delivering environmental outcomes on behalf of the Australian community, with 6.8 million hectares of agricultural land set aside by Australian farmers purely for conservation/protection purposes.

The NFF was a founding partner of the Landcare movement, which recently celebrated its 20th anniversary.

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Introduction

The NFF is the peak national body representing farmers and, more broadly, agriculture across Australia. It is one of Australia's foremost and respected lobbying and advocacy organisations. The NFF's membership comprises of all Australia's major agricultural commodities. Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. These organisations collectively form the NFF.

The NFF is concerned for the long term sustainability of today and tomorrow's farmers and have a primary aim to protect the water and soil resources on which farmers rely so we can continue to supply safe, clean and quality produce to meet increasing consumer demand. To achieve this, Australian agriculture requires the support of balanced, scientifically based policy that does not jeopardise or compromise the reputation of the industry.

Many farmers and communities are concerned about the impacts that mining and onshore gas developments will have on their communities, land and water resources, especially in those areas where the industries are, and will in the future, coexist.

To ensure that these concerns are addressed, a sound information and scientific knowledge base is required to inform the regulatory framework of exploration, development, operation and decommission. This is especially important where changes to land use or co-use have the potential to impact land and water resources.

The social, economic and environmental impacts of extractive projects' take and use of water

In relation to the potential impacts of extractive projects' take and use of water, the NFF is firmly of the belief that:

Social, economic and environmental outcomes must not be compromised.

The nature of mineral and petroleum industries means that they may have both positive and negative economic, environment and social effects. The mineral and petroleum industries must take all responsible steps to avoid or minimise the adverse effects on communities, landholders and the environment.

The profitability and sustainability of food and fibre production must not be compromised.

Australia's mineral and petroleum industries must recognise and avoid any perverse and unintended impacts across the landscape, including direct and indirect as well as current and future impacts arising from exploration, mining and production activities, beyond the confines of the licence area and the life of the licence. This requires robust processes to in place to quickly identify

any unforeseen impacts and to cease or modify activities to avoid irreversible damage and ensure no legacy impacts remaining post-project life.

Australia's reputation for safe, clean quality food and fibre must not be compromised.

Australian agriculture plays a crucial role in supplying fresh quality food to Australia and the world and to global food security. The safety of Australia's food must not be jeopardised by the mineral and petroleum industries.

There should be no net decline in water quality or quantity, nor change in the reliability and timing of access for other water users

NFF recommends that mineral and petroleum industries are required to show no net decline in water quality and no net loss in water quantity for third parties (stock & domestic, irrigation, town water supplies) against benchmark conditions. Conditions of approval must include provisions to ensure that access to and use of the water resource is not compromised, not only for those in the immediate extractive area but those across the entire water resource area.

Water management must be National Water Initiative consistent.

As the blueprint for Australia's water reform, all water use or interception by the mineral and petroleum industries must be consistent with the National Water Initiative provisions, including NWI consistent water planning and management. Inconsistency continues to exist across the jurisdictions regarding the application of the regulatory framework to food and fibre producers who wish to extract water and some mining and gas activities.

In providing for ecological and resource security outcomes, and protecting the water rights of all users, NWI consistent water planning must address the risks of aquifer depressurisation, water interception, falling water tables and contamination that may arise from mining and onshore gas activities.

Scientific information and monitoring should underpin exploration and development.

Investment in robust scientific information and pre and post impact monitoring are critical to the protection of the natural resources on which farmers' rely. Governments have a clear responsibility to invest in information, monitoring and transparent and robust compliance activities to help inform the regulation and management of the mining and petroleum sector, including the issuing of development approval and the assessment of cumulative impacts. The costs of ongoing monitoring should be the responsibility of the developer and should form part of the condition set of development approval, reported in a manner that best allows the regulator to transparently demonstrate or enforce compliance.

Existing safeguards in place to prevent the damage, contamination or draining of Australia's aquifers and water systems

The 2013 Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) research priorities have gone some way to improving the scientific understanding of the impacts of coal seam gas developments and large coal mining developments on water resources, however its scope does not extend to shale or tight gas developments. While a number of independent and publicly funded reviews and inquiries have investigated many of those areas identified by the IESC, in our view, there remains a large number of crucial knowledge gaps. The 2016 revision of the IESC research priorities represented the opportunity to give clear research direction to aid in addressing those knowledge gaps that still exist and proactively direct future research needs.

