

# Chapter 3

## Regulatory framework for use of underground water

3.1 This chapter provides an overview of regulatory arrangements governing water use by the extractive industry at the state and territory and Commonwealth levels. The chapter focuses on Commonwealth responsibilities and regulatory frameworks.

3.2 Since the 1990s, Commonwealth and state and territory governments have implemented significant reforms in water management in response to increased awareness of the impacts of water use on the environment.<sup>1</sup>

3.3 At the Commonwealth level, the Australian Constitution provides that the Commonwealth shall not 'abridge the right of a State or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation'.<sup>2</sup> It does not refer explicitly to underground water sources.

3.4 State and territory governments are primarily responsible for managing water resources.<sup>3</sup> Regulation to manage potential impacts from extractive industry activities is applied at both a Commonwealth and state and territory level, with different approaches evident between jurisdictions.<sup>4</sup>

3.5 However, under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), applications for coal seam gas or large coal mining developments that have, will have, or are likely to have a significant impact on a water resource must be approved by the Commonwealth Minister for the Environment and Energy (the Minister). This is known as the water trigger.

### Commonwealth and cross-jurisdictional regulatory arrangements

3.6 Commonwealth regulatory measures governing water use are the responsibility of the Department of Agriculture and Water Resources and the Department of the Environment and Energy.<sup>5</sup> Regulatory activities are, in the first instance, determined by the provisions of the EPBC Act. Several bodies and programs are responsible for collating and providing data and expert information on water resources and impacts of extractive industry activities, as outlined below.

---

1 Department of Agriculture and Water Resources, *Submission 30*, p. 2.

2 *Commonwealth of Australia Constitution Act*, section 100; Ms Joanne Rea, Chair, Property Rights Australia, *Committee Hansard*, 1 May 2018, p. 30.

3 Productivity Commission, *National Water Reform*, Report no. 87, December 2017, Canberra, p. v.

4 Geoscience Australia, *Submission 2*, p. ii.

5 Department of Agriculture and Water Resources, *Submission 30*, p. 1.

3.7 The Commonwealth Government also works with state and territory governments through the National Water Initiative and several regional plans to regulate water use.

***Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)***

3.8 The EPBC Act is the Commonwealth Government's central piece of environmental legislation and is the legal framework under which nationally and internationally important flora, fauna, ecological communities and heritage sites are managed. The EPBC Act defines these as matters of national environmental significance (MNES).<sup>6</sup>

3.9 Under the EPBC Act, actions that have, will have or are likely to have an impact on matters of national environmental significance must be assessed by the Minister. The EPBC Act does not apply to actions that are not likely to impact matters of national environmental significance. These are the responsibility of the states and territories.<sup>7</sup>

3.10 Actions that must be assessed under the EPBC Act can be assessed by accredited state and territory processes, and under assessment bilateral agreements between the Commonwealth and some state and territory governments (Western Australia, Queensland, New South Wales, South Australia and the Australian Capital Territory).<sup>8</sup> In this instance, the Department of Environment and Energy explained:

The role of the Environment Minister is then to approve the action based upon the assessment undertaken and apply approval conditions not otherwise applied by the state or territory, as needed, to provide adequate protection for MNES.<sup>9</sup>

3.11 Geoscience Australia submitted that because the relevant state and territory governments and the Commonwealth Government make their own decisions on project approval and develop their own approval conditions to meet differing requirements, '[t]his may result in two approval decisions and two sets of conditions'.<sup>10</sup>

3.12 The Commonwealth Government is also committed to implementing approval bilateral agreements. Under these approval bilateral agreements, jurisdictions would assess the likely impacts of a project and make a decision that takes into account both state matters and matters of national environmental significance. Approval bilateral agreements would require only one decision.<sup>11</sup> As of December 2017, no approval

---

6 Department of the Environment and Energy, *Submission 1*, p. 1.

7 Department of the Environment and Energy, *Submission 1*, p. 1.

8 Geoscience Australia, *Submission 2*, p. 12.

9 Department of the Environment and Energy, *Submission 1*, pp. 1–2.

10 Geoscience Australia, *Submission 2*, p. 12.

11 Department of the Environment and Energy, *One-Stop Shop for environmental approvals*, <http://www.environment.gov.au/epbc/one-stop-shop> (accessed 31 May 2018).

---

bilateral agreements were in place, although there were proposals to implement these.<sup>12</sup>

3.13 Issues raised in evidence about assessment bilateral agreements and the proposed approval bilateral agreements are discussed further in paragraphs 3.65–3.67.

*The water trigger*

3.14 Since 2013, applications for coal seam gas or large coal mining developments that have, will have, or are likely to have a significant impact on a water resource must be approved by the Minister. As outlined above, this is known as the water trigger.<sup>13</sup>

3.15 Under the EPBC Act, the Minister must take into account the precautionary principle when assessing projects with the potential to significantly impact a water resource. Guidelines released by the Department of the Environment and Energy on the water trigger state that 'if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation'.<sup>14</sup> The guidelines also state that proponents should take into account in their applications:

- the value of a water resource;
- potential changes to water quantity and/or quality;
- potential changes to water quality;
- potential changes to hydrological or hydrogeological connections (such as recharge rates, aquifer pressure and interactions between different water sources); and
- cumulative impacts of a project in tandem with existing and future developments at the local, aquifer/catchment and regional levels.<sup>15</sup>

3.16 The environmental assessment process may take several years for large and complex projects.<sup>16</sup> Approvals for projects may be contingent on the proponent meeting performance conditions, usually related to environmental and water performance requirements.<sup>17</sup> Throughout the duration of the projects, proponents may

---

12 Geoscience Australia, *Submission 2*, p. 12.

13 Department of the Environment and Energy, *Submission 1*, pp. 1–2.

14 Department of the Environment, *Significant impact guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources*, December 2013, p. 14, <http://www.environment.gov.au/system/files/resources/d078caf3-3923-4416-a743-0988ac3f1ee1/files/sig-water-resources.pdf> (accessed 31 May 2018).

15 Department of the Environment, *Significant impact guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources*, December 2013, pp. 16–20, <http://www.environment.gov.au/system/files/resources/d078caf3-3923-4416-a743-0988ac3f1ee1/files/sig-water-resources.pdf> (accessed 31 May 2018).

16 Minerals Council of Australia, *Submission 13*, pp. 1, 14.

17 Minerals Council of Australia, *Submission 13*, p. 16.

be required to consider impacts through ongoing water monitoring and management plans.<sup>18</sup>

3.17 As outlined in Chapter 1, the water trigger legislation was reviewed in 2017, with the review concluding that the water trigger is an appropriate measure to respond to risks associated with coal seam gas and large coal mining projects.<sup>19</sup>

3.18 Currently, the water trigger does not include shale and tight gas projects, although these must still be referred for assessment if they are likely to significantly impact other matters of national environmental significance listed under the EPBC Act. However, the Department of the Environment and Energy's post-implementation review of the water trigger concluded that 'the coverage of tight and shale gas may need to be considered as the investment in these processes moves from exploration to production'.<sup>20</sup>

3.19 The enactment of the water trigger has meant that a nationally consistent approach has been applied to the regulation of coal mining and coal seam gas projects impacting on water resources.<sup>21</sup> Geoscience Australia, the Department of Agriculture and Water Resources and the Independent Review of the Water Trigger Legislation agreed that approval conditions attached to projects assessed under the water trigger address the gaps between state and territory jurisdictions and Commonwealth requirements.<sup>22</sup>

3.20 When making a decision on matters referred under the water trigger, the Minister may take into account the state and territory government's assessment of the potential impacts of the project and any approval conditions attached to the project, as well as scientific advice provided by the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal and Mining Development (IESC).

*The Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC)*

3.21 If a development related to the water trigger has been referred to the Minister, the Minister must seek the advice of the IESC in his or her deliberations. The IESC is

---

18 Dr Stuart Minchin, Chief, Environmental Geoscience Division, Geoscience Australia, *Committee Hansard*, 2 May 2018, p. 40.

