EDOs of Australia

Submission to the Inquiry into water use by the extractive industry

19 December 2017

EDOs of Australia (formerly the Australian Network of Environmental Defender's Offices) consists of eight independently constituted and managed community legal centres located across the States and Territories.

Each EDO is dedicated to protecting the environment in the public interest. EDOs:

- provide legal representation and advice,
- take an active role in environmental law reform and policy formulation, and
- offer a significant education program designed to facilitate public participation in environmental decision making.

Submitted to:

Committee Secretary
Senate Standing Committees on Environment and Communications
PO Box 6100
Parliament House
Canberra ACT 2600

By email: ec.sen@aph.gov.au

For further information, please contact

Introduction

EDOs of Australia (**EDOA**) welcomes the opportunity to assist the Senate Standing Committee on Environment and Communications (**Committee**) with its inquiry into *Water use by the extractive industry* (**Inquiry**).

Communities, scientists and conservationists across Australia continue to express concern about the impacts of extractive industry on water and the environment. This concern is widespread largely due to extent of extractive industries across nearly all states and territories of Australia and the relatively weak regulation of this industry.

For example, coal seam gas (**CSG**), shale and tight gas deposits have been located in large areas across NSW, QLD, Victoria, Western Australia, South Australia, Tasmania and the Northern Territory. Many of these resources are proximate to townships, areas of agricultural significance, important tourism areas and places of cultural significance. The magnitude of these activities results – and will continue to result – in direct and cumulative impacts on biodiversity, water dependent ecosystems, water and agricultural land.

Furthermore, it is widely acknowledged that many extractive industries, including unconventional gas development, contribute to greenhouse gas (**GHG**) emissions which are increasing the risks of dangerous climate change.

In addition to the high level of community concern about environmental impacts, there is also a general perception that the regulatory frameworks that govern water use by the extractive industry across Australia jurisdictions are failing to protect the interests of other water users, now and in the future; and failing to fairly and adequately economically value the impacts of the extractive industry on water. These issues are exacerbated by legislation that confers broad discretion on decision-makers to determine how environmental and social impacts will be assessed, and whether or not high-impact extractive projects should be approved.

EDOA has written extensively on risks to ecologically sustainable water management in Australia. We refer the Inquiry to our previous work in this area.[1] In this submission we respond to each of the Terms of Reference (**ToR**) namely:

A. *The social, economic and environmental impacts of extractive projects' take and use of water*
B. *Existing safeguards in place to prevent the damage, contamination or draining of Australia's aquifers and water systems*
C. *Any gaps in the regulatory framework which may lead to adverse social, economic or environmental outcomes, as a result of the take and use of water by extractive projects;*
D. *Any difference in the regulatory regime surrounding the extractive industry's water use, and that of other industries;*

[1] EDOA submissions in relation to water management and extractive industries are available at: www.edo.org.au/water1 and www.edo.org.au/mining1.

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

We give particular focus to ToR C, D and E.

Recommendations

Requirements for consistent legislation across jurisdictions that at a minimum requires the following:

- A primary legislative objective should be the development of the extractive industry in a way that ensures the environment, including water resources, is not adversely affected and that the principles of ecologically sustainable development (**ESD**) guide all decision making around extractive industries;
- Extractive industry is subject to the same laws as other industries, and should not be excluded from legislation relating to full water accounting and pollution management;
- Extractive industries, not landholders, should bear the burden of proving the cause of water loss and damage under make-good agreements and similar arrangements.
- Appropriate 'no-go zones' should be implemented prior to any further expansion of extractive industries;
- Improved standards for upfront environmental impact assessment should be developed, including:
    - minimum standards for groundwater and surface water modelling;
    - improved consideration of the capacity of a water resource to support mining operations, and ultimately rehabilitation activities, over time;
    - a requirement that decision makers must not approve a project until the proponent has provided adequate baseline data and has adequately addressed any concerns raised by the regulator or independent assessors advising the regulator; and
    - application of the precautionary principle.
- Impact assessments should consider an expanded list of Matters of National Environmental Significance under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**), including greenhouse gas emissions and land clearing;
- Commonwealth and state natural resource management and planning laws must be reformed to effectively address climate change in order to maintain water security for the environment, other industries and regional communities.
- Independent Expert Scientific Committee (**IESC**) bioregional assessments should be completed as a matter of priority and used for future decisions on whether to approve new or expanded extractive industry proposals;
- Ministers and all agencies and persons involved in the administration of legislation should be required to use objective criteria when making a decision whether or not to approve a project, particularly where there may be significant water impacts. To assist with the process, consideration

