



INDEPENDENT REVIEW OF THE WATER TRIGGER LEGISLATION



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Executive Summary

Background to the review

The water trigger was established through the *Environment Protection and Biodiversity Conservation Amendment Act 2013*. The amendment provides that water resources are a matter of national environmental significance in relation to coal seam gas and large coal mining development.

As a result of the amendment, an action which involves a coal seam gas development or a large coal mining development requires approval from the Australian Government Minister for the Environment if the action has, will have, or is likely to have, a significant impact on a water resource.

The water trigger legislation also requires that the Minister for the Environment commission an independent review to be undertaken of the operation of the Act and the extent to which its objectives have been achieved.

In addition, because the legislation received an exemption from the then Prime Minister from the preparation of a regulatory impact statement, a post implementation review is required.

Reflecting these requirements, the following terms of reference for this review have been set by the Minister for the Environment.

Terms of reference
<ol style="list-style-type: none">1. Examine the appropriateness of the regulation including whether it is necessary and well targeted2. Examine the effectiveness of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects, including the role and scope of work ascribed to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC)3. Identify any opportunities to improve the effectiveness of the regulation4. Examine the efficiency of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects5. Identify any opportunities to reduce or simplify the regulation whilst maintaining its effectiveness6. Identify any recommended appropriate future review points of the regulation.

At Appendix 3 of this report is a Post Implementation Review prepared by the Department of the Environment that directly addresses the requirements of the Office of Best Practice regulation for such reviews.

Appropriateness of the Water Trigger

The stated policy intention of enacting the water trigger was to address a perceived gap in an existing Australian Government regulatory regime, the EPBC Act, and to respond to public concern about the impacts to water resources of coal seam gas and large coal mining development.

Prior to the enactment of the water trigger the Australian Government could only consider the advice of the recently established Independent Expert Advisory Committee on the impacts of coal seam gas and large coalmining development in relation to the eight matters of national environmental significance that existed at the time.

Enactment of the water trigger to include impacts on water resources was therefore an incremental reform.

Nevertheless, the legislation had the effect of giving the Commonwealth a direct regulatory role in a new but narrow domain.

Regulation is an appropriate public policy response to the potential risks associated with coal seam gas and large coal mining. For example, potential negative impacts on water of coal seam gas and large coal mining development can take many years to manifest, be diffuse in their impact or be cumulative in character. The indirect line of causation between such activities and their ultimate impacts is a powerful source of market failure.

Turning to the question of whether such regulation is appropriately a matter for the Commonwealth as opposed to the states, this is best answered by reference to how the legislation has operated in practice.

The policy of the Australian Government has been to apply conditions to an approval under the water trigger *only* after a state government has undertaken its assessment of a proposal and attached state government conditions to its consent.

The conditions attached to approvals under the water trigger are therefore largely matters that would not have been regulated in the absence of the trigger.

This review has identified that in general, Commonwealth conditions have given particular emphasis to enhancing the information and scientific knowledge base to support adaptive management of large coal mining and coal seam gas developments.

The review finds that the water trigger is an appropriate measure to address the regulatory gap that was identified at the time of its enactment on the following grounds:

- The impact of the water trigger has been to strengthen adaptive management in a domain in which the impacts to water of developments are often uncertain, occur over a long period and carry significant risks in terms of consequences.
- The characteristics of individual coal seam gas and large coalmining developments are highly variable. The water trigger has enabled decision makers to take into account the full scope of independent and scientific advice provided by the IESC. This gives assurance that, in general, conditions have been tailored to individual development proposals.
- The policy of the Commonwealth in setting conditions to address gaps in state assessment and regulatory decisions, relative to the requirements of the water trigger legislation, has served to integrate Commonwealth and state regulatory arrangements.

- Conditions of approvals generally provide for publication of water management plans and the results of monitoring and other aspects of project management. This enhancement of transparency increases the prospect of public confidence in the regulatory system as a whole.

It is not possible to state with precision the extent to which the water trigger could contribute to the achievement of its second aim, the alleviation of public concern about the regulation of coal seam gas and large coal mining development.

However, the absence of an objective measure of the degree to which the water trigger could promote public confidence in the regulatory system does not mean that it is inappropriate for government and the Parliament to make a judgement on the matter.

Further there is no doubt that the EPBC Act enables the Commonwealth Parliament, subject to the Constitution, to insert new matters of national environmental significance.

The review finds that the enactment of the water trigger is an appropriate manner in which to seek to alleviate public concern about the impacts to water of coal seam gas and large coal mining development.

The appropriateness of the scope of the legislation was raised in submissions to the review. In particular, its application to the regulation of access to land and to extraction of shale and tight gas and other mining techniques was raised.

There is no doubt that the problem conceived by the Parliament related to coal seam gas and large coal mining only, not other mining or extractive techniques or land access issues.

The review concludes that in practice the scope of the legislation has been in keeping with Parliament's intention.

Effectiveness of the water trigger

Direct evidence about the effectiveness of the water trigger legislation is not available. (See Section 5.9) This is due to the short period of time the legislation has been in place and the slow pace at which projects regulated by it typically commence operation.

The review finds that the following characteristics of the legislation and the manner it has been implemented give confidence that it is capable of being effective:

- The application of independent expert scientific expertise to consideration of impacts to water of coal seam gas and large coal mining developments has continued and in accordance

with the intention of the legislation, this has been applied directly to water as a matter of national environmental significance in the setting of conditions.

- Since the trigger commenced, refinement and streamlining of assessment processes including referrals to and consideration of advice from the IESC advice to Australian and state government regulators has continued.
- Project assessment processes have significantly reduced the potential for duplication between Commonwealth water trigger assessment requirements and state assessment processes.
- Assessments against the water trigger have necessarily been integrated with assessment of other matters of national environmental significance.
- The water trigger has not generally required completely new assessments. Rather it has driven extension of assessments that were going to occur any event.
- Commonwealth conditions set under the water trigger have focused increasingly on assessed gaps in state conditions, informed by IESC advice.
- The focus of Commonwealth conditions on enhanced adaptive management responses at a regional scale is appropriate to the uncertainties and risks inherent in the matters being regulated.
- A framework and resources are in place for monitoring and compliance with Commonwealth conditions both at system and individual project level.

Such is the importance of monitoring and compliance to the effectiveness of the water trigger the following recommendation is made.

Recommendation 1: (discussed in section 5.11)

It is recommended that an independent review be undertaken to assess and validate the overall effectiveness of conditions attached to approvals under the water trigger and the effectiveness of associated monitoring and compliance activity. This review should occur at a point in time at which sufficient data is available to enable a robust validation.

Opportunities to improve effectiveness of the water trigger

No gaps in the scope of the legislation relative to its objective have been identified by the review.

The review has been presented with a range of proposals to improve the working of the legislation and the merits of each have been considered in the report.

It is a measure of the review's generally positive conclusions about the working and administration of the legislation that a limited number of proposals only are supported.

Recommendation 2: (discussed in section 6.4)

It is recommended that to improve transparency of consideration of IESC advice, the public documentation of decisions for which IESC advice has been sought under the water trigger explicitly cross references approval conditions to relevant components of IESC advice.

Recommendation 3: (discussed in section 6.4)

It is recommended that priority be given to responding to Recommendation 1 of the review of the National Partnership Agreement on Coal Seam Gas and Large Coalmining Development (NPA) which proposed that “the Commonwealth take the lead in consultation with the States and relevant stakeholders to identify arrangements for the future governance including maintenance, data provision and funding of bioregional assessments to enable their ongoing application to the regulation of coal seam gas and large coal mining development.”

Recommendation 4: (discussed in section 6.4)

It is also recommended that priority be given to responding to the recommendation of the 2015 review of the National Partnership Agreement that IESC further engage with peak industry bodies to enable its overall role, methodology and approach to be understood and to consider any feedback on it.

Efficiency of the water trigger

The review finds that:

- the policy of the Commonwealth to rely as far as possible on state assessments of actions for which the water trigger is a controlling provision and set conditions only against the assessed gaps in state requirements is an effective means to drive efficiency in administration of the legislation
- it is too early in the life of the legislation to quantify the benefits arising from the water trigger
- the estimated direct costs to government of \$357,000 p.a. and regulatory burden to industry of \$46.8 million p.a. of the water trigger are significant
- however, the estimated costs to government and industry are small when compared with the overall value of the ecosystem services associated with water and the scale of the regulated industry.
- accordingly, the review is confident that the legislation is capable of delivering a net benefit.

Opportunities to reduce or simplify the regulation whilst maintaining its effectiveness

The review finds that as a matter of principle, scope should exist within the legislation for bilateral approval agreements between the Australian Government and state governments to include decisions under the water trigger.

Recommendation 5: (discussed in section 8.4)

It is recommended that should governments wish to further pursue bilateral approval agreements relating to the water trigger an independent and transparent review be conducted, by a person or persons, acceptable to both the Commonwealth and the states, to undertake an analysis of relevant state regulatory systems, practice and policy. The purpose of the review would be to identify and make recommendations for any changes necessary for each state system to meet the requirements of the water trigger and so form the basis of the water-resource related components of a bilateral approval agreement with the Commonwealth. Such a review should be informed by IESC advice.

Recommendation 6: (discussed in section 8.4)

It is recommended that the Significant Impact Guidelines be reviewed to more clearly define the environmental outcomes that the water trigger is intended to protect and that any refinement to the guidelines also be appropriately reflected in IESC information requirements and other information sought from proponents.

Future review points

The review concludes that no further general review is required for the water trigger legislation other than its inclusion in the ten yearly reviews of the EPBC Act as a whole.

Terms of reference for the review

This review of the Environment Protection and Biodiversity Conservation (EPBC) Amendment Act 2013 (the water trigger legislation) fulfils two purposes.

The water trigger legislation itself provides that the Minister must cause an independent review to be undertaken of the operation of the Act and the extent to which its objectives have been achieved. The person undertaking the review must provide the Minister with a report. The Minister must table the report in each House of the Parliament within 15 sitting days of the relevant House of Parliament.

In addition, because the legislation received an exemption from the then Prime Minister from the preparation of a regulatory impact statement, a post implementation review is required. The Office of Best Practice Regulation Guidance Note for Post Implementation Reviews specifies that the purpose of a post implementation review is to assess whether the regulation remains appropriate, and how effective and efficient it has been in meeting its objectives. The post implementation review has been prepared by the Department of the Environment and is at Appendix 3 of this report.

Reflecting the above requirements, the following terms of reference for the review were set by the then Minister for the Environment.

Terms of reference
<ol style="list-style-type: none">1. Examine the appropriateness of the regulation including whether it is necessary and well targeted2. Examine the effectiveness of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects, including the role and scope of work ascribed to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC)3. Identify any opportunities to improve the effectiveness of the regulation4. Examine the efficiency of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects5. Identify any opportunities to reduce or simplify the regulation whilst maintaining its effectiveness6. Identify any recommended appropriate future review points of the regulation.

Limits to matters considered by the review

The Terms of Reference are focussed on the performance of the legislation in the form it was passed by the Australian Parliament. Many issues in relation to coal seam gas and large coal mine development are known to be of concern to the community, including land access, non- water related environmental impacts and occupational safety and public health. These matters fall outside the operation of the water trigger legislation and are generally responsibilities of state and territory governments. They are therefore beyond the scope of this review.

In addition, the review does not consider other provisions of the broader EPBC Act, such as the referral/assessment/approval process, significant impact guidelines, post approval regulatory arrangements or compliance and enforcement except to the extent that these provisions have influenced the operation and outcomes of the water trigger legislation itself. For the same reasons, the One-Stop Shop approach for environmental assessments (including bilateral agreements) is also outside the Terms of Reference of the review.

1. Methodology of review

1.1 Evaluation framework

The review was guided by an evaluation framework which was prepared by the independent reviewer. The framework is reproduced at Appendix 1. The purpose of the framework is to provide a structured and thorough approach to identifying and evaluating each term of reference.

Taking into account the Office of Best Practice Regulation Guidance Note of July 2014 on Post Implementation Reviews¹ and Guidance Note of February 2015 on Regulatory Burden Management Framework² the evaluation framework identifies the key evaluation questions that the review seeks to answer. These also include the seven questions required for Post Implementation Reviews.

The framework also identifies the key evidence sources for the review.

1.2 Issues paper

To inform and give guidance to those with an interest in the review an issues paper was released on 30 November 2015. Among other things, the issues paper provides the background to the review, information about the water trigger and the review process, a discussion of issues covered by the terms of reference and guidance on how to contribute to the review.³

The issues paper was circulated widely including to interested governments, relevant industry participants and their representatives, stakeholder groups including agriculture and environment bodies and to relevant academic and scientific stakeholders.

The issues paper sought written submissions and /or responses to a set of on line survey questions by 29 January 2016.

1.3 Consultations with government and stakeholders

Consistent with the evaluation framework the review has drawn upon the following:

- written advice from the Australian Government Department of the Environment including the post implementation review prepared by the Department and consultations with senior officers of the Department

¹ OBPR Guidance note on post implementation reviews, available at http://ris.dpmc.gov.au/files/2012/03/pir_guidance_note.pdf

² OBPR Guidance note on regulatory burden measurement available at https://www.dpmc.gov.au/sites/default/files/publications/005_Regulatory_Burden_Measurement_Framework.pdf

³ Issues Paper, available at <http://www.environment.gov.au/system/files/consultations/11c6034d-fc8e-4f06-a703-e51a16dec95c/files/water-trigger-review-issues-paper.pdf>

- informal face to face consultations between the reviewer and officers of the New South Wales and Queensland Governments and the Australian Government Department of Agriculture and Water Resources and Department of Industry, Innovation and Science
- interview with the Chair of Independent Expert Scientific Committee (IESC) on Coal Seam Gas and Large Coal Mining Development
- face to face or telephone consultations with those listed at Appendix 2
- written submissions from the community, industry and other stakeholder groups. All 90 submissions to the review can be accessed at <http://www.environment.gov.au/epbc/what-is-protected/water-resources/review>

A draft report was provided to the Department of the Environment and Energy in October 2016. Comments received from the Department in relation the draft were taken into account in finalising the review report.

1.4 Sources of evidence

The review has relied principally on sources of evidence that are on the public record including submissions from interested stakeholders and the public. This has been supplemented by discussions with relevant government officials and selected stakeholders to enable a more nuanced understanding of key issues.

1.5 Analytical considerations

The impact of Government interventions on environmental outcomes is typically difficult to measure. Most, if not all, environmental values are the subject of impacts from multiple sources, including multiple regulatory frameworks. Isolating the impact of a single intervention such as the water trigger legislation is necessarily challenging.

This is especially so since the legislation has been in operation for a relatively short time and in many cases the projects that it has regulated have not commenced or been in place long enough for impacts to water resources to be measured.

Therefore, the review plays close attention to the assessment and approval process, the general character of conditions placed upon matters approved under the water trigger and arrangements for monitoring and compliance to assess the degree to which they are capable of influencing environmental outcomes.

The review has also taken into account the findings of the post implementation review carried out by the Department of the Environment including its estimate of the regulatory burden attributable to the legislation.

The review does not seek to revisit in detail, or assess the merits of any particular assessment or approval. Nevertheless, individual approvals have been studied for the purpose of understanding and illustrating how the legislation has worked in practice.

2. Summary of the provisions of the water trigger legislation

2.1 The EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places — defined in the EPBC Act as matters of national environmental significance.

These matters of national environmental significance (MNES) are:

- world heritage properties
- national heritage places
- wetlands of international importance
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- a water resource in relation to coal seam gas (CSG) and large coal mining (the water trigger).

The EPBC Act also regulates the taking of Commonwealth actions, actions involving Commonwealth land and actions involving Commonwealth heritage places outside Australia.