The role of the IESC has been crucial in highlighting deficiencies in project applicants' the information and modelling associated with project proposals. The NFF continues to have specific concern regarding our understanding of underground water resources and the use and impacts of the chemicals associated with extractive projects. We take this opportunity to highlight the following points:

Hydrology

The NFF is firmly of the view that there is a need to continue to improve the understanding of underground water resources and how coal seam gas and large mining developments will impact on them – both in the context of an individual project and the cumulative impacts of developments.

The knowledge gaps in current water science relate to some of the most significant potential risks associated with unconventional gas activity, with reports prepared for the NSW and Victorian Governments both identifying areas pinpointing areas of immediate concern.

The Final Report of the 'Inquiry into onshore unconventional gas in Victoria' (2015) noted that of the water science reports provided to the Inquiry, there were a number of limitations in the scope of the reports with some data gaps and/or degrees of uncertainty identified. Those knowledge gaps associated with the hydrology include hazards associated with bore integrity, permeability of seal rocks, compaction and consolidation parameters and draw down estimates. The Final Report advises that these gaps would need to be addressed to inform the effective regulation of an unconventional gas industry.

The NSW Chief Scientist & Engineer's Report (2014) also identifies these knowledge gaps and in addition directs that a more detailed understanding of the structure and composition of sedimentary basins is needed for better subsurface and surface environmental management. This requires significantly more data from a wider range of sources to be collected and a move away from the tendency to consider the impacts of coal seam gas and large mining activities at site specific level

only. The Final Report advocates that a better understanding of the industry impacts at scale and over time is needed in order to support the development of adequate policy and regulation.

A more thorough and accurate modelling of surface (including overland or floodplain flow), and ground water resources is crucial to ensuring that IESC guided research priorities and investment produce outputs that are of national significance and relevance. An example of this is the view from some scientists that there are significant inadequacies of the current groundwater modelling in the Southern Liverpool Plains. Most recently, a paper by Acworth et all (2015)[1] demonstrated the complexity of water movement within the groundwater resource and recommended that a re-evaluation of the current conceptual, overly simplistic model widely used as the basis for groundwater and surface recharge modelling, is required.

More work needs to be done to understand how to cost effectively stop/reduce evaporative water losses from coal mine voids after the end of project life. This would prevent an ongoing drawdown of underground water and allow recovery in the vicinity of mines. Further the appropriateness of the use evaporative dams by extractive industries to manage water should be further investigated. There is evidence, such as in Queensland, where a government policy bans the use of evaporation dams by the CSG industry but does not apply this principle to open cut mine voids or end of life voids.

There remains a key question for farmers around the management of so-called 'gassy bores'. Given that impacts of gas in a farmer's water bore are now being considered in make good arrangements in Queensland, a key question that remains is how to establish a meaningful baseline prior to CSG activity, as gas levels can exist and vary naturally. This baseline measure will then support the delivery of satisfactory 'make good' arrangements. The cost of the technical work required to establish these baseline measures should be borne by resource project proponents, rather than landholders.

Chemicals

Ongoing research is required to ensure understanding of the fate, transformation and degradation of fracturing fluids and the effects these fluids will have on the hydrogeological environment, remains up to date and relevant.

The management of waste, flowback and produced water that results from the activities of large scale mining and coal seam gas developments remains an issue for the industry. The Gloucester Coal Seam Produced Water Evaluation Study (2014) was an independent assessment of produced water disposal and reuse options from Stage 1 of the Gloucester Gas Project. The study highlighted that there was a need for further, more detailed studies to refine the parameters of quality produced

[1] R. I. Acworth, W. A. Timms, B. F. J. Kelly, D. E. Mcgeeney, T. J. Ralph, Z. T. Larkin & G. C. Rau (2015) Late Cenozoic paleovalley fill sequence from the Southern Liverpool Plains, New South Wales—implications for groundwater resource evaluation, Australian Journal of Earth Sciences, 62:6, 657-680

water and the water treatment required to make produced water viable for use. The ability to use produced water as a source of aquifer recharge, is considered but the study notes that more detailed study is again required. If this process is to be pursued, then the technical issues associated with recharging need to be adequately explored, including methods to match aquifer water quality and how to effectively and safely dispose of the waste associated with water treatment required for recharging.

Similarly, the disposal of legacy contaminated water held in open cut mines into watercourses and potential downstream impacts needs further detailed study. Current management techniques, such as in Queensland where temporary emissions licenses can be held to allow discharge of contaminated water with natural flow, rely on the effects of dilution to manage any contaminants. This is concerning to downstream landholders, with potential for contamination able to occur far from the source. More thorough and robust frameworks are required in order to improve confidence in the ability of extractive industries to manage these legacies.