19 Department of the Environment and Energy, *Submission 1*, p. 3.

20 Department of the Environment and Energy, *Implementation of the Water Trigger under the Environment Protection and Biodiversity Conservation Amendment Act 2013: Post Implementation Review*, December 2016, p. 21; Department of the Environment and Energy, *Submission 1*, p. 3.

21 Geoscience Australia, *Submission 2*, p. 9.

22 Geoscience Australia, *Submission 2*, p. 16; Department of Agriculture and Water Resources, *Submission 30*, p. 4; Commonwealth of Australia, *Independent Review of the Water Trigger Legislation*, April 2017, p. 6.

---

responsible for providing scientific advice to the Minister on the potential impacts of coal seam gas and large coal mining on water resources.<sup>23</sup>

3.22 Approval conditions attached to projects in response to the IESC's advice have included, for example, requirements for additional baseline data, additional monitoring of water levels and water quality, improvements to modelling, assessments of aquifer connectivity, limits on the type and extent of actions such as hydraulic fracturing, and management of the final void at large coal mines.<sup>24</sup>

3.23 A number of witnesses and submitters to the inquiry praised the work of the IESC in regulating impacts of coal mining and coal seam gas activities.<sup>25</sup> For example, Ms Joanne Rea from Property Rights Australia told the Committee that:

The Independent Expert Scientific Committee do an excellent job and they are transparent. The problems they find with applications, their requests for more information and their recommendations are often things that should have been picked up before a proposal got to them...<sup>26</sup>

3.24 The University of Queensland's Centre for Coal Seam Gas noted that the level of expert advice provided by the IESC 'is not readily available through state and territory assessment processes unless the regulator formally engages experts to contribute to the assessment'.<sup>27</sup> South Australia, Queensland, Victoria, New South Wales and the Northern Territory have in place agreed protocols to seek advice from the IESC when making their own assessments of large coal mining developments.<sup>28</sup>

#### *Environmental impact statements*

3.25 Proponents of significant extractive industry projects that are likely to impact the environment must provide environmental impact statements (EISs) in their applications for approval. Often, EISs use modelling to anticipate possible impacts on water sources. Geoscience Australia acknowledged that 'there is always a degree of uncertainty in the model predictions' because of their reliance on sparse data and information.<sup>29</sup>

---

23 Department of the Environment and Energy, *Submission 1*, p. 1; Geoscience Australia, *Submission 2*, p. 7; Department of Agriculture and Water Resources, *Submission 30*, p. 4.

24 Department of the Environment and Energy, *Submission 1*, p. 2.

25 Associate Professor Grant Hose, Department of Biological Sciences, Macquarie University, *Committee Hansard*, 2 May 2018, p. 36; Mr Tom Crothers, Consultant, Property Rights Australia, *Committee Hansard*, 1 May 2018, p. 34; Nature Conservation Council of NSW, *Submission 7*, p. 5; Dr Megan Kessler, Scientific Director, Environmental Defenders Office New South Wales, *Committee Hansard*, 2 May 2018, p. 28.

26 Ms Joanne Rea, Chair, Property Rights Australia, *Committee Hansard*, 1 May 2018, p. 31.

27 University of Queensland, Centre for Coal Seam Gas, *Submission 18*, p. 2.

28 Minerals Council of Australia, *Submission 13*, p. 25.

29 Geoscience Australia, *Submission 2*, p. 12.

### ***Bioregional Assessment Program***

3.26 The Commonwealth Government's Bioregional Assessment Program consists of independent scientific experts who, in consultation with government agencies, authorities and industry groups, analyse the potential impacts of coal seam gas and large coal mining developments on water and water-dependent assets.<sup>30</sup> The assessments provide a risk analysis on areas where potential impacts could occur in South Australia, Victoria, Queensland and New South Wales, and are intended to inform Commonwealth and state government decisions in the regulation of coal seam gas and coal mining operations. The IESC is able to draw on bioregional assessments in the advice it gives to the Commonwealth Government under the EPBC Act.<sup>31</sup>

3.27 Dr Stuart Minchin from Geoscience Australia explained that the program is 'an attempt by the Commonwealth to get some baseline information' against which to measure cumulative impacts, and 'to look at broadscale issues around the likelihood' of problems arising with a particular development'.<sup>32</sup> He argued that the program is 'a very significant and, I daresay, world-leading kind of approach in pulling together all of that knowledge in a given region'.<sup>33</sup>

3.28 The Department of the Environment and Energy stated that the Australian Government has provided \$94 million of funding to deliver the Bioregional Assessment Program, along with an additional \$30.4 million to extend the program to examine the potential environmental impacts of shale and tight gas projects and appropriate mitigation and management approaches.<sup>34</sup> Mr Bruce Edwards from the Department of the Environment and Energy stated that the first full bioregional assessments were released in July 2017, with the final bioregional assessments due to be published later in 2018.<sup>35</sup> Mr James Tregurtha, also from the Department, explained that program funding had been allocated 'towards areas of greatest need in terms of where development is actually happening or proposed to happen'.<sup>36</sup>

---

30 Department of the Environment and Energy, *Submission 1*, p. 2; Bioregional Assessments Program, *About the program*, 1 May 2018, <http://www.bioregionalassessments.gov.au/about> (accessed 30 May 2018).

31 Bioregional Assessments Program, *About the program*, 1 May 2018, <http://www.bioregionalassessments.gov.au/about> (accessed 30 May 2018).

32 Dr Stuart Minchin, Chief, Environmental Geoscience Division, Geoscience Australia, *Committee Hansard*, 2 May 2018, p. 43.

33 Dr Stuart Minchin, Chief, Environmental Geoscience Division, Geoscience Australia, *Committee Hansard*, 2 May 2018, p. 44.

34 Department of the Environment and Energy, *Submission 1*, p. 2.

35 Mr Bruce Edwards, Assistant Secretary, Policy and Reform Branch, Environment Standards Division, Department of the Environment and Energy, *Committee Hansard*, 2 May 2018, p. 50. Mr James Tregurtha, Acting First Assistant Secretary, Environment Standards Division, Department of the Environment and Energy, stated that 'there is another phase for the unconventional gas' assessments (p. 50).

36 Mr James Tregurtha, Acting First Assistant Secretary, Environment Standards Division, Department of the Environment and Energy, *Committee Hansard*, 2 May 2018, p. 50.

---

### ***The Australian Water Resource Information System and the National Water Account***

3.29 The Bureau of Meteorology is responsible for compiling, interpreting and providing comprehensive information about major water resources in Australia through the National Water Account.<sup>37</sup> Through the Australian Water Resource Information System (AWRIS), it also receives and interprets data about groundwater levels, water quality in rivers and aquifers, and water use and restrictions.<sup>38</sup>

3.30 Mr Christopher Biesaga from the Department of Agriculture and Water Resources noted that the National Water Account focuses on water resources that have 'high public interest'. He commented that he was only aware of one groundwater system that is included in the National Water Account.<sup>39</sup> Given its narrow focus on groundwater, the Department of Agriculture and Water Resources suggested that the National Water Account could be expanded:

With increased national interest in the management of the aquifers such as the Great Artesian Basin and the impact of water use by the extractive industry, the department notes that an opportunity exists for the establishment of a new Water Account to increase transparency and provide accessible information for both water resource managers and the public.<sup>40</sup>

3.31 It noted that this expanded role would be contingent on appropriate funding being made available, 'including from users of the resource'.<sup>41</sup>

#### ***Cross-jurisdictional initiatives***

3.32 The Commonwealth and state and territory governments are involved in a number of cross-jurisdictional initiatives related to regulation of water use by the extractive industry. These include:

- National Water Initiative;
- cooperative efforts to manage the Great Artesian Basin; and
- Murray-Darling Basin Plan.

---

37 Department of Agriculture and Water Resources, *Submission 30*, p. 7; Bureau of Meteorology, *Information sheet 3: Australian Water Resources Information System (AWRIS)*, [http://www.bom.gov.au/water/about/publications/document/InfoSheet\\_3.pdf](http://www.bom.gov.au/water/about/publications/document/InfoSheet_3.pdf) (accessed 4 June 2018); Bureau of Meteorology, *National Water Account*, <http://www.bom.gov.au/water/nwa/about.shtml> (accessed 4 June 2018).