The policy intention of the water trigger was to address a perceived gap in an existing Australian Government regulatory regime, the EPBC Act, and to respond to public concern about the impacts to water of coal seam gas and large coal mining development. The regulatory gap was addressed by requiring the Minister to obtain the advice of the Independent Expert Advisory Committee before deciding to approve the taking of an action that involves coal seam gas or large coalmining development where the Minister believes there could be a significant impact on water resources.

2.2 What is the water trigger?

The water trigger was enacted by the *Environment Protection and Biodiversity Conservation Amendment Act 2013*. The Act passed the Parliament on 19 June 2013 and commenced on 22 June 2013.

The Act amended the EPBC Act to make water resources in relation to coal seam gas or large coal mining a matter of national environmental significance (MNES).

As a result, an action which involves a coal seam gas development or a large coal mining development requires approval from the Australian Government Minister with responsibility for the EPBC Act (currently the Minister for Environment and Energy) if the action has, will have, or is likely to have, a significant impact on a water resource.

2.3 Activities covered by the water trigger

The following information has been drawn directly from the Significant Impact Guidelines for the Water Trigger published on the Department's web site.

Definitions

A 'coal seam gas development' is defined under the EPBC Act (section 528) as:

any activity involving coal seam gas extraction that has, or is likely to have, a significant impact on water resources (including any impacts of associated salt production and/or salinity):

- (a) in its own right; or
- (b) when considered with other developments, whether past, present or reasonably foreseeable developments.

A 'large coal mining development' is defined under the EPBC Act (section 528) as:

any coal mining activity that has, or is likely to have, a significant impact on water resources (including any impacts of associated salt production and/or salinity):

- (a) in its own right; or
- (b) when considered with other developments, whether past, present or reasonably foreseeable developments.

The definition of "water resource" mirrors the Water Act 2007 (Water Act) and means

- (a) surface water or groundwater; or
- (b) a watercourse, lake, wetland or aquifer (whether or not it currently has water in it);

and includes all aspects of the water resource (including water, organisms and other components and ecosystems that contribute to the physical state and environmental value of the water resource)

Size and purpose of the development

The application of the water trigger relates to a development's likely impact on a water resource, rather than the size of the proposed coal seam gas or coal mining activity development.

The definitions are not limited to commercial operations. Therefore, actions involved in exploration, appraisal and pilot developments may be captured by the definition where they involve extraction of coal seam gas or coal.

Proponents subject to the trigger

Reflecting the constitutional limits on the legislative power of the Commonwealth, the water trigger only applies to coal seam gas or large coal mining actions that are undertaken by:

- a constitutional corporation, that is, a corporation formed within Australia that engages on financial or trading activities, or a corporation formed outside Australia
- the Commonwealth
- a Commonwealth agency
- a person who is doing the action for the purpose of domestic (between state or territory jurisdictions) or international trade.

Extraction of coal seam gas or coal

The definitions of 'coal seam gas development' and 'large coal mining development' relate to impacts on a water resource of activities that form part of the process of extracting coal or coal seam gas. The development of associated infrastructure that is not part of the extraction process is not included in the definitions of coal seam gas development or large coal mining development.

Extraction of coal seam gas or coal must form part of the activity and not simply be associated with it. Where referred along with new or modified extraction of coal seam gas or coal, the following activities form part of the extractive process:

- water supply for use in the extraction of coal seam gas or coal⁴
- management of water generated as a result of extraction of coal seam gas or coal, such as holding dams or water treatment facilities
- management of waste generated as a result of extraction of coal seam gas or coal, such as spoil heaps.

However, these activities when carried out independently, are not coal seam gas or coal mining development where there is no new or modified extraction of coal seam gas or coal.

Associated infrastructure

The development of associated infrastructure that is not part of the extraction process is not included in the definitions of 'coal seam gas development' or 'large coal mining development'. This may include:

- transport infrastructure, such as pipelines, road or rail infrastructure
- office/housing and amenity construction
- environment protection, monitoring and associated land management activities.

⁴ Information on the impacts of coal mining and coal seam gas is published by the IESC and is available at <http://www.iesc.environment.gov.au/publications>. An independent summary on these issues was produced by the Australian Parliamentary Library and is available at http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BriefingBook44p/GasDebate. The key concerns are environmental damage through release of untreated production water at the surface; damage to, and contamination of underground aquifers by hydraulic fracturing; damage to wildlife habitat in sensitive areas and contamination of surface water resources in drinking water catchments.

The development of infrastructure that is associated with coal seam gas or large coal mining development, but which is not sufficiently proximate that it can be said to involve the extraction of coal seam gas or coal, is not captured by the water trigger.

The EPBC Act requires the assessment of a referred action as a whole. As such, where an action referred to the Department includes both extraction of a coal seam gas development or large coal mining development and associated infrastructure then the significance of the whole of the referred action on water resources is considered.

However, if a coal seam gas development or large coal mining development does not itself have a significant impact on a water resource, then the action is not captured under the water trigger, even if other parts of the development could be considered to have a significant impact on a water resource.

Expansions or modifications to a development

An expansion or modification to existing facilities may be within the definition of 'coal seam gas development' or 'large coal mining development' if the expansion or modification involves extractive coal seam gas or coal mining activities which are likely to have a significant impact on a water resource.

Transitional provisions

Developments approved before the water trigger came into effect on 22 June 2013 were not covered by the water trigger legislation.

However, any proposed developments that were referred to the Australian Government and were in the approval process at the time the water trigger legislation came into effect were covered by transitional provisions which required each proposed development to be assessed as to whether the water trigger applied. Those coal seam gas and large coal mining developments that were likely to have a significant impact on water resources were then assessed for their water-related impacts.

Offences and penalties

Civil penalty and offence provisions are established by the legislation to prohibit developments that have, will have, or are likely to have a significant impact on a water resource, unless done in accordance with an approval issued under Part 9 of the EPBC Act or otherwise exempted. These penalties and offences are consistent with penalties and offences for other matters of national environmental significance in Division 1 of Part 3 of the EPBC Act.

Exemptions

The legislation contains exemptions for developments where:

- the action was approved by the Minister under Part 9 of the EPBC Act before 22 June 2013

- the Minister decided under Part 7 of the EPBC Act that the action was not a controlled action or not a controlled action if taken in a particular manner (and the action is taken in that manner) before 22 June 2013
- the relevant person had been notified of a proposed approval decision under the EPBC Act in relation to the action and the Minister had received advice from the IESC on the action before 22 June 2013
- before 13 March 2013, both:
 - the action was not required to be assessed and approved under the EPBC Act and
 - a state or territory Minister had received advice from the IESC on the action
- the action held a prior authorisation before 22 June 2013.

3. Operation of the water trigger legislation

3.1 Administrative arrangements

Environment Standards Division

The Minister for the Environment and Energy and delegated officers in the Environmental Standards Division of the Department of the Environment and Energy are responsible for all regulatory decisions during the assessment of coal seam gas and large coalmining developments under the EPBC Act. Post-approval monitoring, compliance and enforcement activities are undertaken by the Compliance and Enforcement Branch within Environment Standards Division.

Office of Water Science

The Office of Water Science was established in November 2011 to lead the delivery of the Australian Government's actions as set out in the National Partnership Agreement on Coal Seam Gas and Large Coalmining Development (the NPA), including efforts to improve understanding of the water-related impacts of coal seam gas and large coal mining development.

The Office of Water Science provides secretariat and technical support to the Independent Expert Scientific Committee (IESC) in its consideration of requests for advice from the Minister for the Environment and Energy, or delegate, and the appropriate Minister of a state government that is signatory to the NPA, current Queensland, New South Wales, Victoria and South Australia.

3.2 Significant impact guidelines

The Department of the Environment published Significant Impact Guidelines in December 2013 to clarify whether an action is likely to have a significant impact on a water resource.⁵ If significant impacts may occur, a proponent must submit a referral about the development to the Department for a decision by the Minister on whether assessment and approval is required under the EPBC Act.

A 'significant impact' is defined in the Guidelines as an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends on the sensitivity, value, and quality of the water resource which is impacted, and on the intensity, duration, magnitude and geographic extent of the impacts. The Guidelines state that all of these factors should be considered to determine whether a significant impact is likely.

3.3 Role of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC)

The Australian Government committed, under the National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development, to establish and maintain the IESC. The IESC was established as a

⁵ <https://www.environment.gov.au/system/files/resources/d078caf3-3923-4416-a743-0988ac3f1ee1/files/sig-water-resources.pdf>

statutory committee in 2012 under the EPBC Act. The IESC's functions are set out in Section 505D of the EPBC Act. In short, the IESC provides scientific advice:

- to the Environment Minister and relevant state Ministers⁶ on the water-related impacts of proposed coal seam gas and large coal mining developments, including any impacts of associated salt production and/or salinity
- to the Minister on bioregional assessments, research priorities and research projects commissioned by the Minister.

The Committee's terms of reference require the IESC to provide advice within two months of receiving a request.

The IESC reports its advice publicly on its website.

While the general operation of the IESC is not within the scope of this review, the role of the IESC in the operation of the water trigger will be considered. This occurs in the part of this report that describes the operation of the legislation in the context of analysing its effectiveness.

⁶ Currently, only state governments which are a signatory to the National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development can seek the advice of the IESC. An amendment in the *EPBC Amendment Bill 2016* proposed to permit those states not currently a party to the NPA to seek advice from the IESC. This lapsed when Parliament was prorogued for the 2016 General Election.

4. The appropriateness of the regulation including whether it is necessary and well targeted

4.1 Policy and regulation arrangements prior to the water trigger

Prior to the commencement of the water trigger legislation the following arrangements in relation to the assessment and regulation of the impact of coal seam gas and large coal mining development on water resources were in place.

The National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development commenced in 2012. Parties to the Agreement are the Australian Government and the Queensland, New South Wales, Victorian and South Australian Governments. The objective of the National Partnership Agreement is to strengthen the regulation of coal seam gas and large coal mining development by ensuring that future decisions are informed by substantially improved science and expert advice.⁷

In accordance with the National Partnership Agreement the Australian Government established the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development in November 2012 through the *EPBC Amendment (Independent Expert Scientific Committee On Coal Seam Gas and Large Coal Mining Development) Act 2012*.

Parties to the Agreement were, and continue to be, obliged to refer to the IESC proposed coal seam gas and large coal mining developments which are likely to have an impact on water resources on which they are intending to make a regulatory decision. Decision makers were, and continue to be, required to take into account the IESC advice in a transparent manner.

Regulators consider the advice of the IESC in the context of the relevant policy and regulatory regime of each jurisdiction.

The water trigger has not changed the process for seeking advice from the IESC. Nevertheless, both prior and since the commencement of the water trigger, ongoing refinements have been made in the manner in which proposals have been referred by regulators to the IESC and the Committee's approach to consideration and advice on these proposals.

Prior to the introduction of the water trigger in June 2013 the Australian Government could consider the advice of the IESC only in relation to an action with impacts on the eight matters of national environmental significance that existed at the time. For example, where a coal seam gas development was likely to have a significant impact on a threatened ground water dependent ecological community

⁷ Available at <http://www.environment.gov.au/water/coal-and-coal-seam-gas/office-of-water-science>

the IESC advice in relation to that particular impact could be operationalised into appropriate conditions.

However, the Minister for the Environment did not have the power to conduct an assessment or impose conditions directly relating to the impacts of an action on a water resource only.

Under these pre-existing arrangements the interim committee and, subsequently, the formally constituted IESC, provided advice to Australian Government and state regulators about 45 proposals referred to it between late 2011 and the commencement of the water trigger on 22 June 2013.

4.2 What impacts of coal seam gas and large coal mining development on water resources was the EPBC Amendment Act 2013 (the regulation) intended to address?

When examining the rationale for Commonwealth legislation it is generally accepted that the second reading speech is an authoritative expression of the Government's intentions.

While there was much speculation and debate at the time the water trigger legislation was introduced as to its political origins and aims this review must rely on the public expression of the Government's public policy intentions via the second reading speech.

The Hon Tony Burke MP, Minister for Sustainability, Environment, Water, Population and Communities delivered the second reading speech for the water trigger legislation in the House of Representatives on 13 March 2013.⁸

The following excerpts from the speech distil the key rationales provided for the legislation.

The government has now introduced amendments that will create a new matter of national environmental significance under national environmental law. The amendment will enable the Commonwealth environment minister to take into account significant impacts of coal seam gas and large coalmining development on a water resource.....

The challenge we have had until now is that people quite reasonably expect the minister for the environment and water to take into account, by law, the impacts of coal seam gas and large coal mining on water resources. They want to know that I am considering: if there is an irreversible depletion and contamination of our surface and groundwater resources; the impacts on the way critical water systems operate; and the related effects on our ecosystems.

⁸ Second reading speech is available at the following link:

[http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=BillId_Phrase%3Ar5001%20Title%3A%22second%20reading%22%20Content%3A%22I%20move%22%7C%22and%20move%22%20Content%3A%22be%20now%20read%20a%20second%20time%22%20\(Dataset%3Ahansard%20%7C%20Dataset%3Ahansards\);rec=0](http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=BillId_Phrase%3Ar5001%20Title%3A%22second%20reading%22%20Content%3A%22I%20move%22%7C%22and%20move%22%20Content%3A%22be%20now%20read%20a%20second%20time%22%20(Dataset%3Ahansard%20%7C%20Dataset%3Ahansards);rec=0)

But, under our current national environmental law, I cannot take these concerns into consideration directly, because the Commonwealth does not directly regulate projects that are likely to have an impact on a water resource-either surface water or groundwater. This is because water resources are not currently a matter of national environmental significance.....

The amendment does not seek to invoke the Commonwealth in all water decisions....

It will provide a strong legal basis for protection that the community wants.

This is not a broad trigger. The Australian government has already established independent expert scientific committee, which considers coal seam gas and large coalmine developments. This amendment provides the appropriate gateway for federal approval, and should continue to do so.....

We know that the sort of information that would be needed to make a decision for the new matter of national environmental significance already gets collected in different ways for state approvals, and for the work of the independent expert scientific committee.

It is notable that the rationale for the legislation was cast in relatively narrow terms. Largely, it is presented as a logical extension of the policy rationale that had underpinned the previous establishment of the National Partnership Agreement on Coal Seam Gas and Large Coal Mining Development and the referral of projects to the IESC for consideration and advice to regulators. The references to being able to draw largely on information and assessments that were already being conducted, including for state regulatory processes, reinforce this presentation.

The question of community concern about coal seam gas and large coal mining developments is also referenced as a rationale. Such concerns had previously been acknowledged as a significant driver of the establishment of the National Partnership Agreement and the IESC. Indeed, one of the explicit outcomes sought by the Agreement was that “well informed communities have greater confidence in Commonwealth and State regulation of CSG and large coalmining development.”

It is also notable that the second reading speech did not directly make claims about deficiencies in regulatory decision making by the States about coal seam gas and large coal mining developments although such claims were prominent in public discussion of the issue at the time and since.

4.3 The rationale for a regulatory approach to the issue and for Australian Government action

Given that the water trigger was conceived and presented as addressing a gap in a pre-existing Australian Government regulatory regime (the EPBC Act) it is not surprising that the solution was seen in terms of further regulation through that Act.

Furthermore, the pre-existing approach to addressing community concern about the impacts on water of coal seam gas and large coalmining development had been to establish the National Partnership Agreement and in accordance with it establish and refer proposals to the IESC. Therefore, requiring the Minister to obtain and take into account IESC advice when deciding whether or not to approve an action that is likely to have a significant impact on water resources, and involves a coal seam gas or large coal mining development could be interpreted as an obvious and arguably marginal reform.

These considerations illustrate the difficulty in disentangling the rationale for the water trigger from the policy logic that had led to the pre-existing and still relatively youthful arrangements. It would have been unusual if having identified the problem of the Minister not being required to take into account the advice of IESC on impacts to water resources the Australian Government had contemplated a completely fresh, possibly non-regulatory, approach to the issue.