Further Research Priorities

The NFF suggests that there remains a number of areas not currently covered through the IESC research priorities. This includes the prioritisation of research into the accumulation of chemicals within the food chain, the potential of these chemicals to affect the operation of co-located farm businesses, and include an evaluation of the risks of environmental damage from large mining and CSG developments, include the capacity and cost of mitigating and/or remediating potential damage or production legacies.

Food Chain Accumulation

The NFF recommended that the IESC develop research priorities that investigate the cumulative effect of chemical residues within food production systems.

While the immediate risks of CSG chemicals on human health and environmental resources was considered as part of the NICNAS assessment, the potential for bioaccumulation of chemical residue in food production from developments should be considered a research priority. The Dairy Australia review (2014) recommends the dairy industry investigate requirements for increased frequency and analysis of milk, water and feed testing and consider any upgrading of food safety programs on farm and in processing facilities.

Further research to understand the risks to food safety and bio-accumulation across the farming systems that co-exist or are likely to coexist with resources developments is critical to ensure that Australia's world respected food safety regulatory framework is not compromised.

Environmental Risk Coverage

The NFF recommends that the IESC develop research draft priorities to inform the design of approval condition sets to give the community confidence on early warning triggers to avoid irreversible damage to both environmental and agricultural systems. Further research is also required on approaches to mitigation and rehabilitation to address any such impacts. The focus of future research should be directed into developing early warning triggers and more rigorous

monitoring systems that proactively manage potential risks and can be deployed and monitored by companies and regulators.

The NSW Chief Scientist & Engineer's Report (2014) states that more knowledge is needed to better understand the nature or risk of pollution or other short- or long-term environmental damage from CSG and related operations, and the capacity and cost of mitigation and/or rehabilitation required to resolve such issues. The Report advises that it must be established whether there are adequate regulatory processes and financial mechanisms in place to deal with these issues as they occur. This can be investigated through an evaluation of any insurance and risk coverage or safety deposits required and the possibility of establishing an environmental fund. These need to be fully reflective of the risks of the resource development and if the financial assurance is not feasible then the project should not proceed.

The Dairy Australia Report also raised concerns about the processes required from emergencies arising from CSG development, especially where exclusion or safe zones and withholding periods were required in respect to chemical or heavy metal pollution. The report indicated that the current standard of cumulative, catchment and landscape scale monitoring was not sufficiently rigorous.

Mechanisms and strategies for better research collaboration

Jurisdictions should continue to ensure that the significant investment made through the Bioregional Assessments programme has an enduring legacy. This provides a timely opportunity to consider how in the future the coordination of future research priorities, and the integration of new knowledge arising from this research can be integrated into the models and data sets that inform the regulatory framework and the decisions of regulators.

We note specifically the need for models to examine the importance of pressure for agriculture and groundwater dependent ecosystems in the Great Artesian Basin. A key risk of resources developments in the GAB, both to agriculture and to ecosystems is declining artesian pressure, both at a local and sub-basin scale. Landholders have made significant investment in capping and piping program across the GAB to ensure its long term sustainability. There is a need for ongoing government investment in this program, particularly where resource sector developments are proposed for areas where artesian pressures may just be stabilising or are in decline.

Gaps and differences in the regulatory framework which may lead to adverse social, economic or environmental outcomes, as a result of the take and use of water by extractive projects

As noted above the NFF believes that all water use or interception by the mineral and petroleum industries must be consistent with the National Water Initiative provisions, including NWI consistent water planning and management.

Property rights

For irrigated agriculture, the establishment of secure property rights, particularly in the Murray-Darling Basin (MDB), has been a cornerstone that has underpinned much of the progress achieved as a result of the National Water Initiative. Well designed, secure rights form the basis of:

- Water markets, and the trade of allocations and entitlements
- Prudent investment in infrastructure, that reflects the value of water
- Equitable recovery of water from the consumptive pool to environmental water holders.

A secure property rights regime is particularly important in circumstances, such as the MDB, where the "balance" between extraction and the environment is contested, or where the resource is approaching full allocation and the behaviours of some users impinge on the rights of others to also use the resource.

However, secure water property rights backed by a statutory water entitlement framework are not yet a universal for all water users.

As noted in the Productivity Commission's issues paper, jurisdictions including the Northern Territory and Western Australia have not yet implemented comprehensive, perpetual entitlement frameworks. Even in those jurisdictions where a comprehensive entitlement framework has been established there continue to be some differences in how mining and extractive companies are treated as compared to other water users.