38 Bureau of Meteorology, *Australian Water Resources Information System (AWRIS)*, <http://www.bom.gov.au/water/about/wip/awris.shtml> (accessed 4 June 2018).

39 Mr Christopher Biesaga, Director, Great Artesian Basin Section and Lake Eyre Basin Section, Department of Agriculture and Water Resources, *Committee Hansard*, 2 May 2018, p. 49.

40 Department of Agriculture and Water Resources, *Submission 30*, pp. 7–8.

41 Department of Agriculture and Water Resources, *Submission 30*, p. 8.

---

*The National Water Initiative*

3.33 The National Water Initiative (NWI) is a national commitment by the Commonwealth, state and territory governments for cohesive water management, planning, pricing and trade.<sup>42</sup> Jurisdictions have indicated that they will provide outcomes and actions for a number of key elements of the NWI, including water access entitlements and planning frameworks; water markets and trading; integrated management of water for environmental outcomes; and water resource accounting.<sup>43</sup>

3.34 Because the NWI is a joint commitment between governments, it has no compliance or enforcement arrangements attached to it unless additional agreements are in place, as is the case for the Murray-Darling Basin.<sup>44</sup>

3.35 In some instances, the NWI does not clearly address water use by extractive industries. Clause 34 of the NWI intergovernmental agreement acknowledged a number of issues in the application of its principles to the minerals and petroleum sectors, and allowed for additional policies and measures to be developed beyond the agreement for this sector:

The Parties agree that there may be special circumstances facing the minerals and petroleum sectors that will need to be addressed by policies and measures beyond the scope of this Agreement. In this context, the Parties note that specific project proposals will be assessed according to environmental, economic and social considerations, and that factors specific to resource development projects, such as isolation, relatively short project duration, water quality issues, and obligations to remediate and offset impacts, may require specific management arrangements outside the scope of this Agreement.<sup>45</sup>

3.36 The Productivity Commission has also stated that the 'NWI is ambiguous in how it applies to extractive industries'.<sup>46</sup>

3.37 The Department of Agriculture and Water Resources noted in its submission that 'national commitments made under the NWI have not been equally implemented across the nation'.<sup>47</sup> It argued that 'full implementation of the NWI is important for

---

42 Department of Agriculture and Water Resources, *Submission 30*, p. 2.

43 Productivity Commission, *National Water Reform*, Report no. 87, December 2017, Canberra, p. 7.

44 Department of Agriculture and Water Resources, *Submission 30*, p. 3.

45 *Intergovernmental Agreement on a National Water Initiative between the Commonwealth of Australia and the Governments of New South Wales, Victoria, Queensland, South Australia, the Australian Capital Territory and the Northern Territory*, 25 June 2004, para 34, pp. 6–7, <http://www.agriculture.gov.au/SiteCollectionDocuments/water/Intergovernmental-Agreement-on-a-national-water-initiative.pdf> (accessed 31 May 2018); Department of Agriculture and Water Resources, *Submission 30*, p. 3.

46 Productivity Commission, *National Water Reform*, Report no. 87, December 2017, Canberra, p. 17.

47 Department of Agriculture and Water Resources, *Submission 30*, p. 2.



---

water to reach to its highest value and for all water users to be confident in water planning and management'.<sup>48</sup>

3.38 The Productivity Commission recommended that 'a renewed NWI be negotiated through COAG [the Council of Australian Governments]'. It further proposed that this revised NWI should incorporate policy reform so that 'extractive industries and alternative water sources' are included in water entitlement frameworks.<sup>49</sup>

#### *Great Artesian Basin and Murray-Darling Basin*

3.39 As outlined in Chapter 2, the Commonwealth Government has been involved in cross-jurisdictional efforts with state and territory governments to manage water in the Great Artesian Basin and the Murray-Darling Basin. The Murray-Darling Basin Plan, in place since November 2012, sets limits for the amount of surface and groundwater that can be extracted by all industries operating in the Murray-Darling Basin, while the Commonwealth Government is currently in the process of drafting a new Great Artesian Basin strategic management plan.<sup>50</sup>

#### **State and territory regulatory arrangements**

3.40 Environmental impacts beyond matters of national environmental significance, such as air and water quality, and environmental matters of state and local significance are the responsibility of states and territories.<sup>51</sup> State and territory governments also manage access rights to water resources and regulate mining activities.<sup>52</sup>

3.41 The Law Council of Australia (LCA) explained that state and territory water resources legislation focuses on management of the resource and taking of water. Impacts caused by the extraction, use and disposal of water by the extractive industry, the LCA stated, are more directly addressed in state and territory planning and development and environmental protection laws, as well as by Commonwealth oversight through the EPBC Act.<sup>53</sup>

3.42 Figure 3.1 gives a broad overview of state and territory regulatory arrangements governing water use by extractive industries.

---

48 Department of Agriculture and Water Resources, *Submission 30*, p. 8.

49 Productivity Commission, *National Water Reform*, Report no. 87, December 2017, Canberra, pp. 25, 43.

50 Geoscience Australia, *Submission 2*, p. 7; Mr Paul Morris, First Assistant Secretary, Water Division, Department of Agriculture and Water Resources, *Committee Hansard*, 2 May 2018, p. 48.

51 Department of the Environment and Energy, *Submission 1*, p. 1.

52 Department of Agriculture and Water Resources, *Submission 30*, p. 1.

53 Law Council of Australia, *Submission 8*, p. 4.

**Figure 3.1: State and territory approaches to regulation of water use by extractive industries<sup>54</sup>**

NSW	Under section 60I of the <i>Water Management Act 2000</i> (NSW), mining activities require a licence for any water taken as part of those activities.
Victoria	Under the <i>Water Act 1989</i> (Vic), extractive industries are required to obtain a take and use licence to secure water access, either from the market or via a new entitlement in areas where unallocated water exists.
Qld	Limited statutory water rights apply to incidental water take or ‘associated water’ for petroleum, gas and mining production. These rights operate outside the state’s water access entitlement and planning framework. These rights are conditional on underground water obligations, which include preparation of an underground water impact report and the requirement to enter ‘make good’ agreements with landholders. Water access entitlements are required for non-incidental take or ‘non-associated water’ use. Water rights for some mining companies are specified in special agreement Acts.
WA	Western Australia’s water licensing framework applies to water taken by extractive industries, with further guidance in government guidelines. State agreements for major projects may override some legislation like the <i>Rights in Water and Irrigation Act 1914</i> (WA).
SA	Mining and petroleum operations require a water licence where they take water from a prescribed water resource (many mines are outside of prescribed resource areas). In areas outside of prescribed areas, the <i>Natural Resources Management (NRM) Act 2004</i> (SA) allows for control of water take through regional NRM policies, which normally do not directly control volume. Licences are not required for water used to drill petroleum and gas wells for exploration purposes; instead these activities are authorised by the Minister for Sustainability, Environment and Conservation.
Tasmania	Mines are required to have a licence under the <i>Water Management Act 1999</i> (Tas) to take water from a watercourse or lake but groundwater does not require a licence unless specified under a water management plan or a Groundwater Area.
Northern Territory	Mining and petroleum operations are exempt from water licence and permit provisions under the <i>Water Act 1992</i> (NT). Currently, a memorandum of understanding seeks to clarify the relationship between agencies with the aim of ensuring water resource use for mining does not impinge on existing allocations for other users and vice versa. Proposed amendments to the Water Act will require all new and increased water use by mining and petroleum activities to be subject to the same water licensing requirements as other water users from 2018 onwards.