However, despite the incremental nature of the reform it would be too narrow to judge the appropriateness of the water trigger simply in terms of whether it is in keeping with the logic that underpinned the National Partnership Agreement and IESC processes and their intended impact on the application of improved science and associated community concerns.

The legislation has also had the effect of giving the Commonwealth a direct regulatory role in an albeit narrow domain in which it did not previously, and the appropriateness of this also needs to be evaluated.

4.4 Was there and does there remain significant likelihood of a substantial negative environmental impact of coal seam gas and large coal mining development on water resources in the absence of the regulation?

This question is central to assessing the appropriateness of the water trigger.

Potential negative environmental impacts to water of coal seam gas and large coal mining development

According to the Significant Impact Guidelines that have been developed under the water trigger legislation, potential negative environmental impacts to water of coal seam gas and large coal mining development include impacts on:

- utility of water for third party uses including provisioning services (e.g. use by other industries and use as drinking water), regulating services (such as climate regulation), cultural services (including recreation and tourism) and supporting services (e.g. maintenance of ecosystem function)
- hydrological characteristics including changes in water quantity, changes in the integrity of hydrological or hydrogeological connections, including substantial structural damage and changes in the area or extent of a water resource
- water quality including risks to human or animal health, reductions in the amount of water available for human consumptive or other uses that are dependent on an appropriate water quality, causes harmful substances to accumulate in the environment, affects habitat or lifecycle of native species dependent on a water resource or causes the establishment of an invasive species harmful to the ecosystem function of the water resource.

Cumulative effects to water of coal seam gas and large coal mining development are a further dimension of potential negative environmental impact.

The IESC provides information on modelling of these impacts⁹ and has published priorities for further research to address priority knowledge gaps and improve model performance

The post implementation review at Appendix 3 also provides a discussion of the potential impacts of coal seam gas and large coal mining development of water resources.

What would happen in the absence of the water trigger?

Taking a broad public policy perspective, there is no doubt that the potential negative environmental impacts to water of coal seam gas and large coal mining development described above should be assessed and that significant risks should be appropriately mitigated.

Further, this is very unlikely to be achieved satisfactorily through markets alone, or even in part. Experience in many responsibilities of government shows that enterprises may create, whether intentionally or not, unacceptable environmental impacts that would constitute 'negative environmental externalities', i.e. costs that would be borne by third parties rather than the miner or consumer of the resources, in order to achieve competitive advantage. For example, potential negative impacts on water of coal seam gas and large coal mining development can take many years to manifest, be diffuse in their

⁹ This information is available at <http://www.environment.gov.au/water/publications/csg-extraction-modelling-groundwater-impacts>

impact or be cumulative in character. The indirectness between such activities and their ultimate impacts is a powerful source of market failure.

Therefore, the question becomes ‘what is an appropriate policy response?’ to such a market failure and, in a federation, what level of government is best placed to exercise that policy response.

Regulation, including a compliance and penalty regime, is generally appropriate where potentially irreversible risks exist that are directly attributable to readily identifiable actors such as corporations and which have a high environmental, social or economic impact. (This is not to say that there is no debate about the scope and method of regulation and its optimal combination with other policy instruments.)

It is also relevant to take into account the extent to which a regulatory scheme promotes public confidence in the activity being regulated. The extent of public confidence in a regulatory arrangement is a legitimate aspect of its appropriateness. If regulation lacks sufficient public legitimacy it will be less likely to achieve the public good outcomes expected of it or to serve the interests of those being regulated (who also lose legitimacy).

Against this general background the key question about the appropriateness of the water trigger becomes what would be the impact of the *status quo ante*; that is leaving to the States the power to regulate the direct impacts to water of coal seam gas and large coal mining development?

The first source of insight into this question is to examine those matters, which by virtue of the water trigger the Commonwealth Minister has regulated, which would have been beyond the power or the policy of States, to regulate.

The second is to consider the place of the water trigger in the context of public confidence in the overall regulatory regime and whether this has contributed to its appropriateness.

Additional matters regulated in practice under the water trigger

Examination of the conditions attached to approvals under the water trigger provides a direct insight into the matters that would not have been regulated in its absence.

This is because the policy of the Australian Government is to only apply conditions to an approval under the water trigger after a state government has undertaken its assessment (informed by IESC advice) of a proposal and attached state government conditions to its consent¹⁰.

The Australian Government conditions are informed substantially by the scientific and independent advice of the IESC. The conditions therefore represent a credible assessment of the gap between the outcomes sought by state regulatory arrangements and the outcomes sought by the water trigger.

¹⁰ The EPBC Act Condition-setting Policy is now available at <http://www.environment.gov.au/epbc/publications/condition-setting-policy>

Based on an examination by the review of a range of water trigger decisions, the conditions set by the Australian Government have typically included requirements of the following nature:

- more rigorous establishment of baseline water related environmental assets and conditions including further research into relevant ground water resources
- enhanced monitoring and management of impacts for both water quantity and quality
- review and refinement of numerical groundwater models
- development and implementation of management actions to manage risk in stages so that new information or changes in biophysical conditions can be responded to
- identification of thresholds and limits relevant to a project's impacts on ground and surface water, including requirements to modify or cease activity where limits have been reached
- identification of regional level impacts including cumulative impacts
- management and monitoring of the final void of open cut mines
- compliance with state regulatory requirements or policies
- provision to the public and the Australian Government of reports against the conditions.

The additional cost burden on industry associated with these conditions is included within the costings developed under this review, see Appendix 3.

Two examples are provided below to better illustrate the character of Australian Government conditions on approvals under the water trigger. They have been selected as their complexity helps to illuminate a range of conditions derived from the water trigger.

Arrow Bowen Gas Project (EPBC 2012/6377) Date of decision 27 October 2014

Summary of water management and monitoring conditions

The approval holder must not discharge, irrigate or otherwise release coal seam gas produced water, wastewater, storm water or harvested water into the Isaac River and its tributaries unless the discharge complies with the discharge criteria defined for the site and is in accordance with the requirements of an environmental authority issued under the Environmental Protection Act 1994 (Qld) for the action.

Submission to the Commonwealth Minister for approval of a Groundwater Management and Monitoring Plan(GMMP) which must contain:

- details of a groundwater monitoring network for measurement of impacts on water resources including on fluctuations in water quality and quantity, hydraulic connectivity of relevant formations, ground water dependent ecosystems, ground water balance and water availability for water users and the environment
- details of a baseline monitoring data acquisition program

- a rationale for the design of the monitoring network with respect to potential impacts on matters of national environmental significance
- details of proposed early warning indicators, trigger thresholds and limits for detecting impacts on groundwater levels
- details of a risk based exceedance for the actions the approval holder will take and associated timeframes
- details of timeframes for review of the GMMP
- provisions to make monitoring results public for the life of the project
- provisions to make monitoring data available to the Department of the Environment and Queensland Government authorities, if requested, for inclusion in any cumulative impact assessment, regional water balance model, bioregional assessment or relevant research.

The GMMP must be peer reviewed by suitably qualified water resources experts approved by the Minister in writing.

Commencement of the extraction of water or coal seam gas cannot commence until the GMMP has been approved by the Minister and the GMMP must be implemented by the approval holder.

The Minister may direct cessation of water or gas extraction and /or water discharge or use if an early warning indicator, trigger threshold, or limit is exceeded.

Summary of well construction and hydraulic fracturing conditions

If hydraulic fracturing is required, no more than 1000 of the total production wells may be hydraulically fractured.

Gas wells to be constructed, operated and decommissioned in accordance with best practice principles in the Queensland Code of Practice for Construction and Abandoning CSG Wells.

Watermark Coal Project NSW (EPBC 2011/6201)

Summary of water resources related conditions

To minimise impacts to water resources and in addition to a NSW consent condition, preparation of a Water Management Plan for the Minister's approval which must:

- describe a surface water and groundwater monitoring program consistent with the National Water Quality Management Strategy and which, among other things, enables derivation of appropriate base line data, performance measures and trigger values, determines impacts of runoff to down stream off project areas, establishes flow regime and any changes to flow and water quality in associated water courses, provides for detection of a range of triggers to ensure impacts can be adaptively managed before performance measures are exceeded and

obtain data needed to develop a finer scale numerical groundwater model predictions for each mining area

- define a schedule of dates by which the information necessary to develop finer scaled numerical ground water model predictions will be obtained including to enable finer-scale investigation of seasonal variations on ground water levels and interactions, the influence of faults, strata definition and hydraulic properties of major hydro stratigraphic units
- installation of additional multi- level monitoring wells
- include early warning/investigation, mitigation/management and cease work triggers and detail how any exceedances will be reported, responded to and where a cease work trigger has been reached, a recommencement procedure
- describe how water management performance measures identified in an associated NSW consent condition will be achieved
- demonstrate a systematic and detailed approach to identification, mapping, monitoring and mitigation of groundwater dependent ecosystems
- outline how community consultation mechanisms consistent with an associated NSW consent condition will identify potential impacts to water resources.

Commencement of construction must not occur before the Water Management Plan is approved by the Minister and the Plan must be implemented. The Water Management Plan is to be revised and updated based on ongoing monitoring.

There is also a requirement to submit a Water Impact Verification Report which is required by an associated NSW consent condition to the Australian Government Minister for approval. Among other things it requires recalibrated modelling, demonstrates that cumulative impacts have been considered, be prepared with reference to a Commonwealth endorsed methodology to assess the cumulative water-related impacts of coal mines and demonstrates that recalibrated modelling predictions are no greater than the impacts approved under an associated NSW consent.

Mining construction in the Southern mining area may not commence before the Water Impact Verification Report is approved by the Minister.

Summary of rehabilitation conditions

To compensate for residual significant impacts on threatened species and ecological communities and to minimise impacts own water resources a Rehabilitation Management Plan is to be prepared for the Minister's approval. The plan is in addition to an associated NSW consent condition and must:

- specify how the objectives of the NSW condition will be achieved
- consider worst case scenarios associated with the final void and outline management responses
- include surface and groundwater monitoring program to manage potential impacts to water resources associated with the final landform

- describe how refined hydrological modelling that takes into account information gathered during mining has been used to inform the final landform design.

The Rehabilitation Management Plan must be implemented.

Discussion of the conditions of approvals in the context of the appropriateness of the water trigger

Considering the overall approach to the attachment of conditions to approvals under the water trigger four points of significance arise.

First, a strong focus of conditions is upon enhancing the information and scientific knowledge base to support adaptive management of large coal mining and coal seam gas developments. For example, conditions typically specify binding requirements for ground water management or other plans which are supported by refined and validated numerical models and which specify thresholds and trigger points for management action including reporting, modifying activities or ceasing them.

In a domain in which the impacts on water of developments is often uncertain, occurs over a long period and carries significant risks in terms of consequences, the strengthened approach to adaptive management generally required by conditions set under the water trigger is appropriate.

Secondly, individual projects vary in complexity. As a result, there are differing perspectives on the part of stakeholders as to the extent to which conditions set in individual cases have been appropriate and proportional to risk. This review is not revisiting specific decisions. It is, however, highly relevant that decision makers have had available to them independent and scientific advice on all projects from the IESC. This gives assurance that, in general, conditions have been tailored appropriately to individual development proposals.

Thirdly, the overall policy of setting conditions to address gaps in state assessment and regulatory decisions, relative to the requirements of the water trigger legislation is also appropriate. The fact that IESC advice on individual projects is publicly available both to state and Australian Government regulators gives assurance that the additional conditions set by the Commonwealth under the water trigger are appropriately informed by independent science.

At times, conditions set by the Australian Government will reference state consent conditions. Some stakeholders have argued that this is evidence of duplication. A better view is that the referencing of state consent conditions is evidence of the integration of regulatory systems. Indeed, the Department of the Environment and Energy submission to this review anticipates greater reliance on state and territory approval decisions as a streamlining measure to “improve collaboration between jurisdictions and avoid regulatory duplication.”

Fourthly, conditions of approvals generally provide for publication of water management plans and the results of monitoring and other aspects of project management. This enhancement of transparency appropriately increases the prospect of public confidence in the regulatory system as a whole.

Impact of the water trigger on public confidence

Empirical evidence about the relationship between the water trigger and the extent of public confidence in the overall system of regulating coal seam gas and large coal mining development is not readily available and it is beyond the means of this review to commission research on the matter.

As the 2015 Review of the National Partnership Agreement noted¹¹ there are significant and multiple influences on community knowledge of and confidence in coal seam gas and large coal mining. Significantly, many go well beyond perceptions about the effectiveness of regulation in protecting water resources.

Drivers of public perception include:

- negative views on impacts on land use, especially agriculture. Loss of exclusive use of land, loss of amenity, loss of value, degradation of soil and subsidence, damage to property infrastructure and negative animal and plant health outcomes have been raised
- negative perceptions of human health impacts including from air and chemical pollution. Mental health impacts are also referenced
- positive and negative perceptions of economic development impacts. Supportive views exist about impacts on Australia's energy resources and export performance. At the same time there are mixed views about the pace of development and the variability over time and place of employment outcomes and associated demands on public services
- usually negative perceptions about the broader 'downstream' impacts of the industry on public infrastructure, ports and broader environmental assets such as the Great Barrier Reef
- negative perceptions associated with coal seam gas and coal as non-renewable energy sources with undesirable climate change impacts. Conversely some view coal seam gas as a less carbon intensive alternative than some other non-renewables
- variable levels of trust in the efficacy of the science that is used to guide regulatory decisions. This can include lack of knowledge of the science itself, distrust in the reliability of data and its provenance and concern about predicting and measuring long term impacts in uncertain geology and hydrogeology
- varying levels of trust in the industry itself. At one end of the spectrum it may be perceived as operating only in its interests and there being little inherent harmony of public and private interest. There are also differences of perceptions about individual companies within the

¹¹ The Review of the NPA is available at <http://www.environment.gov.au/system/files/pages/354eb042-14dd-47fb-a24f-5dbd84834302/files/npa-review-final-report.pdf>

industry. Finally, there are land holders and communities that are reported to have reached a positive accommodation with industry participants

- variable perceptions about governments as decision makers and regulators of the coal seam gas and large coal mining industry. This includes views that as beneficiaries of royalties State governments cannot adequately represent the public interest. There are also concerns about regulatory systems that are too complex or change too frequently. Perceptions also exist of decision-making systems and practices that do not give sufficient weight to the science and to public views in development approval and post approval regulation that is insufficiently skilled, resourced or resolute to ensure conditions of approval are met and where they are not appropriate action is taken.

Against this background of multiple and conflicting views about the coal seam gas and large coal mining industry generally it would be very difficult to isolate, with precision, the extent to which the water trigger could make a difference in overall confidence in the regulatory system.

However, the absence of an objective measure of to what degree the water trigger could promote public confidence in the regulatory system does not mean that it is inappropriate for government and the Parliament to make judgements on the matter.

Elected representatives legitimately and frequently exercise their judgements about the drivers of public confidence in government decision making generally, and in establishing regulatory systems more particularly. The Commonwealth and state governments did just this in establishing the National Partnership Agreement on Coal Seam Gas and Large Coalmining Development and the associated establishment and functioning of the IESC.

Some have argued that the EPBC Act is not intended to be a mechanism to enable oversight or second guessing of state environmental regulation and policy and that the water trigger is inappropriate on these grounds. In support of this view reference has been made to the finding of the Hawke Review of the EPBC Act¹² that environmental impacts on water generally should not be a matter of national environmental significance, as it is better governed by state policy and regulation.

There is some merit in this view. However, it is also relevant that the environmental aspect of water that is subject to the water trigger is much more narrowly defined than was contemplated by the Hawke review which looked at water extraction more generally as a potential matter of national environmental significance.

Further, there is no doubt that the EPBC Act enables the Commonwealth Parliament, subject to the Constitution, to insert new matters of national environmental significance. Also, as argued above, it is a

¹² The Hawke review is available at <https://www.environment.gov.au/legislation/environment-protection-and-biodiversity-conservation-act/epbc-review-2008>

legitimate role for elected representatives to decide whether this would enhance public confidence in the regulation of impacts to water from coal seam gas and large coal mining development.