In many areas of those jurisdictions without comprehensive, perpetual entitlement frameworks, water resources are still considered under-developed, and users' have a perception that the risk to their historical access is low. This then means that there is low demand for Governments to invoke change to the status quo. Low demand for change should not however mean that Governments don't commit to implementing robust water entitlement frameworks that are unbundled from land. This will enable markets (even where these markets might be thin) to emerge as demand grows. As this regulation comes at a cost to water users it is imperative that change is made in a risk based, target and efficient manner, with sound business cases developed where infrastructure is required to implement change.

There are some water resources, where there is demand for action, and where the response of governments in some jurisdictions continues to lag behind water user expectations. The management of mining and gas to avoid or manage the impacts of developments in the Great Artesian Basin in Queensland is an example of this.

Section 34 of the NWI states that 'The Parties agree that there may be special circumstances facing the minerals and petroleum sectors that will need to be addressed by policies and measures beyond the scope of this Agreement.' The 2014 NWC review noted that 'underground water rights' provided for tenure holders under the Petroleum and Gas (Production and Safety) Act 2004 (Qld) are not volumetrically controlled and remain outside Queensland's water planning and entitlement processes.

Under recent state reforms, non-associated water takes for the petroleum and gas sector in Queensland are required to be measured and licensed, however further integration of associated water takes into the planning framework are needed. This is challenging as associated water use (including end of mine life evaporative losses) is subject to a statutory right to take those volumes necessary to safely access the resource. Further, 'low risk' activities that can be undertaken without authorisation have been extended under the reforms to include some resource sector activities and has some potential to set up local area conflicts with existing users where land and project tenures overlap.

Similarly, the potential for extractive industries to impact water planning decisions and the water users who operate under these determinations, needs to be understood. Water users who have business models based on established water sharing processes that predate the commencement of extractive industry projects are exposed to any changes to the water resource that may result from project activity. As consequence the value of their assets may be compromised as a result.

For community 'social license' and other water user confidence in entitlements, clearer trigger points for a cessation of resource sector activity is required where unacceptable impacts on other water users are occurring. This is most transparently achieved when these uses are fully integrated into the water planning process. Evidence needs to be provided by the administering state that the alternative policies and measures under s34 of the NWI are delivering better water management outcomes than including such uses directly in the water planning framework.

NFF's view is that all jurisdictions should ensure that a robust framework that recognises basic needs and protects the access rights of stock and domestic water and urban water supplies, followed by a clear hierarchy of water access entitlements that includes use of water for irrigation, intensive agriculture (Feedlots), tourism and the extraction of the resources industry within the water resource planning framework, including extraction limits.

Recent efforts have been made by the Queensland Government to streamline the regulatory framework and reduce compliance and management costs, including of simple license dealings that do not involve an increase in take or third party impacts. Resourcing of compliance efforts by the state government could be increased and prioritised towards identified areas of high development.

Water planning

Continued investment in science is essential to inform current and future water policy and planning decisions. Examples– both past and present – include the investments made in the CSIRO Sustainable Yields analysis, and the investment made through the National Environmental Science Programme Earth Systems and Climate Change Hub[2] that is examining Australia's water futures. This work is aimed at improving our ability to simulate changes in hydroclimates and water resources to help inform water resources planning in the future.

In the groundwater context, the work of the Bioregional Assessment Programme and the Independent Expert Scientific Committee for Coal Mining and Coal Seam Gas has also provided a useful contribution by examining the adequacy of state jurisdiction assessment, approvals and conditioning processes and providing a trustworthy source of information for the community about resources sector developments.

The effectiveness of the 'water trigger' under the Environment Protection and Biodiversity Conservation Act 1999, and the value in expanding the 'trigger' to include other projects, such as shale and tight gas

In the NFF's view, suitable and comprehensive state and territory based regulations for large scale coal mining and coal seam gas developments that protect agricultural production from the impact of coal mining and coal seam gas are preferred. However, such arrangements are not in place. For example, the Shenhua mine approval decision demonstrates clearly how the current NSW Government's Strategic Regional Land Use Policy, introduced in 2013 to restore balance between agriculture and the extractive industries, has in the NFF's view, failed to provide adequate protection for agricultural production on the Liverpool Plains. In the NFF's view, this mine should never have been approved based on its proximity to prime agricultural land. Australia's agricultural land is a finite and valuable natural resource that deserves a more precautionary planning approach.

In the NFF's view, it is too early to tell whether the water trigger legislation has been effective in protecting the water resources on which agriculture relies from the impacts of coal mining and coal seam gas developments. The water trigger provisions have resulted in specific water-related conditions on developments – for example the conditions set place on the Shenhua and Carmichael Coal mines. However, these conditions are not yet operational - so it too early to establish whether the safeguards provided by the provisions are sufficient, and whether they will be effective.