54 Geoscience Australia, *Submission 2*, p. 11.

3.43 Most states and territories have more than 80 per cent of their water use managed under water plans. Arrangements governing water plans ensure water resources are shared between consumptive users and the environment. All jurisdictions have in place water metering, accounting and compliance systems, and all, except Western Australia and the Northern Territory, have legislation for statutory-based water entitlement and planning arrangements.<sup>55</sup> Some jurisdictions have alternative water rights arrangements for extractive industries outside water entitlements and planning frameworks.<sup>56</sup> In general, monitoring activities are the remit of individual state jurisdictions, not the Commonwealth.<sup>57</sup>

3.44 Some evidence received by the Committee concerned gaps in state and territory regulatory arrangements.<sup>58</sup> For example, a number of submitters and witnesses drew the Committee's attention to inconsistencies in the regulatory requirements for the extractive industry in Queensland as compared to other industries. It was stated that the extractive industry is permitted to take an unlimited amount of water without a licence or paying for the water if it is extracted in the course of their regular operations as 'associated water'.<sup>59</sup>

3.45 The Committee was given conflicting information about this issue, with one submitter reporting that associated water is not included in estimates of total water use across the state, and a witness stating that even though an unlimited take of associated water is permitted, it still must be reported and monitored.<sup>60</sup> Dr Malcolm Roberts, the Chief Executive Officer of the Australian Petroleum Production and Exploration Association, argued that Queensland's system involved a comprehensive network of monitoring bores to observe any impacts on water sources.<sup>61</sup>

---

55 Productivity Commission, *National Water Reform*, Report no. 87, December 2017, Canberra, pp. 8, 11.

56 Productivity Commission, *National Water Reform*, Report no. 87, December 2017, Canberra, pp. 17, 82–83.

57 Dr Stuart Minchin, Chief, Environmental Geoscience Division, Geoscience Australia, *Committee Hansard*, 2 May 2018, p. 40.

58 Environmental Defenders' Offices of Australia, *Submission 4*, p. 15.

59 Environmental Defenders' Offices of Australia, *Submission 4*, p. 17; Basin Sustainability Alliance, *Submission 20*, p. 2; Lock the Gate Alliance, *Submission 28*, pp. 4–5, 6; Miss Helen Bender, *Submission 29*, p. 2; Mr Maxwell Winders, Director, Wambo Cattle Company Pty Ltd, *Committee Hansard*, 1 May 2018, p. 3; Ms Joanne Rea, Chair, Property Rights Australia, *Committee Hansard*, 1 May 2018, p. 31; Mr Tom Crothers, Consultant, Property Rights Australia, *Committee Hansard*, 1 May 2018, p. 36; Ms Revel Pointon, Lawyer, Environmental Defenders Office Queensland, *Committee Hansard*, 2 May 2018, p. 25.

60 Environmental Defenders' Offices of Australia, *Submission 4*, p. 17; Professor Jonathan Fulcher, Private Capacity, *Committee Hansard*, 1 May 2018, p. 16. Mr Tom Crothers, Consultant, Property Rights Australia, stated that associated water began to be measured from late 2016 (*Committee Hansard*, 1 May 2018, p. 37).

61 Dr Malcolm Roberts, Chief Executive Officer, Australian Petroleum Production and Exploration Association, *Committee Hansard*, 2 May 2018, p. 17.

3.46 The Committee also heard concerns that much of the responsibility for the monitoring and baseline testing included in make-good agreements in Queensland is placed on land-owners. Ms Verity Morgan Schmidt, the Chief Executive Officer of Farmers for Climate Action, told the Committee:

They are trying to navigate this process and understand what a good make-good agreement needs to look like at the same time as they are grappling with drought, feeding stock and the realities of running a large farm business...The onus for the responsibility for delivering and pursuing that is being pushed back onto the graziers themselves, which seems to be quite disadvantageous.<sup>62</sup>

3.47 One witness expressed his worry that make-good agreements only apply to land-owners directly affected by extractive industry activities, while in the long-term other land-owners living in a connected water system may also be negatively affected by reduced water supply.<sup>63</sup>

3.48 The Department of Agriculture and Water Resources emphasised the importance of all states and territories implementing comprehensive water planning frameworks, arguing that the existence of statutory water rights outside water planning frameworks 'reduces transparency, limits the capacity of water planning to sustainably and transparently manage all water use and potentially compromises access to water for other users and the environment'.<sup>64</sup>

3.49 A bioregional assessment from the Federal Government released in June 2018 noted that existing coal mines could affect groundwater drawdown in an area of 4307 square kilometres, and there was at least a five per cent risk that additional coal resource development could lead to changes in groundwater for 3213 square kilometres of the region.<sup>65</sup>

### **Issues and gaps identified in current Commonwealth regulatory systems**

3.50 Evidence provided to the inquiry outlined a number of issues related to Commonwealth regulation of water. These included broad criticisms of the regulatory systems in place, as well as concerns about specific issues.

3.51 The Committee received a range of views concerning regulatory approaches to extractive industries compared with other water users. For example, the International Association of Hydrogeologists argued that other industries were not required to measure and report on groundwater levels and quality to the extent

---

62 Ms Verity Morgan-Schmidt, Chief Executive Officer, Farmers for Climate Action, *Proof Committee Hansard*, 10 September 2018, p. 3.

63 Mr Angus Emmott, Private capacity, *Proof Committee Hansard*, 10 September 2018, p. 4.

64 Department of Agriculture and Water Resources, *Submission 30*, p. 3.

65 Bioregional Assessments Program, *Coal resource development and water resources in the Hunter subregion*, <https://www.bioregionalassessments.gov.au/factsheets/coal-resource-development-and-water-resources-hunter-subregion> (accessed 26 July 2018).

required of the extractive industry.<sup>66</sup> The Association described Commonwealth regulation as a 'duplication' of state frameworks and suggested that the regulatory frameworks governing extractive industry water use, from Commonwealth to state to local requirements, were 'among the most stringent in the world'.<sup>67</sup>

3.52 Nevertheless, the International Association of Hydrogeologist's Australian President told the Committee that because of discrepancies between jurisdictions in the level of rigour required of extractive industry proposals, 'it is important to have a Commonwealth-level regulatory framework that addresses certain large, high-risk projects'.<sup>68</sup>

3.53 Ms Revel Pointon, a lawyer from the Environmental Defenders Office Queensland, argued that 'the extractive industries are often exempt from a lot of the requirements that are being provided to other water users, including the agricultural industry', as did Mr Mark McKenzie, the Chief Executive Officer of the New South Wales Irrigators Council.<sup>69</sup>

3.54 Some submitters were of the opinion that existing regulatory frameworks were inadequate.<sup>70</sup> For example, Property Rights Australia argued that regulation focused on managing impacts and compensating land owners for damage, rather than prevention of damage, contamination or draining of Australia's aquifer and water systems.<sup>71</sup> The Environmental Defenders' Offices of Australia contended that current requirements failed to protect the interests of current and future water users.<sup>72</sup> The Conservation Council of Western Australia expressed concern that Commonwealth conditions applied to projects were inconsistent with state conditions or former conditions applied to similar projects, and were not always applied or enforced.<sup>73</sup>

3.55 Specific problems identified in evidence include:

---

66 International Association of Hydrogeologists, *Submission 9*, pp. 2, 5. See also Australian Petroleum Production and Exploration Association Ltd (APPEA), *Submission 22*, pp. 2, 21; Dr Malcolm Roberts, *Committee Hansard*, 2 May 2018, p. 15.

67 International Association of Hydrogeologists, *Submission 9*, pp. 3, 4; Dr Lange Jorstad, President, Australian Chapter, International Association of Hydrogeologists, *Committee Hansard*, 2 May 2018, p. 4. See also Australian Petroleum Production and Exploration Association Ltd (APPEA), *Submission 22*, p. 3; Dr Gavin Lind, Director, Workforce and Health, Safety, Environment and Communities, Minerals Council of Australia, *Committee Hansard*, 1 May 2018, p. 25.

68 Dr Lange Jorstad, President, Australian Chapter, International Association of Hydrogeologists, *Committee Hansard*, 2 May 2018, p. 6.

69 Ms Revel Pointon, Lawyer, Environmental Defenders Office Queensland, *Committee Hansard*, 42 May 2018, p. 24; Mr Mark McKenzie, Chief Executive Officer, New South Wales Irrigators Council, *Committee Hansard*, 2 May 2018, p. 9.

70 Conservation Council of Western Australia, *Submission 27*, p. 1.

71 Property Rights Australia Incorporated, *Submission 21*, p. 2.

72 Environmental Defenders' Offices of Australia, *Submission 4*, p. 2; The Colong Foundation for Wilderness Ltd, *Submission 16*, p. 1.