4.4 Were alternative viable policy options (including non-regulatory approaches) considered at the time the regulation was being developed?

In light of the above observations about the appropriateness of the water trigger it is relevant to describe other relevant policy options that were considered at the time the legislation was considered.

In identifying the policy options of the time the review has necessarily focused on the public record. Two sources in particular are drawn upon, both of which are elements of the parliamentary process that resulted in the water trigger becoming law.

The first is proposals put forward by Members of the Parliament during debate on the legislation. The second is the submissions made to the Senate Environment and Communications Legislation Committee during its examination of the Bill. Inevitably, there is overlap in the proposals that emerged from these two processes.

Proposals made in debate on the water trigger legislation

The following summarises the alternative proposals of policy significance put forward by Members of Parliament during debate on the legislation. The summary does not restrict itself to formal amendments. Nor does it dwell on apparently political or process concerns that were expressed at various times. Rather it seeks to identify the substantive alternative policy options in relation to the water trigger legislation (not more generally) that Members canvassed and which may have relevance in the context of this review. Given the passage of time proposals for changes to the transitional provisions of the legislation are not canvassed.

In no particular order the following options were canvassed:

- continue to rely on State government assessment and regulation of impacts on water by coal seam gas and large coal mining development informed by IESC assessment and advice
- exclude exploration activities from the scope of the legislation
- clarify the breadth of the legislation especially the definition of a water resource
- clarify definitions of large coal mine and the mining related activities covered by the legislation
- enable decisions under the water trigger to be included in a bilateral approval agreement with a State in a “One Stop Shop” approval process
- prevent the approval of an action except where the Minister is satisfied that the landholder has freely given informed consent in relation to the taking of the action
- extend the scope of the legislation to shale gas and tight gas.

Proposals made to the Senate Environment and Communications Legislation Committee

The following summarises the alternative proposals of policy significance put forward by interested organisations and individuals to the Legislation Committee. Again, this summary does not restrict itself to formal proposals. Nor does it dwell on apparently political or process concerns that were expressed by participants. Rather it seeks to identify the substantive alternative policy options in relation to the water trigger legislation (not more generally) that participants in the Committee's hearings canvassed and which may have relevance in the context of this review. Again, given the passage of time proposals for changes to the transitional provisions are not canvassed.

In no particular order the following options were canvassed:

- broaden the water trigger to cover other forms of mining that excavate beneath the water table
- extend the scope of the legislation to shale gas and tight gas
- include a requirement when assessing proposed actions under the water trigger not to act inconsistently with the Convention on Biological Diversity
- that the significant impact guidelines for the water trigger take into account the notion of environment sustainability outlined in the Water Act 2007
- continue to rely on State government assessment and regulation of impacts on water by coal seam gas and large coal mining development informed by IESC assessment and advice
- address impacts to water of large coalmining and coal seam gas development through continuing negotiation between the Australian and state/territory governments (Either through COAG or in the context of the Standing Council on Energy and Resources Harmonised Regulatory Framework)
- that the IESC should make recommendations in relation to projects that are referred to it and that its advice should be binding
- include a definition in the legislation of significant impact on a water resource
- include a requirement for bioregional assessments to be conducted prior to the Minister approving a coal or gas development
- exclude exploration and appraisal activities from the scope of the legislation
- continue to use the EPBC Act to assess and manage impacts on ecosystems as a unit rather than the individual impacts from specified industries
- use strategic assessments under the EPBC Act in relation to water resources to protect existing matters of national environmental significance
- develop a framework to identify water resources of national environmental significance in order to focus Commonwealth assessment on areas of risk to national environmental values.

Broadly speaking, the proposals above to strengthen the legislation were put forward by environment groups while business and industry groups generally sought retention of state based assessment and approval processes.

Do any of these policy options continue to warrant consideration?

Many of the above policy options continue to be advocated by stakeholders. Where appropriate these will be addressed in the later sections of this report (see section 6 and following) dealing with proposals for improvements to the water trigger.

The proposal to negotiate arrangements through COAG and other intergovernmental forums in effect argued for an alternative policy process. While this had merit at the time it has been overtaken by passage and implementation of the legislation.

The option of continuing to rely on state government assessment and regulation of impacts on water by coal seam gas and large coal mining development informed by IESC assessment and advice was in effect the argument for retention of the status quo. It is addressed largely by the review's conclusions (below) in relation to the appropriateness of the legislation.

Proposals to use strategic assessments under the EPBC Act and to develop a framework to identify water resources of national significance are closely related. So too is the suggestion to use the EPBC Act to identify the nationally significant environmental values to be protected rather than define the impact of specific industries as a matter of national environmental significance. These and related policy options continue to deserve consideration in the light of experience with the trigger and are addressed in section 8 of the report.

Finally, two of the substantive policy options put forward at the time that the legislation was considered go to matters of scope which are best addressed now in the context of considering the appropriateness of the legislation.

4.5 Is the scope of the water trigger appropriate to the problem being addressed?

In conducting this review, I have taken the view that the Parliament was very clear in its intention that the water trigger legislation deal only with the impacts of coal seam gas and large coal mining development on water resources. I have chosen to regard as out of scope, the capacity of the legislation to deal with problems other than one it was enacted to address.

Access to land

As indicated above a proposal was made in the Parliament that in effect the legislation prevent the approval of an action except where the Minister is satisfied that the landholder has freely given informed consent in relation to the taking of the action. Such a provision would expand the scope of the

legislation to incorporate a consideration which does not relate to impacts to water of coal seam gas and large coal mining development. While access to land remains contentious, and was mentioned in some submissions to the review, it clearly falls outside the scope of the legislation as made by the Parliament. Accordingly, the issue has not been considered by this review.

Shale and tight gas

During consideration of the legislation by the Parliament and in submissions to this review, arguments have been made to increase the scope of the legislation to include shale and tight gas and/or other forms of mining that excavate beneath the water table.

The terms of reference for the review direct it towards a retrospective consideration of whether the scope of the legislation is appropriate to the problem being addressed. There is no doubt that the problem conceived by the Parliament related to coal seam gas and large coal mining, not other mining or extractive techniques. Therefore, the review concludes that in practice the scope of the legislation is in keeping with Parliament's intention.

4.6 Findings in relation to the appropriateness of the legislation

The policy intention of the water trigger was to address a perceived gap in an existing Australian Government regulatory regime, the EPBC Act, and to respond to public concern about the impacts to water of coal seam gas and large coal mining development.

The regulatory gap was addressed by enabling the advice of the still new IESC which was established in 2012 by the Environment Protection and Biodiversity Conservation Amendment (Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development) Act 2012 to be given formal consideration by the Commonwealth Minister in decision making under the Act.

Enactment of the water trigger was therefore an incremental reform.

Nevertheless, the legislation had the effect of giving the Commonwealth a direct regulatory role in a new but narrow domain.

Regulation is an appropriate public policy response to the potential risks associated with coal seam gas and large coal mining.

The policy of the Australian Government is to apply conditions to an approval under the water trigger only after a state government has undertaken its assessment of a proposal and attached state government conditions to its consent.

The conditions attached to approvals under the water trigger are therefore largely matters that would not have been regulated in the absence of the trigger.

This review has identified that in general Commonwealth conditions have given particular emphasis to enhancing the information and scientific knowledge base to support adaptive management of large coal mining and coal seam gas developments.

The review finds that the water trigger is an appropriate measure to address the regulatory gap that was identified at the time of its enactment on the following grounds:

- The impact of the water trigger has been to strengthen adaptive management in a domain in which the impacts to water of developments are often uncertain, occur over a long period and carry significant risks in terms of consequences.
- The characteristics of individual coal seam gas and large coalmining developments are highly variable. The water trigger has enabled decision makers to take into account the full scope of independent and scientific advice provided by the IESC. This gives assurance that, in general, conditions have been tailored to individual development proposals.
- The policy of the Commonwealth in setting conditions to address gaps in state assessment and regulatory decisions, relative to the requirements of the water trigger legislation has served to integrate Commonwealth and state regulatory arrangements.
- Conditions of approvals generally provide for publication of water management plans and the results of monitoring and other aspects of project management. This enhancement of transparency increases the prospect of public confidence in the regulatory system as a whole.

It is not possible to state with precision the extent to which the water trigger could contribute to the achievement of its second aim, the alleviation of public concern about the regulation of coal seam gas and large coal mining development.

However, the absence of an objective measure of the degree to which the water trigger could promote public confidence in the regulatory system does not mean that it is inappropriate for government and the Parliament to make a judgement on the matter.

Further there is no doubt that the EPBC Act enables the Commonwealth Parliament, subject to the Constitution, to insert new matters of national environmental significance.

The review finds that the enactment of the water trigger is an appropriate manner in which to seek to alleviate public concern about the impacts to water of coal seam gas and large coal mining development.

The appropriateness of the scope of the legislation was raised in submissions to the review. In particular, its application to the regulation of access to land and to extraction of shale and tight gas and other mining techniques was raised.

Independent Review of the Water Trigger Legislation

There is no doubt that the problem conceived by the Parliament related to coal seam gas and large coal mining only, not other mining or extractive techniques or land access issues.

The review concludes that in practice the scope of the legislation has been in keeping with Parliament's intention.

5. The effectiveness of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects

5.1 Evidence of effectiveness

The water trigger legislation has been in operation for a short time (since 22 June 2013). In many cases the projects that it has regulated have not commenced or been in place long enough for impacts to water resources to be measured.

Therefore, the review plays close attention to the assessment and approval process and the general character of conditions placed upon matters approved under the water trigger to assess the degree to which they are capable of influencing environmental outcomes, including through associated arrangements for monitoring and compliance.

5.2 In what manner was the EPBC Amendment Act 2013 implemented?

The following describes the generic referral, assessment and approval process for proposals that are subject to the water trigger.

Referrals

The Significant Impact Guidelines referred to earlier in this report¹³ guide proponents and states/territories on whether a coal seam gas or large coal mining development is likely to have a significant impact on water resources, and therefore requires referral of the proposed action to the Minister for an assessment of whether or not it is a controlled action for the purposes of the EPBC Act.

The guidelines were developed in consultation with interested stakeholders and have been refined over time.

Assessments

Coal seam gas and large coalmining development projects which are likely to have a significant impact on a water resource are generally assessed under an assessment bilateral agreement. These exist between the Commonwealth and each state and territory under the EPBC Act.

Section 44 of the EPBC Act provides for bilateral agreements between the Commonwealth and states/territories that:

- protect the environment; and
- promote the conservation and ecologically sustainable use of natural resources; and

¹³ See section 3.2.

- ensure an efficient, timely and effective process for environmental assessment and approval of actions; and
- minimise duplication in the environmental assessment and approval process through Commonwealth accreditation of the assessment or approval processes of the state or territory (and vice versa).

Bilateral agreements are the subject of consultation with the public during their preparation.

The assessment agreements contain a number of state/territory assessment pathways that can be used to assess the likely impacts of a proposed action. Each process identified in the bilateral agreement is required to be nominated as equivalent to one of the EPBC Act processes such as Preliminary Documentation, Public Environment Report, Environmental Impact Statement or Public Inquiry.

The state/territory assessment examines the impact of the project on all matters of national environmental significance, including the water trigger. Generally, assessment bilateral agreements also require that the state provide an assessment report and a recommendation to the Commonwealth Minister in relation to the matter being assessed, including about any conditions that should be attached to an approval including in relation to the water trigger.

The Commonwealth generally works with the state/territory regarding the proposed approval and conditions prior to finalisation of the state assessment report, which triggers the commencement of the EPBC Act decision making timeframe under Part 9 of the Act.

As Figure 2 below indicates some water trigger projects have been assessed through alternative processes.

Approvals

On receipt of the assessment report from the state/territory the Commonwealth generally has 30 business days to make an approval decision on the project in relation to its impact on all matters of national environmental significance.

The Minister must take into account advice from the IESC in relation to the impacts to water as well as any recommendations and proposed conditions received from the state/territory.

The Commonwealth Minister's final decision is also informed by comments on a proposed decision from the proponent and relevant Australian Government Ministers.

5.3 What was the number and nature of projects that were considered as a result of implementation of the regulation?

Developments requiring assessment under the water trigger.

As of 6 April 2017¹⁴ a total of 75 coal seam gas or large coal mining developments subject to the 'water trigger' required assessment under the EPBC Act. Of these, 29 developments have been approved, 35 were undergoing assessment and eleven have been withdrawn.

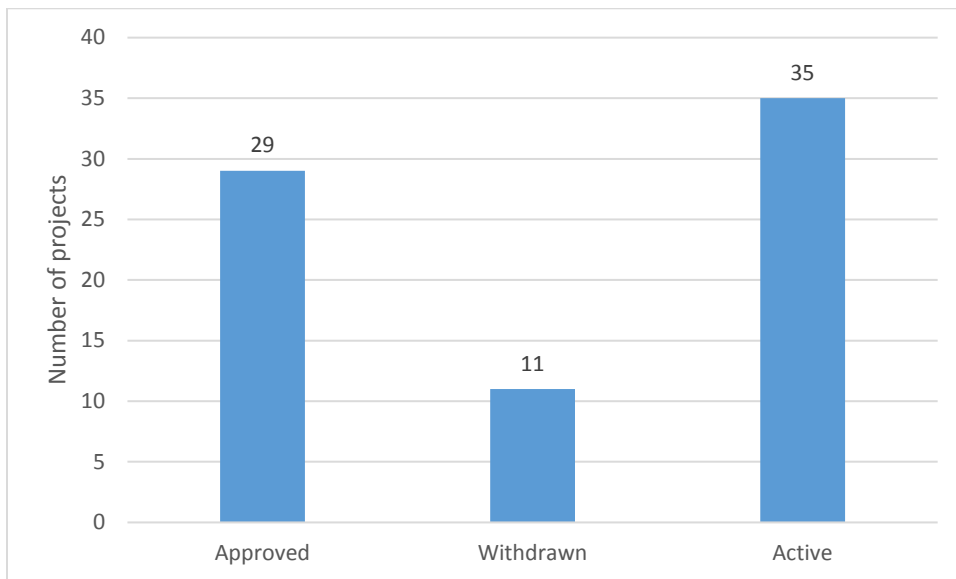


Figure 1: Status of projects with the water trigger as a controlling provision (as at 6 April 2017)

Of the 35 developments being assessed by the Department of the Environment, 21 were being assessed under assessment bilateral agreements. A further three developments were being assessed under the EPBC Act through an accredited state assessment process. The remaining 11 developments were being assessed under the EPBC Act through preliminary documentation (eight projects) or by environmental impact statement (two projects), with the assessment method for one project not yet determined.

¹⁴ All statistics as of 6 April 2017

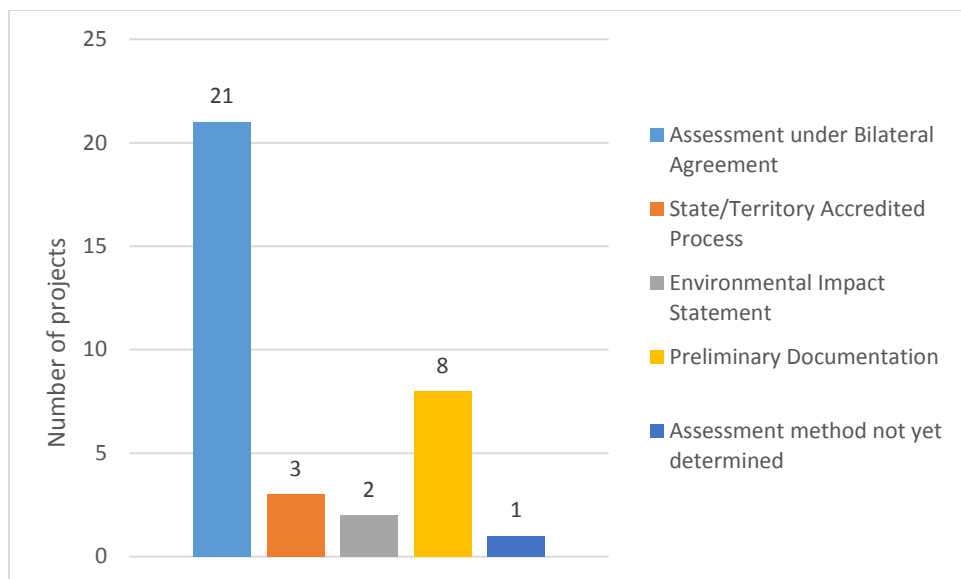


Figure 2: Assessment process of active projects with the water trigger as a controlling provision (as at 6 April 2017)

Notes to Figure 2 above.