[2] http://nespclimate.com.au/australias-water-futures/

There are possibilities for greater transparency around the operation of the water trigger provisions of the EPBC Act. The EPBC Act only requires the Commonwealth Minister to seek and receive the IESC's advice. There is no requirement for the Commonwealth minister to "take this into account" or to demonstrate how it has been taken into account. While the current Minister has been quite transparent in providing information about how the IESCs advice has been taken into account for some approvals, this is not a requirement, and amendment to the Act would ensure that current practice is sustained over time.

NFF recognises the delicate balance between the provision of independent scientific advice and the role of a regulator. There is an opportunity to ensure independent scientific review of the operation of relevant conditions of a development over time. This should be particularly the case where a condition is placed on an approval that responds to a concern raised by the IESC in the development approval process. For example, a condition that requires the preparation and implementation of a water management plan. The Minister should be required to seek the advice of the IESC prior to approving the plan, and also from time to time ensure the adequacy of the implementation of the plan.

Appropriate resourcing for a comprehensive research program, including the Bioregional Assessments Program is required in order for the IESC to have access to the best available information, and a knowledge base that is continuing to improve. Additionally, The NFF believes there should be a continued commitment of resourcing for compliance activities. Such resourcing is fundamental to ensure the effectiveness of the operation of the legislative provisions subject to this review.

NFF takes this opportunity to reiterate our view of the importance of regulators of all onshore gas resources having access to the best available science to inform their decision making.

Other related matters

Regulatory compliance

Across all levels of government, the Government Departments and Agencies responsible for ensuring the regulatory compliance of the extractive and consumptive water industries require adequate funding to ensure sufficient levels of qualified staff are engaged and retained, in order to ensure community and industry confidence in the regulatory system. This should be matched with commitments by government to enforce compliance associated with projects and transparently report on these compliance monitoring and enforcement actions.

Landholder engagement

The key to productive relationships between agriculture and mineral and petroleum industries is relationships built on genuine trust and goodwill and appropriate community engagement. Agriculture and the mineral and petroleum industries underpin the social and economic fabric of rural and regional communities. The social licence of mineral and petroleum industries is dependent on constructive, transparent and quality engagement and participatory decision making processes over time. Resource companies should continue to pursue best practice engagement which include essential elements such as:

- Transparency and full disclosure;
- Collaboration;
- Inclusiveness;
- Ethical and responsible business practice;
- Integrity and appropriate behaviour;
- Capacity building; and
- Listening and responding to community concerns.

NFF recognises that the mineral and petroleum industries have a right under State and Territory legislation to explore and mine across the landscape. However, NFF notes that further work is required to ensure there are strong regulatory frameworks with clearly specified legal rights, protections and obligations consistent across all jurisdictions.

Landholder rights impacted by mineral and petroleum licences must be protected by strong regulatory frameworks. This legal framework should encompass responsibilities for management, remediation and compensation where mining or petroleum activities are abandoned or "orphaned" or where there are legacy issues after the finalisation of the activity by the resource company.

Land access agreements should recognise landholder and occupier property rights, and the negotiations must be respectful of farmers. NFF recognises that land access agreements may be the only time where landholders can actually seek to positively influence the process, and receive

some protections and assurances from the mineral and petroleum industries. However, it is worthwhile noting that farmers may be overwhelmed, confused and under stress.

The NFF supports empowering farmers in their negotiations around access to land for mining and gas exploration. Access agreements should be activities based, and subject to renegotiation should the schedule of activities or expected impacts change. The companies must undertake best practice during and in finalising land access negotiations, and that such agreements must include among others:

- Appropriate recompense for the full range of costs including land holders time, the use of assets and access;
- Clear agreements with landholders regarding the disposal and acquisition of any exploration/extraction licence;
- Mining practices including complying with drilling legislation, and the use of chemicals;
- Biosecurity arrangements;
- OH&S requirements;
- Rehabilitation of land;
- Appropriate insurance and bond arrangements, which recognise the long term nature of extractive activities and provides for mid, long term and legacy consequences;
- Clear specification of responsibility for, and insurance arrangements to cover, accidental damage to mining infrastructure as a result of farming operations
- Clear specification of responsibility for, and insurance arrangements to cover damage to land and farming practices causing by mining activities and infrastructure;
- Arrangements for normal agricultural operations;
- Any and all conduct whilst operating within the landscape; and
- Protocols regarding notification prior to access