73 Conservation Council of Western Australia, *Submission 27*, p. 4.

- limitations of the water trigger;
- insufficient recognition of cumulative impacts and limited bioregional assessments;
- bilateral agreements with states and territories;
- approvals given despite uncertainty in modelling;
- lack of research on environmental impacts in general;
- limited recognition of the value of groundwater ecosystems;
- insufficient compliance and enforcement of compliance;
- limited economic value given to the environment;
- limitations of the National Water Initiative;
- lack of consultation with Traditional Owners; and
- limited regulation of the impacts of abandoned mines.

### ***Limitations of the water trigger***

3.56 This inquiry's terms of reference directed the Committee to examine the value of expanding the water trigger to include other projects, such as shale and tight gas. Some submitters were not in favour of expanding the water trigger<sup>74</sup>, while others considered that the existing water trigger framework was unnecessary because it duplicated current arrangements.<sup>75</sup>

3.57 For example, the International Association of Hydrogeologists argued that a water trigger 'should apply to all groundwater users and not single out coal mining and the onshore gas industry' without a scientific basis for doing this.<sup>76</sup>

3.58 While Geoscience Australia acknowledged that 'there is no scientific reason to regulate potential impacts to water resources differently', it proposed that the water trigger should employ a consistent approach to all industries that use water on the basis of their potential impacts on water resources. This was also echoed by the University of Queensland's Centre for Coal Seam Gas, which noted that other 'sectors

---

74 Buru Energy Limited, *Submission 14*, p. 5; Australian Petroleum Production and Exploration Association Ltd (APPEA), *Submission 22*, p. 3. The Northern Territory Government (*Submission 3*, p. 4) argued that it 'would need to be convinced of the efficacy' of expanding the water trigger.

75 Minerals Council of Australia, *Submission 13*, pp. 2, 30–31; New South Wales Minerals Council, *Submission 15*, p. 7; Australian Petroleum Production and Exploration Association Ltd (APPEA), *Submission 22*, p. 3.

76 International Association of Hydrogeologists, *Submission 9*, p. 5

which extract large volumes of water e.g., large-scale irrigation developments are also not referred to the IESC for review'.<sup>77</sup>

3.59 However, many submitters and witnesses to the inquiry proposed expanding the water trigger to include all unconventional gas projects, including shale and tight gas.<sup>78</sup> For example, the Environmental Defenders' Offices of Australia proposed that the water trigger be expanded to include exploration and projects for all forms of unconventional gas and all large mines excavating below the water table.<sup>79</sup> It further argued that the water trigger in its current form 'does not require the Minister to refuse a development likely to have a significant impact on water resources' or 'to act consistently with the advice of the IESC'.<sup>80</sup> The National Farmers' Federation proposed amending the EPBC Act to require the Minister to take the IESC's advice into account when providing approvals.<sup>81</sup>

3.60 Mr Bruce Edwards from the Department of the Environment and Energy noted that if shale and tight gas 'were added under the water trigger then obviously it would depend on shale development going forward, and that hasn't been the case yet'.<sup>82</sup> However, as outlined in paragraph 3.18, the Department of the Environment and Energy's post-implementation review of the water trigger concluded that consideration could be given to expanding the water trigger once these activities move from exploration to production.<sup>83</sup>

---

77 Geoscience Australia, *Submission 2*, p. 16; University of Queensland Centre for Coal Seam Gas, *Submission 18*, p. 3. See also Professor Andrew Garnett, Director, Centre for Coal Seam Gas, University of Queensland, *Committee Hansard*, 1 May 2018, p. 20.

78 Ms Revel Pointon, Lawyer, Environmental Defenders Office Queensland, *Committee Hansard*, 2 May 2018, p. 24; Ms Georgina Woods, Policy Coordinator, Lock the Gate Alliance, *Committee Hansard*, 2 May 2018, p. 30; Nature Conservation Council of NSW, *Submission 7*, p. 5; Conservation Council of South Australia, *Submission 10*, p. 5; Ms Gillian Pechey, *Submission 12*, p. 1; Basin Sustainability Alliance, *Submission 20*, pp. 4, 24; Property Rights Australia Incorporated, *Submission 21*, p. 15; Lock the Gate Alliance, *Submission 28*, p. 2; Miss Helen Bender, *Submission 29*, p. 13.

79 Environmental Defenders' Offices of Australia, *Submission 4*, p. 4.

80 Environmental Defenders' Offices of Australia, *Submission 4*, p. 20; Ms Revel Pointon, Lawyer, Environmental Defenders Office Queensland, *Committee Hansard*, 2 May 2018, p. 24. See also Associate Professor Grant Hose, Department of Biological Sciences, Macquarie University, *Committee Hansard*, 2 May 2018, p. 39.

81 National Farmers' Federation, *Submission 17*, p. 10.

82 Mr Bruce Edwards, Assistant Secretary, Policy and Reform Branch, Environment Standards Division, Department of the Environment and Energy, *Committee Hansard*, 2 May 2018, p. 52.

83 Department of the Environment and Energy, *Implementation of the Water Trigger under the Environment Protection and Biodiversity Conservation Amendment Act 2013: Post Implementation Review*, December 2016, p. 21; Department of the Environment and Energy, *Submission 1*, p. 3.

### *Cumulative impacts and bioregional assessments*

3.61 Several submitters to the inquiry were of the opinion that current regulatory frameworks do not sufficiently take into account the cumulative impact of extractive industry activities on water sources.<sup>84</sup>

3.62 The Minerals Council of Australia submitted that in recent years, cumulative environmental impact assessments increasingly have been required in environmental impact assessments at both state/territory and Commonwealth levels. It stated that there had been little best practice guidance available to industry on how to prepare this information.<sup>85</sup>

3.63 Geoscience Australia noted that establishing scientific baselines to assess cumulative impacts is fraught with difficulties:

In areas of cumulative surface water and groundwater use, establishing scientific baselines to assess, manage and regulate any potential impacts to these resources is highly challenging. This is especially relevant where these cumulative impacts develop over time, such as the gradual growth of a number of extractive industry projects in a region.<sup>86</sup>

3.64 Geoscience Australia recommended that '[f]urther assessment of the effectiveness of the current regulation of cumulative impacts is needed to provide evidence to inform the regulatory approach to managing potential impacts to water resources'.<sup>87</sup>

3.65 A number of submitters emphasised the importance of bioregional assessments to understanding long-term impacts in a region. For example, the LCA argued that bioregional assessments 'allow regulators to impose clear conditions that are effective and enforceable, and provide more information and transparency upfront in the approval process' to strengthen public confidence in the regulatory system.<sup>88</sup>

3.66 The Committee also heard concerns that many bioregional assessments remain incomplete.<sup>89</sup> Lock the Gate Alliance submitted that despite this, projects

---

84 See, for example, Nature Conservation Council of NSW, *Submission 7*, p. 3; Conservation Council of South Australia, *Submission 10*, p. 5; NSW Irrigators' Council, *Submission 11*, p. 9; Mr Tony Windsor MP and Mr John Clements, *Submission 23*, p. 7; Miss Helen Bender, *Submission 29*, p. 13.