The process for assessment under a bilateral agreement has been described earlier in this section of the report.

Assessment under a state/territory accredited process (column 2 above) are processes conducted by the relevant state or territory when it is identified that a controlled action is involved and a particular accredited process is agreed between the Commonwealth and the state/ territory as being capable of assessing all the relevant controlling provisions/impacts for that action. These are one-off accreditations, usually in the absence of an assessment bilateral or where a state has established a new/different assessment pathway that has not yet been included in an assessment bilateral agreement.

Environmental Impact Statement (EIS) (column 3) - these assessments are used for more complex cases where a state assessment is unable to be used, and where a formal EIS under Part 8 of the EPBC Act is required to provide the level of detail needed to assess the matter. These assessments require Terms of Reference to be set out, and have a longer public consultation period than Preliminary documentation.

Preliminary documentation (column 4) – used for simpler cases.

Location and type of projects assessed under the water trigger

Status	NSW		QLD		Tas		WA		
	Coal	CSG	Coal	CSG	Coal	CSG	Coal	CSG	
Approved	10		18	1					29
Withdrawn	4		5	1	1				11
Active	13	1	19	1			1		35
Total CSG		1		3					4
Total coal	27		42		1		1		71
Total CSG + coal		28		45		1		1	75

Figure 3 Break down by location and by project type of projects with the water trigger as a controlling provision as at 6 April 2017

Number of projects that have been assessed against the water trigger alone

As at 6 April 2017 only one project assessed under the water trigger has been assessed for its impact on water alone. All others have been assessed against additional matters of national environmental significance.

Projects captured by the transitional provisions

50 projects were captured by the transitional provisions of the water trigger legislation.

Additional information was required for two of the projects, one of which was subsequently withdrawn and the other which did not proceed as its license was cancelled by the state government.

One of the projects was assessed as not subject to the trigger.

Assessment of all 50 projects occurred within the statutory timeframes for EPBC Act assessments.

Of the 47 remaining projects 17 have been approved, 22 remain under assessment and eight have been withdrawn. (The status of projects classified as remaining under assessment can include further assessment underway by the proponent or state, project on hold for other reasons or the EPBC clock has been stopped.)

Significance of the above data

Key observations on the above data in the context of the effectiveness of the water trigger legislation are as follows:

- of the total number of coal seam gas or large coal mining developments that have required assessment just under half (35) remained under assessment as at 6 April 2017 and only 29 had been approved
- the assessments of projects is largely undertaken by states in accordance with assessment processes accredited by the Commonwealth
- projects that have been or are undergoing assessment are overwhelmingly in Queensland and New South Wales
- projects that have been or are undergoing assessment largely involve large coal mines
- all projects but one triggered other matters of national environmental significance in addition to the impact to water of coal seam gas and large coal mining development
- projects caught by the transitional provisions did not have their assessment timeframes altered.

5.4 How was the Independent Expert Scientific Committee engaged in the implementation of the regulation and was its advice available to decision makers?

The introduction of the water trigger did not change requirements on regulators who are parties to the National Partnership Agreement to request advice from the IESC. Nevertheless, there have been refinements to the processes of interaction between regulators and the IESC.

The Department of the Environment submission to the review advises that efficiency has been achieved by integrating the process of seeking IESC advice into the Department's standard business processes in a way that minimises the impact on the timeline for the assessment of developments.

Generally, the Australian or state government regulator will seek IESC advice based on a proponent's initial or draft Environmental Impact Statement. This allows the proponent to consider and respond to IESC advice during and following the existing mandatory public consultation period, based on the same documentation available to the public, thus avoiding additional delays.

In circumstances where both the Australian Government and a state regulator require advice from the IESC, the two jurisdictions will submit a joint request for advice wherever possible. This is seen as the most efficient business practice.

Legislation¹⁵ was introduced to the Parliament in 2014 to enhance the availability to decision makers of the best available science in relation to impacts to water resources from coal seam gas and large coalmining development by enabling all states/territories to seek advice from IESC regardless of

¹⁵ Government Amendments to the Environment Protection and Biodiversity Conservation Amendment (Bilateral Agreement Implementation) Bill 2014

whether they are a party to the National Partnership Agreement. At the time of writing, this legislation has not been re-introduced following the 2016 General Election.

Turning to IESC practices, it is important to recall that the IESC does not give advice on, or make decisions on, whether or not to approve coal seam gas or large coal mining development proposals. This continues to be the role of the relevant state and/or Australian government regulator.

The IESC published the first 'Information Guidelines for Proposals Relating to the Development of Coal Seam Gas and Large Coalmining Developments' where there is a Significant Impact on Water Resources in February 2013. This assists proponents in preparing their assessment documentation prior to it being considered by the IESC.¹⁶

To improve the focus of assessment documentation provided to the IESC the guidelines were updated and streamlined (most recently in October 2015) and retitled 'Information Guidelines for Independent Expert Scientific Committee Advice for Coal Seam Gas and Large Coal Mining Developments'. This occurred following consultation with state governments and other stakeholders including industry.

The 2015 review¹⁷ of the National Partnership Agreement included an analysis of the role of the IESC in enhancing the scientific evidence base and in providing independent advice to regulators to inform decision making. Some of the findings relevant to this review include that:

- IESC advice has been available to relevant regulators as intended under the Agreement and has been considered by regulators
- IESC advice to regulators has strengthened regulatory decisions.

The review also made recommendations to refine and improve arrangements concerning the interaction between the IESC and Parties to the National Partnership Agreement and peak industry bodies. Those recommendations were:

- IESC and the Office for Water Science to document and advise the Parties of their respective roles in the consideration and provision of advice in relation to referrals
- IESC in consultation with Parties to review how its advice has been adopted in subsequent regulatory decisions to enable it to refine as necessary the framing of its advice in the context of the varying regulatory regimes of the Parties
- Parties to review how responses to IESC advice are reported in order to enhance consistency and transparency of consideration
- IESC to further engage with peak industry bodies to enable its overall role, methodology and approach to be understood and to consider any feedback on it

¹⁶ IESC Information Guidelines at <http://www.iesc.environment.gov.au/publications/information-guidelines-independent-expert-scientific-committee-advice-coal-seam-gas>

¹⁷ www.environment.gov.au/water/coal-and-coal-seam-gas/office-of-water-science/npa

- As Bioregional Assessments become more available IESC clarify with the Parties and relevant stakeholders how they will be drawn upon in assessing development proposals, especially their cumulative impacts.

Parties to the National Partnership Agreement are considering their response to the Review.

5.5 What was the nature of any conditions placed on approvals as a result of the regulation?

As noted in earlier consideration of the appropriateness of the water trigger, a strong focus of conditions in water trigger approvals is upon enhancing the information and scientific knowledge base in relation to individual developments.

Conditions are generally framed to support adaptive management of large coal mining and coal seam gas developments. For example, conditions typically specify binding requirements for ground water management or other plans which are supported by refined and validated numerical models and which specify thresholds and trigger points for management action including reporting, modifying activities or ceasing them.

This focus of conditions on adaptive management reflects the reality that the impacts to water of developments are often uncertain, difficult to measure, occur over a long period and carry significant risks in terms of potential negative environmental consequences.

The use of conditions to directly specify highly prescriptive biophysical outcomes or targets would not be generally appropriate in this context since these are identified through, rather than in advance of, adaptive management planning.

The approach to conditioning used under the water trigger does, however, place particular reliance on the robustness of the accompanying monitoring and compliance regime.

5.6 Compliance and enforcement policy and practice under the water trigger

The relatively short period of time for which the water trigger has been in place, combined with subdued market conditions, mean that few individual approvals have reached the stage of substantial commencement. As a result, there is little evidence against which to assess actual compliance and enforcement performance.

However, it is relevant to examine the broad approach taken by the Department of the Environment and Energy to compliance and enforcement policy and practice in relation to the EPBC Act generally as well as specifically to the water trigger. This is carried out in some detail below.

The Department's activities in this domain are guided by its Compliance and Enforcement Policy for the Environment Protection and Biodiversity Conservation Act 1999 published in 2013.¹⁸ The policy describes the Department's approach to, and the principles that guide, compliance and enforcement activities under the EPBC Act.

Expectations of the regulated community

The policy outlines expectations of the regulated community. These include:

- where an entity is subject to a license, permit or approval scheme that the entity will self-report potential non-compliances upon becoming aware of them
- whether an entity has self-reported an instance of non-compliance will be taken into consideration when determining the most appropriate compliance or enforcement measure to address the issue
- where an entity appears to have provided false or misleading information consideration is given to appropriate action in the circumstances which may include requiring the entity to provide further accurate information, enforcement action under the EPBC Act and/ or enforcement action under the criminal code
- where appropriate, the regulated community is to implement systems and practices such as training and business practice measures to ensure its members are undertaking activities in compliance with the Act.

Monitoring of compliance

Under the policy the Department monitors compliance with and detects potential contraventions of the EPBC Act by analysing information from sources such as the general public, the media, industry, non-government organisations and other government agencies. The policy states that regular monitoring and auditing of projects that have been referred under the EPBC Act occurs to ensure requirements placed on those projects are being adhered to.

Monitoring activity may be strategic, targeted or random and may consist of:

- patrols
- audits
- sample collection
- site visits or inspections
- observations by Departmental officers or other agencies, and
- intelligence analysis of information, data and reports.

¹⁸ Compliance and Enforcement Policy 2013 available at <http://www.environment.gov.au/epbc/publications/epbc-compliance-and-enforcement-policy>

Investigations of potential contraventions

The Department states that “it is committed to ensuring every report it receives, and every potential contravention of the EPBC Act it detects, is examined. However not every allegation will result in an investigation. A risk based approach is used to prioritise cases and identify those that warrant further investigation. This enables the Department to target its compliance and enforcement activities to address the most serious regulatory risks.”¹⁹

Initial examinations of reports assess the likelihood that a contravention has occurred, its seriousness and its probable consequences. Depending on the outcome of this initial assessment the policy states that the Department may:

- proceed with further investigative action
- elect not to pursue the matter further having regard to its jurisdiction, priorities and how best to achieve the objects of the EPBC Act
- elect not to proceed with further investigative action but take action to increase awareness and encourage compliance
- elect not to proceed with further investigative action but implement a low or mid-range compliance measure such as formal advisory letter.

The policy states “generally speaking, only those matters involving a high likelihood that a contravention of the EPBC Act has occurred, or a high risk of a significant impact to a matter of national environmental significance, will be elevated for formal investigation.”²⁰

How potential contraventions are addressed

In determining the appropriate way to address a matter and in particular how to fix the problem (a remedy) and whether a sanction is (punishment) is pursued, the Department considers a number of factors including:

- the timing, that is whether a contravention or potential contravention has occurred, will occur imminently or may occur as a result of a future project
- the nature and severity of the harm caused or potentially caused
- any aggravating or mitigating circumstances
- the integrity of the regulatory system
- the law including the objectives of the EPBC Act and its specific penalty provisions.

¹⁹ Compliance and Enforcement Policy 2013 p10 available at <http://www.environment.gov.au/epbc/publications/epbc-compliance-and-enforcement-policy>

²⁰ Compliance and Enforcement Policy 2013 p10

Compliance and enforcement measures in use

Proactive measures include education, outreach and advice. Where these activities fail reactive compliance and enforcement measures may be used.

Administrative measures rather than court based remedies can be employed. These may include:

- requiring a person to take a particular action
- caution notices or formal advisory letters requiring future compliance
- infringement notices
- varying or imposing further conditions on permits or approvals
- suspending, revoking or cancelling permits or approvals
- retaining bonds or securities lodged as a condition of permits or approvals to remediate harm caused by a breach
- directed audits
- conservation or other agreements
- enforceable undertakings
- remedial determinations
- Ministerial orders to remedy environmental damage
- publication of a contravention
- seizure of items.

The EPBC Act provides for a range of civil penalty provisions and associated remedies which include:

- penalties for non-compliance
- injunctions to prevent certain behaviours from being taken or continuing
- remediation orders
- court orders requiring compliance with a remediation determination.

The EPBC Act contains a number of criminal offences. According to the policy, a matter may be referred for prosecution where any of the following circumstances occur:

- the offence produced real or potential harm to Australia's environment, economy, resources, assets, or the well-being of Australia or Australians
- the Australian Government or community expect that the offence will be dealt with by public court prosecution
- the offence is of such a nature or magnitude that it is important to deter potential offenders with the possibility of prosecution and/or
- the alleged offender has been subject to previous compliance and enforcement measures.

Compliance Monitoring Program 2015-16

The Department of the Environment Compliance Monitoring Program 2015-16 discusses compliance monitoring achievements in 2014-2015 and compliance monitoring focus and objectives for 2015-16.²¹

As such it provides broad insights into the practical application of the Compliance and Enforcement Policy described above including in relation to coal seam gas and large coal mining developments approved prior to the water trigger as well as since.

The Department's Compliance Monitoring focus for 2015-16 makes the following points of relevance to water trigger projects:

- mining, energy, construction and transport sectors together represent almost 90per cent of the projects that pose the greatest risk to the environment
- the Department's analysis identifies the mining sub-sector as posing the greatest potential risk to the environment²²
- common mining sector issues and challenges identified in the Compliance Monitoring Program include ensuring approval holders meet commitments for water management in coal seam gas and coal mining operations, ensuring approval holders remain compliant when commencement or progress of a project depends heavily on market conditions, maintaining mitigation, avoidance and/or offset standards for mines that may be expanded and ensuring approval holders maintain adequate records to determine compliance with disturbance limits for fauna habitat and threatened ecological communities.

Relevant compliance monitoring objectives for 2015-16 include:

- at least 20per cent of all National Environmental Significance Threat and Risk Assessment (NESTRA) high risk-rated project are to be subject of a compliance monitoring inspection
- at least one project of any risk category, in the vicinity of a high risk project will be subject to a compliance monitoring inspection
- development of compliance plans for all NESTRA high-risk projects and for all projects subject to a Compliance Monitoring inspection, irrespective of NESTRA risk rating
- all annual compliance reports and monitoring for NESTRA high risk projects will be subject to review

²¹ Compliance and Monitoring Program 2015-16

²² The Department of the Environment uses a risk-based project-prioritisation model, the National Environmental Significance Threat and Risk Assessment (NESTRA) tool to assess all projects for approval. NESTRA informs the Department's Compliance Monitoring focus on those projects that pose the greatest risk to the environment and can reduce the regulatory burden on projects that are low risk for people who consistently do the right thing.

- strategies will be developed and implemented to engage with priority sectors including mining to encourage compliance with approval conditions.

Compliance monitoring of water trigger projects in practice

The Department of the Environment and Energy has provided the following information to the review.

‘Projects go through an assessment and approval process that also involves state government regulation and approval of projects may take a number of years. Compliance monitoring and compliance actions are not undertaken until a project is approved.

As at 15 November 2016, 74 projects are currently subject to the water trigger controlling provision.