should be given to formulating mandatory Codes of Practice which set out the most up to date proven, cost-effective technology, practices and requirements for the industry both nationally and internationally;
- Any approvals for extractive industries should include conditions of consent for mining projects that require ongoing monitoring modelling. Predictions of impact should be used to inform licensing requirements for the project in question. 'Adaptive management' should not be used as a tool to avoid rigorous and comprehensive upfront assessment or to avoid setting specific, measurable limits on project impacts.
- Water trading restrictions that are required to protect equitable water sharing (in particular protection of stock and domestic use) should be maintained and/or introduced where necessary;
- Water management arrangements must ensure that any water purchased for the environment is made available for the environment; and
- Sufficient resourcing and political will must be available to ensure adequate and effective compliance and enforcement activity.

The Australian Competition and Consumer Commission should investigate whether it is necessary to extend anti-competition laws to water entitlement holders for the purposes of maintaining sustainable and equitable water sharing arrangements.

In relation to the 'water trigger' under the EPBC Act, we recommend that it is expanded to:

- Apply to all large mines that excavate beneath the water table and to all unconventional gas projects (including shale and tight gas);
- Apply to exploration for all forms of unconventional gas, as in many cases the activity of exploration is the same as the activity of extraction;
- Ensure Part 9, Sub-division B of the EPBC Act includes specific assessment criteria for the 'water trigger' including to not act inconsistently with the Convention on Biological Diversity and, where relevant, the Ramsar Convention (Wetlands) and Bonn Convention (Migratory Species);
- Require that the Minister should be required to not act inconsistently with the IESC's advice when determining the project;
- Require that conditions of consent should be required to reflect the IESC's advice; and
- Require that the Minister must not approve a project until the proponent has provided adequate baseline data and has adequately addressed any concerns raised by the IESC.

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

To provide context for our comments we outline some of the issues most frequently raised by EDO clients in relation to the social, economic and environmental impacts of extractive projects' take and use of water.

Social Impacts

As demonstrated by numerous reports of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (**IESC**), various recent court decisions and independent peer reviews, the modelling provided by extractive industry proponents and used in decision making is consistently poor.[2] This reduces trust in the Environmental Impact Assessment (**EIA**) process, wastes community resources in testing the EIA modelling and leads to impacts on other water users that were not predicted by the EIA. Impacts which, particularly in the case of groundwater, often cannot be reversed.

Where impacts on water are predicted via monitoring and reporting obligations, many approvals for extractive projects require proponents to 'make good' these impacts. This requires proponents and landholders to enter into private agreements for compensation. In our experience, this is not a fair process due to the imbalance in negotiating power between affected landholders and resource companies, and the potential for these negotiations to span over weeks or even years. In most cases, the onus is on the landholder to demonstrate the extent of any impacts or potential impacts, which often involves obtaining expensive independent expert evidence and taking the matter to a dispute resolution practitioner or to court. Whilst this lengthy negotiation process is underway, the landholder may continue to suffer from impacts to their water supplies. Some of these impacts will never be restored, for example by returning water to the source, and in a number of jurisdictions, so long as monetary compensation is provided for this a proponent is taken to have 'made good' the impacts. In this case, the necessity for a landholder to 'contract out' the impacts jeopardises the long-term intergenerational equity of future landholders.

Extractive projects last for decades and groundwater recovery can last from hundreds to even thousands of years. In these circumstances, projects are highly unlikely to perpetually 'make good' on impacts on groundwater, and many impacts are irreversible, meaning groundwater bores will no longer be functioning for future landholders. This is particularly concerning in circumstances where the impacts of climate change will see a greater incidence of drought in Australia, leading to increased demand on our groundwater basins.

We also note that legislative 'make good' provisions generally impose no obligations for damage caused to ecosystems from water take by extractive industry.

[2] We provide a number of examples of this in response to ToR C.