85 Minerals Council of Australia, *Submission 13*, p. 2.

86 Geoscience Australia, *Submission 2*, p. 13.

87 Geoscience Australia, *Submission 2*, p. 13.

88 Law Council of Australia, *Submission 8*, p. 6; Australian Farmers for Climate Action, *Submission 6*, p. 6.

89 Ms Revel Pointon, Lawyer, Environmental Defenders Office Queensland, *Committee Hansard*, 2 May 2018, p. 28.



continue to be approved.<sup>90</sup> The Environmental Defenders' Offices of Australia submitted that bioregional assessments 'should be completed as a matter of priority'.<sup>91</sup>

### ***Bilateral agreements***

3.67 Some submitters and witnesses questioned how effective bilateral agreements are in the hands of states and territories.<sup>92</sup> One submission suggested that the effect of bilateral agreements has meant that states 'provide, vet and control much of the information'.<sup>93</sup> The Nature Conservation Council of NSW argued that '[d]irect Commonwealth involvement is required to ensure that an appropriate level of scientific rigour is maintained in the face of economic pressures'.<sup>94</sup> Similarly, the New South Wales Irrigators' Council called for assessments of projects that fall under the water trigger to 'remain within the remit of the Federal Government and not be delegated to the State authorities'.<sup>95</sup>

3.68 However, the Australian Petroleum Production and Exploration Association argued that the EPBC Act was originally intended 'to encourage Bilateral Agreements, not remove them'.<sup>96</sup>

3.69 The Independent Review of the Water Trigger Legislation recommended that if governments wish to pursue bilateral approval agreements, an independent review should be conducted to analyse state regulatory systems, practice and policy and to recommend any necessary changes to each state systems so that these would be in line with the requirements of the water trigger.<sup>97</sup>

### ***Approvals given despite uncertainty in modelling***

3.70 A number of submitters expressed concern that the modelling used by extractive industries in their applications for approval was poor, limited or incomplete.<sup>98</sup> For example, Dr Lange Jorstad from the International Association of Hydrogeologists noted that one area where he consistently heard 'there is a failing is in

---

90 Lock the Gate Alliance, *Submission 28*, p. 2.

91 Environmental Defenders' Offices of Australia, *Submission 4*, p. 19.

92 Lock the Gate Alliance, *Submission 28*, p. 2; Ms Georgina Woods, Policy Coordinator, Lock the Gate Alliance, *Committee Hansard*, 2 May 2018, p. 31.

93 Mr Tony Windsor MP and Mr John Clements, *Submission 23*, p. 8.

94 Nature Conservation Council of NSW, *Submission 7*, p. 5.

95 NSW Irrigators' Council, *Submission 11*, p. 5.

96 Australian Petroleum Production and Exploration Association Ltd, (APPEA), *Submission 22*, p. 28.

97 Commonwealth of Australia, *Independent Review of the Water Trigger Legislation*, April 2017, p. 10.

98 Environmental Defenders' Offices of Australia, *Submission 4*, p. 5; Environmental Defenders' Offices of Australia, *Submission 4*, p. 9; Conservation Council of Western Australia, *Submission 27*, p. 9; Miss Helen Bender, Private capacity, *Committee Hansard*, 1 May 2018, p. 5. See also Caroon Coal Action Group Inc, *Submission 26*, p. 2.

the predictive assessment, through computer modelling, of impacts' expected from a particular project.<sup>99</sup>

3.71 Some evidence also questioned the reliability of modelling used by extractive industries and governments. Mr Maxwell Winders, a landholder living in Queensland, contended that detailed groundwater impact modelling that he commissioned his associated environmental engineering company and a consultant to undertake on his property indicated 'considerably more impairment' to a local aquifer than did modelling provided by the Office of Groundwater Impact Assessment. The Queensland Government established this industry-funded body to provide 'evidence-based independent scientific assessment of cumulative groundwater impacts from resource operations'.<sup>100</sup>

3.72 The Environmental Defenders' Offices of Australia proposed that in the absence of comprehensive data, 'mining and unconventional gas developments should not be assessed under the EPBC Act'.<sup>101</sup> It drew the Committee's attention to the example of the proposed Adani Carmichael coal mine in Central Queensland. Dr Jorstad took a similar view, telling the Committee that:

There were concerns that the operation of the mine would diminish or completely destroy the supply to those springs. There is a fairly strongly held opinion, after the decision was made on that project, that there still was not a good enough understanding of where the water supplying those springs was coming from. This was perhaps the most fundamental thing that should have been resolved prior to an approval on that project...

There were some fairly fundamental aspects of that computer model that one of the independent reviewers felt were insufficient as the basis for impact prediction. There was too much uncertainty, and the uncertainty was not quantified in any useful way. Essentially it was given a very light treatment.<sup>102</sup>

3.73 The LCA argued that for adaptive management conditions to be effective in preventing impacts on the environment, 'there still must be a sufficient baseline of

---

99 Dr Lange Jorstad, President, Australian Chapter, International Association of Hydrogeologists, *Committee Hansard*, 2 May 2018, p. 3.

100 Queensland Government, *Office of Groundwater Impact Assessment*, <https://www.business.qld.gov.au/industries/mining-energy-water/resources/environment-water/ogia> (accessed 23 July 2018); Mr Maxwell Winders, *Submission 25*, pp. 6–8; Mr Maxwell Winders, Director, Wambo Cattle Company Pty Ltd, *Committee Hansard*, 1 May 2018, p. 1.

101 Environmental Defenders' Offices of Australia, *Submission 4*, p. 20.

102 Dr Lange Jorstad, President, Australian Chapter, International Association of Hydrogeologists, *Committee Hansard*, 2 May 2018, p. 3; Environmental Defenders' Offices of Australia, *Submission 4*, p. 7; Ms Revel Pointon, Lawyer, Environmental Defenders Office Queensland, *Committee Hansard*, 2 May 2018, p. 28.

knowledge and understanding of the particular water resource'.<sup>103</sup> It submitted that in the absence of research, ideally no extractive project should be approved, noting that it may not be possible or realistic to defer extraction until appropriate baseline data is available. It suggested that in this instance, 'regulators and courts must fall back on fundamental principles, such as the precautionary principle, to make decisions about proposed projects'.<sup>104</sup>

3.74 The LCA noted that regulators at both the state and Commonwealth levels apply the precautionary principle in practice by setting conditions based on adaptive management approaches for projects in which there is scientific uncertainty. These conditions may require the proponent to carry out further research to close knowledge gaps, apply conservative management strategies, periodically evaluate monitoring results against existing models, and adjust models and management strategies as knowledge gaps are closed.<sup>105</sup> Dr Stuart Minchin, Geoscience Australia, was of the opinion that such measures may be 'entirely appropriate, because it can take years' to obtain baseline data.<sup>106</sup>

3.75 Dr Minchin asserted that because of a lack of clarity surrounding uncertainties present in particular forms of modelling, 'regulators are having to make decisions at times without really understanding the level of uncertainty associated with those models'.<sup>107</sup> Geoscience Australia recommended that regulators require proponents to clearly report uncertainty in their model predictions of potential impacts to groundwater.<sup>108</sup>

### ***Lack of research***

3.76 A number of submitters drew the Committee's attention to the lack of research surrounding impacts caused by water extraction and the interaction of different water resources more broadly.<sup>109</sup> Dr Lange Jorstad, the President of the Australian Chapter of the International Association of Hydrogeologists, acknowledged that research and

---

103 Law Council of Australia, *Submission 8*, p. 6; Ms Robyn Glindemann, Deputy Chair, Australian Environment and Planning Law Group, Legal Practice Section, Law Council of Australia, *Committee Hansard*, 1 May 2018, p. 39.

104 Law Council of Australia, *Submission 8*, p. 5. See also Mr Mark McKenzie, Chief Executive Officer, New South Wales Irrigators Council, *Committee Hansard*, 2 May 2018, p. 14.

105 Law Council of Australia, *Submission 8*, p. 6.

106 Dr Stuart Minchin, Chief, Environmental Geoscience Division, Geoscience Australia, *Committee Hansard*, 2 May 2018, p. 41.

107 Dr Stuart Minchin, Chief, Environmental Geoscience Division, Geoscience Australia, *Committee Hansard*, 2 May 2018, p. 41.