In 2014/15:

- Nine of these 74 projects were assessed using a National Environmental Significance Threat and Risk Assessment (NESTRA) rating process. Of these, two were found to present a potential high risk of impact to the environment and/or of non-compliance. The remaining 65 (out of 74) projects were not rated through NESTRA as this was soon after the introduction of the Water Trigger legislation and projects were still being assessed and had not yet been approved.
 - One project was the subject of compliance action, although this was unrelated to the water trigger controlling provision. At the time of the compliance action the project had not yet been assessed through NESTRA.
 - No project with a water trigger controlling provision was subject to a compliance monitoring inspection as most projects were either still under assessment, or had not commenced and therefore monitoring was unnecessary.

In 2015/16:

- 25 projects (of the original 74 projects) were assessed via the NESTRA process. Of these, 16 were identified as potential high risk for impact to the environment and/or of non-compliance.
- 49 of the original 74 projects were yet to be assessed through NESTRA as they were under assessment or had not yet been handed over to the Compliance and Enforcement Branch.
- No project with a water trigger controlling provision has yet been subject to compliance action.
- One project with a water trigger controlling provision was subject to a compliance monitoring inspection.
- Most projects subject to the water trigger controlling provision have not yet commenced or have not yet reached a stage where monitoring is necessary.’

Monitoring and compliance provisions in water trigger approval conditions

Approval conditions under the water trigger typically incorporate actions that specifically support monitoring and compliance. Examples of such provisions are:

- maintenance of accurate records substantiating activities associated with conditions of approval
- reporting of potential non-compliance with a condition as soon as practical as well as actual breaches in regular reports
- in the case of potential non-compliances, the nature of the non-compliance, when and how the approval holder became aware of it, anticipated impacts on matters of national environmental significance of the non-compliance, measures that will be taken to address the impacts and rectify the non-compliance and the time in which this will occur
- annual reporting, generally for the life of a project, of compliance with conditions including implementation of management plans, strategies or other requirements of the conditions
- upon direction of the Minister conduct of an independent audit of compliance with conditions by an auditor approved by the Minister and according to ministerially approved audit criteria
- if an approval holder wishes to carry out an activity other than in accordance with a management plan or similar as specified in the conditions then the Minister's approval is needed for a revised management plan
- if necessary for the better protection of a matter of national environmental significance the Minister may request specified revisions to a management plan to be submitted for approval.

Compliance and enforcement challenges including for water trigger approvals

Compliance and enforcement in relation to water trigger projects face a number of challenges which are not unique but are nevertheless relevant. These include:

- reliance on states to carry out compliance and monitoring on conditions that require adherence to state consent conditions noting that there is a capacity under the EPBC Act to direct a state to provide data to the Commonwealth
- the time scales over which environmental impacts which are not consistent with conditions of approval emerge may be too great to enable appropriate mitigation
- the difficulty of attribution of causation of negative environmental outcomes in complex systems, especially ground water systems
- while many risks from coal seam gas and large coal mining may have a low likelihood the potential consequences are high which creates particular challenges for appropriate intensity of risk monitoring
- the dependence of all environmental monitoring on assumptions of varying precision about baseline conditions against which monitoring and compliance is framed.

Conclusions in relation to monitoring and compliance

The overall integrity of the trigger depends very significantly on the effective resourcing and implementation of Commonwealth monitoring and compliance effort.

A framework and resources are in place for monitoring and compliance both at system and individual project level.

It is recommended that an independent review be undertaken to assess and validate the overall effectiveness of conditions attached to approvals under the water trigger and of the effectiveness of associated monitoring and compliance activity. This review should occur at a point in time at which sufficient data is available to enable a robust validation.

5.7 Impact of the water trigger on state regulatory practice and the standard of proponent input

An aspect of the effectiveness of the water trigger that is particularly difficult to measure is the extent to which its existence has led both proponents and states to autonomously lift the standard of their proposals and assessments in order to better satisfy the legislation.

It would be surprising if this did not occur, at least to some degree. However, the evidence is ambiguous and impressionistic.

Both before and since the commencement of the water trigger state governments, the Commonwealth, proponents and the IESC have all continued to refine their assessment and associated administrative processes. It is not possible to isolate the degree to which this has been driven by the requirements of the water trigger.

On the evidence available to the review the standard of assessments and proposals put forward by proponents varies considerably according to the capabilities of the relevant companies. It appears that the native capabilities of individual firms are the most powerful determinant of the standard of proposals, outweighing at this stage the additional disciplines created by the water trigger.

5.8 What is the evidence that protection of water resources has improved as a result of the operation of the EPBC Amendment Act 2013?

Direct evidence that the water trigger legislation has protected water resources is not available. This is due to the short period of time the legislation has been in place and the slow pace at which projects regulated by it typically commence operation. Indeed, the majority of projects that have been referred for assessment under the trigger remain under active assessment.

The preceding analysis of the characteristics of the conditions attached to water trigger proposals and the accompanying monitoring and compliance regime gives confidence that the water trigger will improve the protection of water resources.

5.9 What was the impact of the regulation on the interests of relevant stakeholders?

The following broad characterisation of views on the impact of the water trigger is based on submissions received from stakeholders and responses to the survey questions, which were made available for interested persons and organisations to respond to.

State and territory governments did not make formal submissions to the review.

Industry representatives and individual corporations generally perceive the legislation as creating a duplicate regulatory process which does not add value and creates significant compliance costs. Repeal of the legislation is favoured. In the event this does not occur then conduct of assessments and approvals at state level under bilateral agreements are favoured together with other reforms aimed at a more risk focused assessment and approval regime.

Representatives of agricultural industries generally support the legislation especially in terms of the protection it offers to water resources.

Environmental advocacy groups generally strongly support retention of the legislation although they also identify shortcomings. They put forward a variety of suggestions including to increase the weight afforded to IESC advice in approvals, the application of Bioregional Assessments in decision making and continued maintenance of approval decisions at Commonwealth level.

Interested individuals and landholders who responded to the on line survey questions expressed a range of opinions as follows. Interested individuals and landowners generally:

- believe the legislation currently does not go far enough to protect water resources from mining proposals
- are of the view that the scope and focus of the water trigger legislation should be expanded to include all shale, tight and unconventional gas extraction and associated infrastructure
- favoured Commonwealth oversight of water protection
- did not think the water trigger has been beneficial in providing environmental outcomes, community confidence in the regulatory system of applying science to decision-making, or the management of environmental risk
- are uncertain (or did not answer this question) as to whether there has been any additional administrative compliance and delay cost owing to the water trigger.

5.10 Findings and recommendation in relation to the effectiveness of the regulation

Direct evidence about the effectiveness of the water trigger legislation not available. (See Section 5.9). This is due to the short period of time the legislation has been in place and the slow pace at which projects regulated by it typically commence operation.

The review finds that the following characteristics of the legislation and the manner it has been implemented give confidence that it is capable of being effective:

- The application of independent expert scientific expertise to consideration of impacts to water of coal seam gas and large coal mining developments has continued and in accordance with the intention of the legislation, this has been applied directly in the setting of conditions.
- Since the trigger commenced refinement and streamlining of assessment processes including referrals to and consideration of advice from the IESC advice to Australian and state government regulators has continued.
- Project assessment processes have significantly reduced the potential for duplication between Commonwealth water trigger assessment requirements and state assessment processes.
- Assessments against the water trigger have necessarily been integrated with assessment of other matters of national environmental significance.
- The water trigger has not generally required completely new assessments. Rather it has driven extension of assessments that were going to occur any event.
- Commonwealth conditions set under the water trigger have focused increasingly on assessed gaps in state conditions, informed by IESC advice.
- The focus of Commonwealth conditions on enhanced on adaptive management responses at a regional scale is appropriate to the uncertainties and risks inherent in the matters being regulated.
- A framework and resources are in place for monitoring and compliance both at system and individual project level.

Such is the importance of monitoring and compliance to the effectiveness of the water trigger the following recommendation is made.

Recommendation 1:

It is recommended that an independent review be undertaken to assess and validate the overall effectiveness of conditions attached to approvals under the water trigger and the effectiveness of associated monitoring and compliance activity. This review should occur at a point in time at which sufficient data is available to assess with confidence the impact of conditions on environmental outcomes.

6. Opportunities to improve the effectiveness of the regulation

6.1 Are there gaps in the scope of the EPBC Amendment Act 2013 relative to its objective?

As mentioned earlier in this report a number of stakeholders have submitted that the scope of the water trigger legislation is too limited and that shale gas and tight gas and/ or other mining techniques should be captured.

However, the objective of the legislation is clear and narrow. It seeks to deal only with the impacts on water resources of coal seam gas and large coal mining development. Therefore, the review cannot conclude that the silence of the legislation on shale and tight gas is other than intentional.

No gaps in the scope of the legislation relative to its objective have been identified by the review.

6.2 Are there opportunities to improve the working including administration and clarity of the regulation?

Submissions to the review made a range of proposals to improve the working and administration of the legislation including through amendments to it. A summary of the proposals and discussion of their merits follows.

Strengthen the statutory role of the IESC and/or constrain the Minister's discretion

Proposals in this category include proposals to amend the Act to provide that:

- the Minister must not act inconsistently with IESC advice when determining a project
- approval conditions must reflect IESC advice
- the Minister may not approve a project until the proponent has adequately addressed any concerns raised by the IESC in its report
- the Minister may not approve a proposal likely to have a significant impact on water quality
- the Minister must seek IESC advice on whether implementation of a project including water management plans has satisfied IESC advice on conditions
- IESC to have the capacity to establish binding guidelines and specific triggers and thresholds that may not be exceeded including exclusion zones for nationally significant water resources.

Response to proposals about the role of the IESC

In effect many of the above proposals seek to transfer a measure of decision making power from the Minister to what is currently an advisory body. There are powerful reasons in both practice and principle not to do this. As an independent scientific committee the IESC is equipped to assess proposals from a science perspective only. It is not constituted to take into account the broader social and economic considerations that are necessary to guide integrated environmental decision making generally or under the EPBC Act in particular.

The proposal that the Minister be required to seek IESC advice on whether implementation of a project including water management plans has satisfied IESC advice on conditions deserves comment. The first is that the Minister may already do this on her or his discretion. Indeed, a Ministerial commitment exists to do this in relation to at least one approval. However, to make this a requirement of every water management plan has the potential to create a regulatory process and burden that is disproportionate to the risks being managed.

Recommendation 1 of this report (to strengthen understanding at a systemic level of the effectiveness of conditions attached to approvals under the water trigger) represents an alternative step in this direction.

The proposal above that the Minister be prohibited from approving an action that would have a significant impact on water also requires comment. The EPBC Act does not prohibit the Minister from approving actions that may have a significant impact on a matter of national environmental significance. Rather, it requires the Minister to consider a range of matters in deciding whether or not to approve the taking of an action, and whether or not to attach conditions to any approval. One matter the Minister must take into account is the principles of ecologically sustainable development.

Further, an amendment of this kind would be a significant departure from the approach used for other matters of national environmental significance. It is not clear why the Minister should have a narrower ability to make decisions in relation to water resource related actions than for actions that impact on other matters of national environmental significance.

Other suggestions for changes in the role or operation of the IESC

Proposals made in public submissions for changes that are not necessarily statutory include:

- provide a clear line of sight between the conditions proposed by the IESC and the conditions incorporated in the Minister's decision
- IESC to conduct a review of state and territory regulation systems for the assessment and management of impacts to water of coal seam gas and large coal mining and identify gaps in those regulations
- IESC advice on projects should be made available publicly at the same time it is provided to regulators
- IESC should be given more time to assess proposals
- IESC alone should conduct a single assessment of proposed developments rather than consider assessments conducted by proponents
- IESC to have greater contact in a structured manner with individual proponents rather than dealing with regulators only, especially at the commencement of an assessment process. Ideally this structured contact would also involve the relevant Commonwealth and/or state regulator.

Response to other suggestions for changes in the role or operation of the IESC

The proposal that there be greater clarity of the relationship between the advice of the IESC and the actual conditions incorporated in the Minister's decision has merit. The 2015 review of the National Partnership Agreement recommended that Parties to the agreement review how responses to IESC advice are reported in order to enhance consistency and transparency of consideration.

At present the IESC advice in relation to each approved water trigger project is incorporated in the documentation that is published on the relevant page of the Department of Environment web site.²³ However, IESC advice is generally framed against a series of questions put to the IESC by the referral to it from the Commonwealth and/or relevant state. As a consequence, a certain degree of "translation" is undertaken where the IESC advice is operationalised into a condition.

It would improve transparency if the documentation of decisions under the water trigger enabled conditions in an approval to be explicitly cross referenced to relevant components of IESC advice.

Related suggestions for reform include that IESC advice on projects be made available publicly at the same time it is provided to regulators and that IESC should be given more time to assess proposals.

IESC advice is currently published on its web page on the 10th business day of providing it to the relevant regulator/s. This normally allows the IESC advice to become publicly available during the existing mandatory public consultation period for the relevant project and therefore enables submissions from the public to be informed by it. The timing of publication of IESC advice is provided for in a specific provision of the EPBC Act (section 505 D(1)) and appears to strike a reasonable balance between timely transparency and enabling regulators a short time to consider their potential public response to what is often complex scientific advice.

The 2015 review of the National Partnership Agreement was not presented with information that would suggest that time frames for IESC consideration of projects were not adequate. No further evidence to that end has emerged during this review.

Some submissions proposed that IESC conduct a review of state and territory regulation systems for the assessment and management of impacts to water of coal seam gas and large coal mining and identify gaps in those regulations. As a scientific body the IESC is not suitably constituted to undertake alone a broader public policy analysis of state regulatory systems. The later section of this report dealing with the issue of whether actions for which the water trigger is a controlling provision should be able to be approved by a state under an approval bilateral agreement made under the EPBC Act considers this issue in an alternate light.

The proposal that IESC have greater contact in a structured manner with individual proponents rather than dealing with regulators only, especially at the commencement of an assessment process and that

²³ The web site can be accessed at <http://www.environment.gov.au/water/coal-and-coal-seam-gas/projects>

this structured contact would also involve the relevant Commonwealth and/or state regulator, echoes proposals made to the 2015 review of the National Partnership Agreement.

It arises largely from the practice adopted by the IESC that it deal through the Office of Water Science with regulators, not proponents directly, in receiving requests for advice and in providing that advice. This arrangement recognises that IESC advice is intended to inform regulators. It also assists IESC to maintain its independence in the context of individual development proposals.

The 2015 review of the National Partnership Agreement recommended that IESC further engage with peak industry bodies to enable its overall role, methodology and approach to be understood and to consider any feedback on it. Parties to the NPA are considering their response to the review.

Some submissions suggested that IESC alone conduct a single assessment of proposed developments rather than consider assessments conducted by proponents. While the logic of placing in independent hands responsibility for impact assessments is appreciated, there would be significant practical impediments to this idea. Leaving aside the significant questions of resourcing and the capacity and constitution of IESC there are strong reasons for expecting proponents to analyse the impacts of their projects. It is very important that management and mitigation of environmental impacts be built into project design from the ground up. If this does not occur environmental management becomes an expensive and less likely to be effective afterthought.

Application of Bioregional Assessments and assessment of cumulative impacts

Some submissions propose a moratorium on individual development approvals until the region in question has been subject to a completed Bioregional Assessment and cumulative impacts can therefore be assessed more thoroughly. Others simply emphasised the need to draw more substantially on Bioregional Assessments as they become available.

As a result of the National Partnership Agreement a significant program of Bioregional Assessments is underway for which approximately \$85 million is being made available by the Commonwealth.

Bioregional Assessments are developing detailed multi layered records of the ecology, hydrology, geology and hydrogeology of 13 sub regions across New South Wales, Queensland, South Australia and Victoria

Bioregional Assessments are intended to provide decision makers in government, industry and the community with baseline information and an assessment of the potential cumulative impacts of coal seam gas and large coal mining developments on water related assets at a regional scale.