Noting these significant issues, at a minimum, relevant mining and water laws should reverse the onus of proof so that extractive industry companies, not landholders, bear the burden of proving the cause of water loss and damage under make-good agreements and similar arrangements.

Economic Impacts

In an operating environment where water is treated as a commodity that can be traded, there are strong links between water management and economic impacts. EDOA recently made extensive comment on the Productivity Commission's *Draft Report into National Water Reform* and we refer the Inquiry to that submission (**NWR Submission**).[3]

Legislative regimes around Australia rarely factor in the true cost of water used by extractive industry. For example, in Queensland, the statutory right to water for mining, petroleum and gas industries creates an unfair advantage above other water users, such as the agricultural sector, and is a lost revenue stream for the government – effectively a subsidy for the extractive industry.

In NSW, EIAs may consider the cost of purchasing water as a business expense but rarely consider the costs of social change that arise when predominately agricultural areas are lost to extractive industries. The full costs of extraction and water use should be identified and taken into account, consistent with ESD principles for improved valuation of environmental costs.[4]

Environmental Impacts

Extractive industries impact both surface water and groundwater, but the uncertainty of the environmental impacts of the extractive industry on groundwater are particularly concerning. There remains significant uncertainty as to how many groundwater basins interconnect and therefore the impacts that mining and gas projects will have on our groundwater systems.

Despite this uncertainty, the precautionary principle is not being implemented adequately by decision-makers and regulators.[5] This is caused by both lack of political will and because of inadequate legislative provisions which effectively operationalise the precautionary principle.

This has been demonstrated in the Queensland mining objection hearings for the Alpha coal mine[6] and the New Acland coal mine Stage 3 expansion.[7] Despite

---

[3] Draft report available at: http://www.pc.gov.au/inquiries/current/water-reform/draft. EDOA's *Submission responding to the Productivity Commission's Draft Report into National Water Reform* (October 2017), available at: https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/5319/attachments/original/1509684499/EDOA_Submission_and_Annex_to_PC_311017.pdf?1509684499.

[4] ESD principles underpin various Commonwealth and state natural resource management laws. See for example, *EPBC Act 1999* (Cth) ss. 3-3A; and *Water Management Act 2000* (NSW) s 3.

[5] The precautionary principle is a key principle of ESD. See for example, EPBC Act (Cth) s. 3A(b): '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'.

[6] *Hancock Coal Pty Ltd v Kelly & Ors and Dept of Environment and Heritage Protection (No 4)* [2014] QLC 1.

[7] *New Acland Coal Pty Ltd v Ashman & Ors and Chief Executive, Dept of Environment and Heritage Protection (No 4)* [2017] QLC 24.

regulators deciding that draft environmental authorities should be prepared (a precursor to project approval), in both cases, the Queensland Land Court decided that the high level of uncertainty surrounding the groundwater impact assessments undertaken by the proponent (and accepted by the regulator) was sufficient to recommend refusal of the mines.

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

Current legislative safeguards in Australia are not sufficient to prevent the damage, contamination or draining of Australia's aquifers and water systems. We expand on these issues in more detail in response to ToR C and D, however note that some key gaps include the lack of thorough upfront impact assessment (hindering the effectiveness of assessment frameworks); the lack of legislative provisions which operationalise the precautionary principle;[8] and the fact that the precautionary principle is not being implemented by regulators.

For example, the Carmichael coal mine in Queensland has been granted an environmental authority allowing it to commence work even though there is still uncertainty as to the nature and severity of the impacts the mine will have on the Great Artesian Basin and surrounding ancient springs of high significance to the traditional owners of the area. Hydrogeological experts have established that three relatively simple site specific investigations could be undertaken to determine the interactions between the relevant groundwater basins, which would establish the impacts that the mine will have, yet these investigations have not been required of the proponent, despite a predicted low cost.[9]

This provides a salient example of a failure to effectively implement the precautionary principle and a poor level of assessment standard being required by regulators, in a situation where the potential impacts of a project are not being established as far as possible during the assessment of the proposal. Similarly, the experience of Linc Energy's recent underground coal gasification incident provides a good example of a high level of uncertainty of impacts and lack of precautionary approach resulting in significant and ongoing impacts to surrounding landholders, ecosystems and the water basin.[10] The impacts of the Linc Energy project may not have eventuated if the precautionary principle had been properly implemented by decision makers when assessing the application.