108 Geoscience Australia, *Submission 2*, p. 13.

109 Australian Farmers for Climate Action, *Submission 6*, p. 6; Conservation Council of South Australia, *Submission 10*, p. 3; National Farmers' Federation, *Submission 17*, pp. 3–6; Ms Robyn Glindemann, Deputy Chair, Australian Environment and Planning Law Group, Legal Practice Section, Law Council of Australia, *Committee Hansard*, 1 May 2018, p. 38; Associate Professor Grant Hose, Department of Biological Sciences, Macquarie University, *Committee Hansard*, 2 May 2018, pp. 36–37.

understanding of site-specific characteristics is often limited for large projects. Dr Jorstad described the information as 'basically a set of pinholes in a very large mass of land. We make a lot of inferences about what is between those data points and how they interact with each other'.<sup>110</sup>

3.77 Ms Robyn Glindemann from the LCA contended that:

...the focus needs to continue to be on developing our scientific understanding of our water resources. The lack of scientific knowledge around the interaction between surface and subsurface resources has infiltrated and is infiltrating the decision-making process, both at a regulator level and at a court level, and it is not satisfactory.<sup>111</sup>

3.78 The Australian Petroleum Production and Exploration Association expressed its support for the Commonwealth Government continuing 'to develop and implement its research program on the water-related impacts of coal seam gas development' to ensure that decisions involving projects that could impact water sources 'are based on the best available science'.<sup>112</sup>

#### ***Limited recognition of groundwater ecosystems***

3.79 Associate Professor Grant Hose drew the Committee's attention to the limited number of studies on groundwater ecosystems, arguing that the 'consequence of this knowledge gap is that regulatory decisions are based on a paucity of robust scientific evidence'. Because few stygofauna species are listed for protection, he commented, 'there is no mandate for environmental assessments related to extractive industries to consider groundwater biota as they might do for rare and threatened flora and fauna'. To address this regulatory gap, Associate Professor Hose recommended that groundwater ecosystems be given 'the same regulatory consideration and recognition as surface freshwater, marine and terrestrial ecosystems'. He also called for further research into the impacts of extractive activities on the organisms living in groundwater, and suggested that until such research has provided greater clarity, 'regulatory guidance should recommend the highest level of protection for groundwater ecosystems'.<sup>113</sup>

---

110 Dr Lange Jorstad, President, Australian Chapter, International Association of Hydrogeologists, *Committee Hansard*, 2 May 2018, pp. 2–3.

111 Ms Robyn Glindemann, Deputy Chair, Australian Environment and Planning Law Group, Legal Practice Section, Law Council of Australia, *Committee Hansard*, 1 May 2018, p. 38.

112 Australian Petroleum Production and Exploration Association Ltd (APPEA), *Submission 22*, p. 26.

113 Associate Professor Grant Hose, *Submission 5*, pp. 1, 2–3.

## *Compliance*

3.80 Several submitters and witnesses to the inquiry highlighted concerns about compliance and monitoring regimes and limited enforcement activities on the part of regulators.<sup>114</sup>

3.81 Geoscience Australia argued that because groundwater impacts may take years or decades to become apparent, 'the regulatory system must ensure ongoing monitoring of water resources occurs'.<sup>115</sup>

3.82 Geoscience Australia noted that the Department of the Environment and Energy often approves projects with conditions that require projects with incomplete baseline data to include completed baseline data in their Water Monitoring and Management Plans, which they are later required to provide to the Minister. The result, it suggested, is that regulatory responsibility is shifted 'from the approvals process to the compliance process'.<sup>116</sup> Given the reliance on the compliance process, Geoscience Australia proposed an independent compliance review to assess the effectiveness of conditions placed on coal and coal seam gas projects to date, 'and the effectiveness of associated monitoring and compliance'.<sup>117</sup>

3.83 The Committee heard concern about the level of transparency involved in reporting of water levels by extractive industries.<sup>118</sup> Mr Peter Wills, a cattle farmer from New South Wales, expressed concerns about real-time data from monitoring bores not being made available to his community, stating that 'by the time you get information, it could be six months old... There should be no reason to keep it hidden, surely'.<sup>119</sup>

3.84 Mr Bruce Currie, a beef cattle producer from Queensland, proposed that all commitments made in environmental impact statements:

must have government and landowner 24/7 accessible electronic monitoring, with harsh penalties if the monitoring fails and limits are breached prior to the mine commencing. Queensland and the federal government state the number of conditions imposed on mines, but neither

---

114 Environmental Defenders' Offices of Australia, *Submission 4*, p. 15; NSW Irrigators' Council, *Submission 11*, p. 3; Property Rights Australia Incorporated, *Submission 21*, p. 15; Mr Tom Crothers, Consultant, Property Rights Australia, *Committee Hansard*, 1 May 2018, pp. 35, 37; Dr Lange Jorstad, President, Australian Chapter, International Association of Hydrogeologists, *Committee Hansard*, 2 May 2018, p. 5; Mr Angus Emmott, Private capacity, *Proof Committee Hansard*, 10 September 2018, p. 3.

115 Geoscience Australia, *Submission 2*, p. 7.

116 Geoscience Australia, *Submission 2*, p. 13.

117 Geoscience Australia, *Submission 2*, p. 13.

118 See, for example, Ms Verity Morgan-Schmidt, Chief Executive Officer, Farmers for Climate Action, *Proof Committee Hansard*, 10 September 2018, p. 3.

119 Mr Peter Wills, *Proof Committee Hansard*, 10 September 2018, p. 18.

level of government is enforcing compliance...Conditions are nothing if there is not thorough monitoring, strict adherence and harsh penalties.<sup>120</sup>

3.85 Lock the Gate Alliance alleged that it had found evidence of several mining operators in New South Wales taking surface water and rainwater, with subsequent depleted flow and recharge for water systems. Ms Georgina Woods, Lock the Gate's New South Wales Coordinator, told the Committee:

In Maules Creek...the large coalmine next to that community is capturing a huge amount of surface water...without having the requisite water licences, which we believe is contrary to and unlawful under the Water Management Act. Our review of mining activities in the Hunter region has indicated there may be a similar pattern occurring there where there are huge volumes of water...So it's quite a significant volume of water that the industry is capturing in rainfall run-off, and obviously that's going to reduce the availability of water in the system and have an environmental effect in terms of periods of no flow.<sup>121</sup>

3.86 The NSW Minerals Council disputed this evidence, stating that Lock the Gate had 'incorrectly claimed that NSW mining operations are exceeding their licenced allocations for surface water'.<sup>122</sup> It argued that an exemption under the *Water Management (General) Regulation 2018* (NSW) allows for landholders to capture surface water runoff without the need for a water access licence:

The Excluded Work Exemption is available for mining operations (and other landholders) to capture surface water runoff from disturbed areas without the need for a [water access licence] in circumstances where surface water drains from disturbed areas into "dirty water" mine and sediment dams located on a minor stream that are "*solely for the capture, containment and recirculation of drainage and/or effluent ... to prevent the contamination of a water source*".

In this regard, mining companies are often required to operate such dams, as part of their "dirty water" management systems, under their planning approval, environment protection licences and their associated water management plans approved by relevant regulators.

The use of runoff from mining areas also helps to minimise the amount of water mining operations need to extract from local waterways and Regulated river systems such as the Hunter[.]<sup>123</sup>

3.87 A number of submitters and witnesses recommended that governments ensure that sufficient resourcing is in place for ongoing compliance activities.<sup>124</sup> The NSW

---

120 Mr Bruce Currie, Private capacity, *Proof Committee Hansard*, 10 September 2018, p. 7.

121 Ms Georgina Woods, NSW Coordinator, Lock the Gate Alliance, *Proof Committee Hansard*, 10 September 2018, pp. 13–14.

122 *Correspondence from the New South Wales Minerals Council – response to certain evidence given during a public hearing on 10 September 2018*, p. 1.

123 *Correspondence from the New South Wales Minerals Council – response to certain evidence given during a public hearing on 10 September 2018*, p. 2.