The Bioregional Assessment methodology was endorsed by the IESC and published in October 2013. The Program is being delivered through a collaboration between the Department of the Environment and Energy, the Bureau of Meteorology, CSIRO and Geoscience Australia. State and local governments, natural resource management agencies and universities are also contributing to Bioregional Assessments through provision of data and expert knowledge.

To ensure decision makers have access to the best available science, reports are released as they are finalised.

Development of comprehensive base line data sets and construction of water management models at a regional scale for areas in which future development is likely was suggested as a further means of supporting more strategic cumulative assessments. Such an approach could be funded by industry and cover all water users not just mining activity.

Response to proposals in relation to bioregional assessments

The 2015 review of the National Partnership Agreement found that “the progressive promulgation of outputs of the Bioregional Assessment Program is a positive measure. Nevertheless, the timing of outputs from the Bioregional Assessment Program, while on schedule, has meant that it has had limited application to date in guiding the strategic and regional scale management of coal seam gas and large coal mining development. The timely completion of the Bioregional Assessment Program and the application of its outputs is critical to the eventual achievement of this Outcome of the Agreement”.

The Program is continuing to release a range of products for use by the IESC, regulators industry and the public. Discussion with the Chair of the IESC indicates that the Committee, to date, has made increasing use of bioregional assessments in its work and is expecting to make progressively greater use of program outputs as they become available.

Ideally, Bioregional Assessments would have been completed and available in advance of the assessment of individual proposals subject to the water trigger. However, the reality is that this complex and ambitious assessment program was conceived and commenced at the time that the extent of development pressure was becoming apparent to governments. Recognising this, the program has been developed in a way that allows its outputs to become available progressively available. This is a practical approach, which when combined with the adaptive management emphasis on the conditioning of water trigger projects has given an appropriate level of protection to water resources without the need to cease approvals pending the completion of bioregional assessments for each region.

It remains important to make the most of the considerable investment that has been made in the Program including its future governance and application. Recommendation 1 of the review of the National Partnership Agreement proposed that “the Commonwealth take the lead in consultation with the States and relevant stakeholders to identify arrangements for the future governance including maintenance, data provision and funding of bioregional assessments to enable their ongoing application to the regulation of coal seam gas and large coal mining development.” Parties to the NPA are considering their response to the review.

Application of the water trigger to related developments

Some submissions propose that developments that are related to coal seam gas development but which are not captured by the legislation because they are not directly a component of proposed project, such as a pipeline or railway, should be assessed for impacts on water.

Response to proposal to apply water trigger to related developments

Inevitably it is necessary for any regulatory scheme to have boundaries to its reach. The water trigger legislation has addressed this boundary issue by excluding from its coverage the development of associated infrastructure that is not part of a development that incorporates the extraction process. Given it is the extraction process for coal seam gas and large coal mining development that is the central concern of the legislation (rather than, say, the impacts of a non-proximate rail line on a wetland) this appears to be an appropriate point at which to draw the boundary.

Monitoring and compliance

Proposals for increased resourcing and emphasis on monitoring and compliance activity generally were made in some submissions.

A program of review, validation and follow up on approved coal seam gas and large coal mining developments was proposed. Its purpose would include a robust assessment of conditions of approval, ongoing management approaches and validation of the accuracy of impact predictions.

These and related matters have been examined in section 5.7 of the report dealing with monitoring and compliance and a recommendation has been made for conduct of a future independent review of outcomes of conditions and overall monitoring and compliance.

Other definitions and clarifications

The following proposals were made by the Minerals Council of Australia (MCA).

With respect to third party impacts the MCA views it as unreasonable for proponents to account for non-regulated activities for which information is unlikely to be available. Consistent with the approach in Bioregional Assessments only other large coal developments should be considered. Further the MCA believes that “reasonably foreseeable developments” in this section of the Act should be further defined in supporting guidance material.

It is acknowledged that the requirement to include in proposals for mining activity an assessment of the likely impacts on water of future developments generally is challenging. Nevertheless, there is a reasonable public expectation that regulators will take such matters into account when making a decision. While regulators will rely on sources other than the proponent in considering likely future developments the review concludes that decisions of regulators will be better informed if they also have access to a proponent’s assessment of these matters.

Exemptions for ‘grandfathered’ projects

The MCA states that there remains a substantial risk that existing/brownfields projects seeking an extension or renewal of an environmental authorisation without material change in the operation in terms of impact on water resources, particularly under state legislation, may be interpreted as triggering the EPBC Act. It recommends the exemptions within the legislation should be strengthened to ensure

the renewal, amendment or extension of an existing authorisation does not affect the exemption status for unchanged components and changes that do not have a significant impact on a water resource.

It is true that projects with an existing approval under the EPBC Act, or projects with a continuing use or prior authorisation exemption, that are proposed to be varied or expanded are subject to the EPBC Act. However, it will only be where a proposed extension or renewal of an action will have, or is likely to have, a significant impact on a water resource will the water trigger apply.

6.3 Were there any unintended consequences of the regulation in terms of its effectiveness that need to be addressed?

No unintended consequences of the legislation other than matters considered in the preceding sections of the report have come to the attention of the review.

6.4 Findings and recommendations in relation to opportunities to improve the legislation

No gaps in the scope of the legislation relative to its objective have been identified by the review.

The review has been presented with a range of proposals to improve the working of the legislation and the merits of each have been considered in the preceding sections of the report.

It is a measure of the review's generally positive conclusions about the working and administration of the legislation that a limited number of proposals only are supported.

Recommendation 2:

It is recommended that to improve transparency of consideration of IESC advice the public documentation of decisions for which IESC advice has been sought explicitly cross references approval conditions to relevant components of IESC advice.

Recommendation 3:

It is recommended that priority be given to responding to Recommendation 1 of the review of the National Partnership Agreement which proposed that "the Commonwealth take the lead in consultation with the States and relevant stakeholders to identify arrangements for the future governance including maintenance, data provision and funding of bioregional assessments to enable their ongoing application to the regulation of coal seam gas and large coal mining development."

Recommendation 4:

It is also recommended that priority be given to responding to the recommendation of the 2015 review of the National Partnership Agreement that IESC further engage with peak industry bodies to enable its overall role, methodology and approach to be understood and to consider any feedback on it.

7. The efficiency of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects

7.1 What have been the additional administrative, substantive compliance and delay costs associated with the regulation to business, community organisations and individuals?

A costing of the regulatory burden associated with the water trigger has been carried out in accordance with OPBR guidance.

The regulatory burden has been assessed as falling entirely on the coal seam gas and large coal mining industry. No regulatory requirements have been created on other potentially affected groups such as community organisations or individuals.

General methodological approach

Costing estimates of the regulatory burden associated with the water trigger have been prepared by the Department of the Environment and Energy and are at Appendix 3 to this report.

The analysis has looked at whether additional projects fell under EPBC Act jurisdiction as a result of the water trigger alone (i.e., not triggered by the other 8 matters of national environmental significance); and whether projects already within EPBC Act jurisdiction take longer to assess, or the requirements are more costly to meet.

In accordance with OPBR Guidance costs have been estimated over a ten-year period, 2013 to 2023.

The number and character of affected projects has been established through examination of Department of Environment and Energy records of assessments and approvals under relevant parts of the EPBC Act.

This examination has informed estimates of past and future number of projects likely to be affected and their values.

Estimates have been made of the net present values of projects and the impacts of delays arising from the water trigger on those values.

Estimates have also been made of the administrative costs associated with meeting the requirements of the water trigger. Administrative costs include matters such as:

- pre-referral meetings with Commonwealth
- document preparation for referral
- consultation associated with assessment

- approval: time required to respond to additional information requests, including participation in additional meetings
- post-approval processes.

Substantive compliance costs estimates relate to conditions attached to approvals and can include:

- preparation of management plans
- preparation and management of groundwater monitoring wells
- monitoring and reporting on performance against water management plans.

Summary of estimates of regulatory burden to business

Lengthened approval processes under water trigger amendments, where there are trading delays associated with the referral and approval process when compared to the business as usual scenario of state government assessment and regulation of impacts	\$45.7 million p.a.
Increased administration costs	\$0.1million p.a.
Increased substantive compliance costs	\$1.0 million p.a.
Total increased average annual regulatory costs (from business as usual)	\$46.8 million p.a. total change in costs

The Department of Environment and Energy notes that ‘The most problematic issue in preparing this estimate is that the number of delay days (i.e. the difference between the state and commonwealth approval dates) for projects that would have enlivened the water trigger (i.e. before the water trigger was introduced) and projects that actually enlivened the water trigger (i.e. approved after the water trigger was introduced) reduced from 177 to 105 days. While this reduction may relate to improvements in administrative efficiency associated with information availability, introduction of the bilateral assessment arrangements with states, and/or improvement in processes or staff performance, there is insufficient data to validate such claims. As such, a share of the post-water trigger delay (105 days) has been attributed to the water trigger.’

Industry comments on the above calculations

Draft estimates of regulatory burden and the methodology and assumptions underlying them were the subject of targeted consultation with the following industry representative bodies between July and September 2016:

- the Minerals Council of Australia
- the Australian Petroleum Production & Exploration Association (APPEA)
- the Association of Mining and Exploration Companies (AMEC).

The following key concerns were tabled during these consultations:

- reliance on estimates of net present value (NPV) from pre-2013 project data set (as used for One Stop Shop); In response NPVs were recalculated for 'actual' post water trigger project set
- reliance on estimates of NPV derived from public information rather than figures based on financial records; this was necessary due to confidentiality requirements
- concern that the time difference between State and Commonwealth decision points may not be the best measure for delay; however, no superior alternative was identified
- the model does not consider critical issues such as investor sentiment and its impact on whether proposals are made in the first place and the consequential impact of approval delays and/or conditions on uncertainty on the whole project; acknowledged as a valid consideration but not practical to model under the Regulatory Burden Measurement Framework.

7.2 What have been the additional administrative and other costs to governments arising from the implementation of the regulation?

Data on the additional administrative and other costs to state governments, if any, arising from implementation of the regulation is not available.

Consistent with the Australian Government guidance on regulatory burden calculation, the costs to government associated with the administration of the water trigger are not included within the regulatory burden calculations described above. However, these costs play an important part in evaluating the overall efficiency of policy delivery. The average annual cost to the Australian Government for administration of the water trigger over the costing period (2013-2022) is estimated to be \$357,000.

7.3 What have been the overall benefits of the regulation including in relation to environmental outcomes, community confidence in the regulatory system, application of science to decision-making and management of environmental risk?

The review's earlier examination of the effectiveness of the legislation concluded that direct evidence that the water trigger legislation has protected water resources is not available. This is due to the short

period of time the legislation has been in place and the slow pace at which projects regulated by it typically commence operation.

The review has also concluded that the characteristics of the conditions attached to water trigger proposals and the accompanying monitoring and compliance regime gives confidence that the water trigger will improve the protection of water resources.

Against this background, consideration of the value of the benefits of the legislation is necessarily speculative.

The ecosystem services framework provides a way of categorising how an environmental asset, such as a water resource benefits the community. (This framework is described in the Office of Best Practice Regulation Guidance Note of July 2014 on Environmental Valuation and Uncertainty²⁴).

Ecosystem services provided to the community by environmental assets	Potential service from a water resource subject to regulation by the water trigger
Provisioning services	Services may include water for human and stock consumption, water for irrigation whether derived from surface or ground water, water for other productive activity including industry, fisheries, forestry and mining as well as ground moisture to support agriculture.
Regulating services	Services may include maintenance of water quality, water flow regimes that support river health, aquifer recharge and protection of associated water dependent ecosystems including wetlands.
Cultural services	Services may include aesthetic, recreational and spiritual values of water resources such as wetlands, river courses and lakes.
Supporting services	Supporting services are necessary for the production of all other ecosystem services and in the case of a water resource may include nutrient cycling, sediment settling and soil formation.

As direct evidence that the water trigger legislation has protected water resources is not available it is not possible to determine which of the above ecosystem services may actually be protected as a result of the legislation, let alone their monetary value.

²⁴ OPBR Guidance Note of July 2014 Environmental Valuation and Uncertainty, available at https://www.dpmc.gov.au/sites/default/files/publications/012_Environment.pdf

Nevertheless, it is possible to gain an insight into the potential scale of benefits by briefly outlining the economic values at a national level connected to some of the provisioning services associated with water resources.

The Australian Bureau of Statistics reports the gross value of irrigated agricultural production in Australia in the year ended 30 June 2014 at \$14.598.8b²⁵

The direct use value of groundwater estimated by Deloitte Access Economics in 2013 dollars from a range of data sources between the years 2006 and 2012 is between \$3.0b and \$11.1b with a mid-point of \$4.1b. Uses of groundwater included in this estimate cover agriculture irrigation and livestock, mining, urban water supply, households and manufacturing and other industries.²⁶ (Note there will be overlap between this estimate and the value reported by ABS as it includes irrigation from all sources including groundwater).

It is also relevant to compare the overall scale of the coal seam gas and large coal mining industries with the regulatory burden attributed to the water trigger (while remembering that other regulatory burdens impinge on these industries).

The Department of Industry, Innovation and Science, Resources and Energy Quarterly March 2016 reports that the value in 2014-15 of the export of thermal coal was \$16.1b, of metallurgical coal \$21.8b and of liquefied natural gas \$16.9b.²⁷ The volume of exported LNG from CSG in 2014-15 was 1.5 million tonnes, compared with 23.5 million tonnes from conventional gas. Thus CSG represented 6 per cent by volume of the total exported in 2014-15. However, the proportion by volume from CSG is predicted to peak in 2016-17 at 41 per cent before declining to 30 per cent from 2018-19.

It is also valid to count as a benefit of the water trigger any contribution it may make to public confidence in the regulation of coal seam gas and large coal mining development. As a preceding section of the report has concluded it is not possible to enumerate the extent to which the water trigger has enhanced public confidence.

However, the review has encountered no evidence that the water trigger has reduced public confidence and some evidence that it has increased confidence in the regulatory system.

²⁵ Accessed at <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4610.0.55.008>

²⁶ Accessed at [http://www.groundwater.com.au/media/W1siZiIsIjIwMTMvMTAvMTgvMTgvMDBfMjdfMTZfOTIxX0Vjb25vbWljX1ZhbHVIX29mX0dyb3VuZDhdGVyX0ZJTkFMLnBkZiJdXQ/Economic%20Value%20of%20Groundwater%20FINAL.pdf](http://www.groundwater.com.au/media/W1siZiIsIjIwMTMvMTAvMTgvMDBfMjdfMTZfOTIxX0Vjb25vbWljX1ZhbHVIX29mX0dyb3VuZDhdGVyX0ZJTkFMLnBkZiJdXQ/Economic%20Value%20of%20Groundwater%20FINAL.pdf)

²⁷ Accessed at <http://www.industry.gov.au/Office-of-the-Chief-Economist/Publications/Documents/req/REQ-March-2016.pdf>

7.4 Has the EPBC Amendment Act 2013 delivered a net benefit and findings in relation to the efficiency of the legislation

The review finds that:	
	<ul style="list-style-type: none">the policy of the Commonwealth to rely as far as possible on state assessments of actions for which the water trigger is a controlling provision and set conditions only against the assessed gaps in state requirements is an effective means to drive efficiency in administration of the legislation
	<ul style="list-style-type: none">it is too early in the life of the legislation to quantify the benefits arising from the water trigger
	<ul style="list-style-type: none">the estimated direct costs to government of \$357,000 p.a. and regulatory burden to industry of \$46.8 million p.a. of the water trigger are significant
	<ul style="list-style-type: none">however, the estimated costs to government and industry are small when compared with the overall value of the ecosystem services associated with water and the scale of the regulated industry
	<ul style="list-style-type: none">accordingly, the review is confident that the legislation is capable of delivering a net benefit.

8. Opportunities to reduce or simplify the regulation whilst maintaining its effectiveness

A range of suggestions for change in the operation of the water trigger have been identified in submissions to the review. Those that focus largely on simplification or enhancement of regulatory efficiency as opposed to increased effectiveness are considered below.