Irrigators' Council was of the opinion that 'sufficient qualified personnel in respective Government Departments is an ongoing concern for the water industry'.<sup>125</sup>

3.88 Dr Minchin from Geoscience Australia suggested that proponents be required to make ongoing monitoring data publicly available for transparency, and for this data to be made as clear as possible.<sup>126</sup>

3.89 The Productivity Commission in its report on national water reform recommended that 'Australian, State and Territory Governments should improve monitoring, evaluation, auditing and reporting' to make better use of environmental water, demonstrate the benefit of allocating water to the environment, build public trust in its management and keep managers accountable.<sup>127</sup>

### ***Limited economic value given to the environment***

3.90 Ms Sarah Asokendaran, a doctoral candidate at the University of Queensland, suggested that traditionally, environmental assessments and environmental impact statements do not adequately assess 'the intrinsic value of the environment, as some ecosystem goods and services are not traditionally reflected in markets (e.g. climate change, flood protection)'. She highlighted that the incorporation of Natural Capital Accounting as an economic tool to measure the value of the environment would 'strengthen decision making for development'.<sup>128</sup>

### ***Limitations of the National Water Initiative***

3.91 A number of submitters and witnesses were of the opinion that differences in the regulatory frameworks between states and territories were problematic, and had not yet been addressed in the NWI negotiations.<sup>129</sup>

3.92 The LCA was concerned about the 'failure to address the extractive sector within the NWI negotiations, and the ongoing failure to deal with the industry in the years since'. As a result, states and territories have developed or maintained their own

124 Environmental Defenders' Offices of Australia, *Submission 4*, p. 15; National Farmers' Federation, *Submission 17*, pp. 10–11; Ms Robyn Glindemann, Deputy Chair, Australian Environment and Planning Law Group, Legal Practice Section, Law Council of Australia, *Committee Hansard*, 1 May 2018, p. 39.

125 NSW Irrigators' Council, *Submission 11*, p. 7. See also National Farmers' Federation, *Submission 17*, p. 11.

126 Dr Stuart Minchin, Chief, Environmental Geoscience Division, Geoscience Australia, *Committee Hansard*, 2 May 2018, p. 43.

127 Productivity Commission, *National Water Reform*, Report no. 87, December 2017, Canberra, p. 33.

128 Ms Sarah Asokendaran, *Submission 19*, pp. 4–5. See also Ms Sarah Asokendaran, Private capacity, *Committee Hansard*, 1 May 2018, p. 15.

129 See Lock the Gate Alliance, *Submission 28*, p. 1; Australian Farmers for Climate Action, *Submission 6*, p. 3; Ms Robyn Glindemann, Deputy Chair, Australian Environment and Planning Law Group, Legal Practice Section, Law Council of Australia, *Committee Hansard*, 1 May 2018, p. 38. See also Department of Agriculture and Water Resources, *Submission 30*, p. 3.

arrangements to regulate the take and use of water by the extractive sector.<sup>130</sup> The Department of Agriculture and Water Resources observed that 'it is reasonable to expect' that state and territory governments will implement 'comprehensive water planning frameworks'.<sup>131</sup>

3.93 The LCA also noted that the NWI does not clearly consider cumulative impacts, and argued that even if the interaction of groundwater and surface water resources may be poorly understood, 'sustainable water management practices are more likely to be achieved where all water use is subject to the same assessment and governance framework'.<sup>132</sup>

3.94 Areas raised with the Committee which submitters and witnesses proposed needed reform for consistency across jurisdictions included the ways in which jurisdictions issue water plans and manage areas and water sources, and the use of differing terminologies.<sup>133</sup>

### ***Lack of consultation with Traditional Owners***

3.95 The Committee received evidence recommending that Traditional Owners of land affected by water extraction be included in decision-making to a much greater extent than is presently the case.<sup>134</sup> Lock the Gate Alliance argued that states and territories had not consistently met the agreements in the NWI for water planning that incorporates recognition of Indigenous water needs.<sup>135</sup> The LCA also considered that 'the current frameworks for recognition of Indigenous cultural flows under the *Water Act 2007* (Cth) and most State water rights systems remain inadequate'.<sup>136</sup>

3.96 Ms Helen Bishop, who provided a submission on behalf of the Traditional Owner Rum Jungle Liaison Committee, questioned what regulatory measures the Commonwealth would employ to ensure that Traditional Owners were given the right to be actively involved in decisions affecting them:

Water is vested in Governments through laws and legislation that restricts any Traditional Owner guarantees to protect their natural heritage and cultural enjoyment. What systems, checks and balances will the Commonwealth put in place that protects Traditional Owners' rights and freedoms, cultural practices and social observations with regard to water, its management, use and the effects of extraction, contamination and the

---

130 Law Council of Australia, *Submission 8*, p. 3.

131 Department of Agriculture and Water Resources, *Submission 30*, p. 3.

132 Law Council of Australia, *Submission 8*, p. 7.

133 National Farmers' Federation, *Submission 17*, p. 2; Ms Sarah Asokendaran, *Submission 19*, pp. 8–11; Ms Sarah Asokendaran, Private capacity, *Committee Hansard*, 1 May 2018, p. 14.

134 Ms Robyn Glindemann, Deputy Chair, Australian Environment and Planning Law Group, Legal Practice Section, Law Council of Australia, *Committee Hansard*, 1 May 2018, p. 38.

135 Lock the Gate Alliance, *Submission 28*, p. 1.

136 Law Council of Australia, *Submission 8*, p. 4.



---

effectiveness of the 'water trigger' under the *Environment Protection and Biodiversity Conservation Act 1999*?<sup>137</sup>

3.97 Ms Bishop further argued that it is 'inappropriate, culturally ignorant and disrespectful that future decisions are made without consultation that ultimately impact upon Traditional Owners' responsibilities, accountabilities and cultural authority'.<sup>138</sup>

3.98 The Australian Petroleum Production and Exploration Association noted that a social impact assessment for gas development in the Northern Territory in 2018 'identified significant opportunities for the enhancement of social values, such as collaboration between the community and industry...and indigenous participation'.<sup>139</sup>

3.99 The Productivity Commission's report into National Water Reform recommended that all governments undertake further work to incorporate 'clear, measureable and well-informed Indigenous cultural objectives in water plans, tangible actions...and monitoring and reporting arrangements' to oversee these objectives.<sup>140</sup> In its recommendation for a renewed NWI, it proposed that 'an Indigenous working group be established to provide advice on the development of relevant provisions'.<sup>141</sup>

### ***Rehabilitation, mine closure and abandoned mines***

3.100 Both the NSW Minerals Council and the Minerals Council of Australia outlined that state regulatory systems include requirements for the management of mine rehabilitation, including industry plans for rehabilitation, and government oversight of rehabilitation activities.<sup>142</sup>

3.101 However, the Committee heard that a major regulatory gap in current frameworks governing water use as well as mine rehabilitation is the failure of these to take into account the long-term water impacts of abandoned mines.<sup>143</sup> Ms Corinne Unger argued that current measures in which states are expected to take responsibility for mining legacies were 'ad hoc and uncoordinated'. She further asserted that some abandoned mine programs did not appropriately address water impacts, and proposed

---

137 Ms Helen Bishop, *Submission 31*, p. 2.

138 Ms Helen Bishop, *Submission 31*, p. 5.

139 Australian Petroleum Production and Exploration Association Ltd, *Submission 22*, pp. 7–8.

140 Productivity Commission, *National Water Reform*, Report no. 87, December 2017, Canberra, pp. 18, 29.

141 Productivity Commission, *National Water Reform*, Report no. 87, December 2017, Canberra, p. 26.

142 New South Wales Minerals Council, *Submission 15*, p. 5; Minerals Council of Australia, *Submission 13*, pp. 20–24.

143 Ms Corinne Unger, *Submission 24*, p. 2; Ms Corinne Unger, Private capacity, *Committee Hansard*, 1 May 2018, p. 8.

that the EPBC Act be amended to incorporate measures that would address the impacts on water from abandoned mines.<sup>144</sup>

3.102 Geoscience Australia suggested that approval conditions for mine rehabilitation and closure be 'included at the approval stage of project development so industry can plan for closure, and so that regulators are able to implement closure requirements'.<sup>145</sup>

## **Conclusion**

3.103 This chapter has focused on the regulatory frameworks governing water use by the extractive industry that in large part are intended to prevent or mitigate negative environmental impacts arising from extractive activities. The following chapter outlines what these potential impacts could be, as well as some of the economic and social impacts of water use by the extractive industry.

---

144 Ms Corinne Unger, *Submission 24*, pp. 3, 4, 6; Ms Corinne Unger, Private capacity, *Committee Hansard*, 1 May 2018, pp. 11, 12.

145 Geoscience Australia, *Submission 2*, p. 14; Dr Stuart Minchin, Chief, Environmental Geoscience Division, Geoscience Australia, *Committee Hansard*, 2 May 2018, p. 40.