8.1 Proposed changes to scope that give rise to regulatory efficiencies

The Minerals Council of Australia has proposed a change in the scope of the legislation. It argues that the definition of large coal mining development should be refined to ensure that only the impacts that are unique to the industry are considered. For example, water extraction activities should be excluded as they are common across different sectors and managed under state based water resource planning and licensing. In addition, minor modifications to existing projects should be excluded wherever sufficient water allocations exist.

There is merit to the first proposal in that it seeks to constrain consideration of impacts to the unique impacts of large coal mining development. However, in practice it would have the effect of limiting substantially the ability of the conditions set on a coal seam gas or large coal mining development to take into account in an integrated way the total impacts on water of the development. For example, it would inhibit holistic assessment of water extraction together with its impacts on water quality or on ground water levels and connectivity. On these grounds the proposal is not supported by the review.

In relation to the second proposal, minor modifications to existing projects which are unlikely to have a significant impact on a water resource are not captured by the legislation. The existence or otherwise of a sufficient water allocation for a minor modification to an existing project is not a test of significant impact on a water resource. It is possible that in the case of water of high sensitivity, value or quality a minor modification to an existing project could have a significant impact irrespective of its status in terms of water allocation. On these grounds the proposal is not supported by the review.

8.2 Approval bilateral agreements with the states and territories

Most submissions commented on this issue. Views range from supporting the current legislative arrangements which provide that the Minister is the decision maker for actions for which the water trigger is a controlling provision through to support for allowing the states to decide whether or not to grant approvals subject to appropriate accreditation and/or standardisation of state assessment processes including to deal with potential conflicts of interest.

Current situation

The Department of the Environment submission to the review describes the current situation as follows.

“The Australian Government is pursuing amendments to the EPBC Act to facilitate the introduction of ‘approval bilateral agreements’ through the *Environment Protection and Biodiversity Conservation Bill*

2014. Approval bilateral agreements would enable state and territory governments to both assess and approve developments on behalf of the Australian Government.

The Bill was introduced on 14 May 2014 and was before the Senate where debate commenced on 1 September 2014. The Bill originally proposed amendments that would allow the ‘water trigger’ to be included in the scope of approval bilateral agreements. In response to community concerns, the Government moved amendments to the Bill in the Senate on 14 September 2015, to remove this proposed change.”

The bill lapsed when Parliament was dissolved before the 2016 general election and it has not been re-introduced.

Proposed steps to advance incorporation of the water trigger in approval bilateral agreements

Having examined the evidence the review concludes that as a matter of principle scope should exist within the legislation for bilateral approval agreements to include decisions under the water trigger.

Again, in principle, this would represent a means of enhancing regulatory efficiency for governments and industry alike and further promote integration between Commonwealth and State regulatory systems, as envisaged in the objectives of the EPBC Act.

To work in practice, it would be necessary for the Commonwealth and ultimately, the Parliament, to be satisfied that relevant state assessment and approval systems would be administered give full effect to the objectives of the water trigger legislation.

This could require significant modifications to existing state regulatory systems, policy and practice. It would also need to be supported by a mechanism to maintain Commonwealth and ultimately public confidence that the requirements of the water trigger continue to be fully satisfied.

A first step in this direction could be the conduct of an independent and transparent review, by a person or persons, acceptable to both the Commonwealth and the states, to undertake an analysis of relevant state regulatory systems, practice and policy. The purpose of the review would be to identify and make recommendations for any changes necessary for each to meet the requirements of the water trigger and so form the basis of a bilateral approval agreement. Such a review process would be strengthened by commissioning the IESC to provide expert advice to support the review from a scientific perspective.

8.3 Improved focus on the environmental outcomes rather than the specified industries

A number of submissions raised, from differing perspectives, the focus of the trigger on two specific activities (coal seam gas and large coal mining development). It was argued that it is better practice to regulate actions that impact on water resources based solely on the significance of those impacts not the specific source of the impact.

In a similar vein some argue that the definition of “water resource” (having the same meaning as in the Water Act) is too broad. The MCA proposes, for example, that the definition be modified to specifically link the water resource to identified environmental values.

Discussion of the definition of water resource and its impact on operation of the water trigger

The water trigger is not unique among matters of national environmental significance under the EPBC Act to refer simply to an activity. Nuclear actions (including uranium mining) are also a matter of national environmental significance under the Act.

With that exception all other matters of national environmental significance refer to assets that have been identified by reference to specific environmental or heritage values. Further, each of these matters are the subject of a risk based policy and regulatory framework which enables the significance of potential impacts to be assessed in proportion to risk.

For example, nationally threatened species and ecological communities are identified and classified according to a systematic and proportional assessment of risks according to species or community and the degree of threat to each.

By contrast, the definition of a water resource adopted by the water trigger legislation is essentially descriptive.

Water resource means:

(a) surface water or groundwater; or

(b) a watercourse, lake, wetland or aquifer (whether or not it currently has water in it);

and includes all aspects of the water resource (including water, organisms and other components and ecosystems that contribute to the physical state and environmental value of the water resource).

This definition alone gives no insight into the environmental outcome that is being sought.

Instead this is addressed through a combination of the *Significant Impact Guidelines 1.3 Coal seam gas and large coal mining developments-impacts on water resources* and the *Information Guidelines for IESC advice on coal seam gas and large coal mining development proposals*.

For example, the significant impact guidelines define significant impact as “an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the water resource which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. All of these factors should be considered when determining whether an action is likely to have a significant impact.”

Even this definition, when looked at in isolation does not clearly describe the environmental outcome being sought.

The guidelines do go on to provide guidance on the potential values of water resources for utility for third party uses, how significant impacts may occur to hydrological characteristics of a water resource and where a significant impact may occur on water quality.

The IESC Information Guidelines state that “The IESC’s advice focuses on potential impacts of CSG or large coal mining development on all aspects of water resources including water quantity, water quality, ecosystems and ecological processes that contribute to the state and value of the water resource and water dependent assets.”

So while both the significant impact guidelines and the IESC Information Requirements give further insight into the kinds of environmental outcomes against which the impact of coal seam gas and large coal mining developments will be assessed they are not expressed sufficiently clearly or systematically. As a result, they do not provide a sufficiently refined framework in which environmental risks to water resources can be assessed and conditioned proportionately.

Now that the Commonwealth, the IESC, proponents and stakeholders have had several years practical experience with the operation of the legislation it is opportune to revisit the matter. It is recommended that the Significant Impact Guidelines and be reviewed to more clearly define the environmental outcomes that the water trigger is intended to promote and that any refinement to the guidelines also be appropriately reflected in IESC information requirements and other information sought from proponents.

Further industry proposals for efficiency improvements

Industry representatives have also argued for greater alignment of State and Commonwealth information requirements. In particular clarification of the format and structure for providing information to IESC and the Office of Water Science at the commencement of an assessment process is sought.

Where science/ modelling undertaken by a proponent has been peer reviewed industry representatives have argued this should be considered adequate assurance for the purposes of IESC. There should be greater recognition of science/models which are developed in line with recognised standards, prior to submission to IESC.

Response to the above efficiency proposals

The first of the above proposals has merit and is being given practical and increasing effect through the application of assessment and approval bilateral agreements between the Commonwealth and the states in relation to water trigger and other matters of national environmental significance respectively.

The proposal that IESC accept peer reviewed science and modelling risks a less transparent and expert path to the very outcomes the IESC is intended deliver: independent expert scientific assessment of proponents' scientific studies and evidence. It is not supported.

8.4 Findings and recommendations in relation to simplifying or reducing cost impacts of the regulation while maintaining its effectiveness

The review has found that significant steps have been taken to enable efficient administration of the water trigger legislation. These include making use of state assessments of proposals, focusing Commonwealth conditions on assessed gaps in state conditions and increasing use of joint referrals to the IESC.

There is room to further enhance the efficiency of the water trigger through the following recommendations.

Recommendation 5:

It is recommended that should governments wish to further pursue bilateral approval agreements relating to the water trigger an independent and transparent review be conducted, by a person or persons, acceptable to both the Commonwealth and the states, to undertake an analysis of relevant state regulatory systems, practice and policy. The purpose of the review would be to identify and make recommendations for any changes necessary for each state system to meet the requirements of the water trigger and so form the basis of a bilateral approval agreement with the Commonwealth. Such a review should be informed by IESC advice.

Recommendation 6:

It is recommended that the Significant Impact Guidelines be reviewed to more clearly define the environmental outcomes that the water trigger is intended to protect and that any refinement to the guidelines also be appropriately reflected in IESC information requirements and other information sought from proponents.

9. Recommended appropriate future review points of the regulation.

9.1 Are there particular points in time outside the broader schedule for review of the EPBC Act that should be considered as review points for the water trigger?

Preceding sections of the review have proposed reviews to examine three aspects of the legislation. They are of the overall effectiveness of conditions of approvals and associated monitoring and compliance activity, of the significant impact guidelines to focus assessments more clearly on environmental outcomes and of state regulatory systems in order to provide a potential basis for approval bilateral agreements between the Commonwealth and the states.

9.2 Findings in relation to future review points for the water trigger

The review concludes that no further review points are required for the water trigger other than its inclusion in the ten yearly reviews of the EPBC Act as a whole.

10. Appendixes

Appendix 1 Evaluation framework for the review

The terms of reference specify that the focus of the review is on whether the EPBC Amendment Act 2013 (the regulation) remains appropriate, and to what extent the regulation is efficient and effective in achieving its objective.

The following Evaluation Framework reflects this overall focus and takes into account the OBPR Guidance Note on Post Implementation Reviews and the OBPR Regulatory Burden Measurement Framework. The seven questions to be addressed in a Post Implementation Review are identified in the table below (e.g. RIS 3, etc.). A stand-alone Post Implementation Review is provided at Appendix 3.

The PIR questions are:

1. What problem was the regulation meant to solve?
2. Why was government action needed?
3. What policy options were considered?
4. What were the impacts of the regulation?
5. Which stakeholders have been consulted?
6. Has the regulation delivered a net benefit?
7. How was the regulation implemented and evaluated?

Review Term of Reference	Key Evaluation Questions including from the OPBR Guidance Note on Post Implementation reviews	Potential Evidence Sources [This column identifies the sources of information to be used, thus addressing PIR 5]
1.Examine the appropriateness of the regulation including whether it is necessary and well targeted	What impacts of coal seam gas and large coal mining development on water resources was the EPBC	Australian Government statements at the time the regulation was made including

Amendment Act 2013 (the regulation)intended to address?	media statements, legislative documents, statements to the Parliament.
What previous policy or regulation had failed to address impacts of coal seam gas and large coal mining development on water resources? [PIR1]	Scientific or other robust evidence about the nature of the problem and the capacity of pre-existing arrangements to address it.
Why was Australian Government action needed?	Statements by interested industry, business, community groups or individuals at the time the regulation was being developed and considered.
Was there evidence that a regulatory approach would be effective in addressing the problem?	Views expressed by state, territory and local governments at that time.
What evidence suggested that the market would not resolve the problem over time?	Contemporary submissions, evaluations and views (including by governments, industry, business, community organisations and individuals) about the performance of the water trigger in achieving its objectives.
Was there and does there remain significant likelihood of a substantial negative environmental impact of coal seam gas and large coal mining development on water	Contemporary views about the efficacy of alternatives to the water trigger.

	<p>resources in the absence of the regulation? [PIR2]</p> <p>Is the scope and focus of the regulation (including definitions in legislation) appropriate to the problem being addressed?</p> <p>Are there significant gaps in the scope or intent of the regulation?</p> <p>Were alternative viable policy options (including non-regulatory approaches) considered at the time the regulation was being developed?</p> <p>If so why were these alternatives not adopted?</p> <p>Would any of those options now be worthy of further consideration? [PIR 3]</p>	
2.Examine the effectiveness of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects, including the role and scope of	<p>In what manner was the EPBC Amendment Act 2013 implemented and evaluated?</p>	<p>Submissions, consultation and evidence from the Australian Government, state and territory governments,</p>

work ascribed to the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC)	Were relevant stakeholders appropriately engaged in implementation? [PIR7]	industry, business, community organisations and individuals.
	What was the number and nature of projects that were considered as a result of implementation of the regulation?	Any scientific and other robust evidence and/or evaluations of impact including consultation with the IESC.
	How was the Independent Expert Scientific Committee engaged in the implementation of the regulation and was its advice available to decision makers?	Scientific advice of the Independent Expert scientific Committee
	What was the nature of any conditions placed on approvals as a result of the regulation?	
	What is the evidence that protection of water resources has improved as a result of the operation of the EPBC Amendment Act 2013?	
	What was the impact of the regulation on the interests of relevant stakeholders?[PIR 4]	

3. Identify any opportunities to improve the effectiveness of the regulation	Are there gaps in the scope of the EPBC Amendment Act 2013 relative to its objective?	Submissions, consultation and evidence from the Australian Government, state and territory governments, industry, business, community organisations and individuals.
	Are there opportunities to improve the working including clarity of the regulation?	Any scientific and other robust evidence and/or evaluations of impact.
	Were there any unintended consequences of the regulation in terms of its effectiveness that need to be addressed?	
	Are there improvements that could be made to the administration and implementation of the regulation?	
4. Examine the efficiency of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects	What have been the additional administrative, substantive compliance and delay costs associated with the regulation to business, community organisations and individuals? (See OBPR Regulatory Burden Framework Guidance Note for a breakdown of potential costs)	Submissions from impacted businesses or organisations representing affected business on cost and benefit impacts.
	What have been the additional administrative and other costs to governments arising from	Submissions, consultation and evidence from the Australian Government, state and territory governments, industry, business, community organisations and individuals in relation to relative costs and benefits of the regulation.

	the implementation of the regulation?	Information from governments about the additional administrative and other costs associated with the regulation.
	What have been the overall benefits of the regulation including in relation to environmental outcomes, community confidence in the regulatory system, application of science to decision-making and management of environmental risk?	Views of the IESC, relevant science community and other robust sources of evidence.
	Has the EPBC Amendment Act 2013 delivered a net benefit? [PIR 6]	
5. Identify any opportunities to reduce or simplify the regulation whilst maintaining its effectiveness	Can the form, scope, operation or implementation of the regulation be altered to simplify or reduce its cost impacts while maintaining its effectiveness?	Submissions, consultation and evidence from the Australian Government, state and territory governments, business, industry, community organisations and individuals in relation to opportunities to reduce or simplify the regulation while maintaining its effectiveness. Views of the IESC.
6. Identify any recommended appropriate future review points of the regulation.	Are there particular points in time outside the broader schedule for review of the EPBC Act that should be	Submissions, consultation and evidence from the Australian Government, state and territory governments,

	considered as review points for the water trigger?	business, industry, community organisations and individuals in relation to the timing of future reviews.
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Appendix 2 Consultations with stakeholders

Organisation	Meeting Date
Lock the Gate Alliance	8/12/2015
Queensland Department of Premier and Cabinet	8/12/2015
Dr Chris McGrath, University of Queensland, School of Geography, Planning and Environmental Management	15/12/2015
Queensland Conservation Council	15/12/2015
AgForce Queensland	15/12/2015
Australian Government Department of Industry, Innovation and Science	16/12/2015
Chair of Independent Expert Scientific Committee	16/12/2015
Mackay Conservation Group	16/12/2015
Minerals Council of Australia	17/12/2015 and 28/7/16
Association of Mining and Exploration Companies (AMEC)	17/12/2015 and 24/8/16
Australian Petroleum Production and Exploration Association (APPEA)	17/12/2015 and 25/7/2016
Nature Conservation Council of NSW	18/12/2015
Australian Network of Environmental Defender's Offices	18/12/2015
NSW Department of Planning and Environment and Department of Primary Industries	18/12/2015
Australian Government Department of Agriculture and Water Resources	21/12/2015
NSW Farmers Association	19/1/2016

Appendix 3 Post Implementation Review