Of further concern is the fact that 'no-go zones' have not been established in advance of extractive industry expansion, either at the state/territory level or under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth)

[8] For example, many legislative regimes do not include third party review rights for decisions relating to water use by extractive industries. Third party review rights have been shown to be an effective way to operationalise the precautionary principle and are a feature of any mature regulatory regime.
[9] Matthew Currell et al, 'Problems with the application of hydrogeological science to regulation of Australian mining projects: Carmichael mine and Doongumbulla Springs (2017) 548 *Journal of Hydrology* 674, 680.
[10] https://www.ehp.qld.gov.au/management/linc-energy/.

(**EPBC Act**), despite the fact that there may be scope to do so under Part 10 of the Act, which provides for strategic assessments.

'No-go zones' are vital to ensure that key environmental and social features are adequately protected. As noted by Dr. John Williams, exclusion zones operate on the basis that coexistence is not, in certain circumstances, possible.[11] This is particularly true where one land use, for example mining development, erodes the viability of another use, for example agriculture. In the case of agriculture, this erosion may be due to land acquisition,[12] or alternatively environmental impacts including diminished water quality and quantity.[13]

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

Numerous EDOA submissions have highlighted important gaps in the regulatory frameworks that allow industry, including extractive industry, to have adverse social, economic or environmental outcomes. Again, we refer the Inquiry to the EDOA website for a full list of relevant submissions.

In this part of our submission we focus on the following areas:

- inadequate impact assessment;
- lack of requirements for objective decision making;
- insufficient consideration of climate change;
- inappropriate use of adaptive management;
- shortcomings in water trading; and
- compliance and enforcement.

Inadequate impact assessment

Inadequate upfront impact assessment raises concerns about the true environmental, social and economic impacts of extractive projects (as outlined in response to ToR B). At an operational level, it also leads to wasted resources of the community, the assessing authority, the proponent and the court; all being forced to respond to applications without all of the necessary information before them.

The introduction of the water trigger into the EPBC Act introduced an important check on many extractive industry assessments by requiring assessments to be

[11] John Williams Scientific Services Pty Ltd, *An analysis of coal seam gas production and natural resource management in Australia, A report prepared for the Australian Council of Environmental Deans and Directors*, October 2012, p. 106. See also EDOs of Australia, *Submission on the Draft National Harmonised Regulatory Framework for Coal Seam Gas 2012*(Feb. 2013), available at: https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/1406/attachments/original/1398406177/130228-CSG_draft_national_framework_-_ANEDO_submission.pdf?1398406177.

[12] Properties within the 'zone of affectation' are commonly acquired by mining companies pursuant to conditions attached to the consent issued by the State government.

[13] National Water Commission (2010) *Coal Seam Gas and Water Position Statement*, available at: http://nwc.gov.au/nwi/position-statements/coal-seam-gas.

reviewed by the IESC. However, because decision makers are not bound by IESC advice, in many cases, concerned communities remain forced to commission their own peer review or water modelling to gain a more robust understanding of the likely impacts of a proposed development. Even where a community does have sufficient resources to undertake independent assessment, they rarely have access to sufficient data or resources available to undertake the extent of modelling required to fully understand all likely groundwater and surface water interactions; nor is this an appropriate role to expect of the community.

There is an urgent need for minimum standards of assessment to be applied to assessments for extractive industries. Projects that do not provide sufficient information to understand the true environmental and social impacts should not be able to be approved. While all modelling involves uncertainty, monitoring can provide a more accurate reflection of extraction levels over time. As such, conditions of consent for mining projects should require ongoing monitoring modelling, which should in turn be used to inform licensing requirements for the project in question. A more thorough understanding of long term impacts is required to ensure that ESD is achieved.[14]

The timeframe of impacts considered in EIAs is also of concern. As noted previously, impacts to water resources can take thousands of years to recover. As noted in our submission to the *Inquiry into the rehabilitation of mining and resources projects as it relates to Commonwealth responsibilities,*[15] most jurisdictions provide for some type of water licencing for resource projects during the life of the operation but, as can be seen in numerous coal mine environmental assessments, there is usually an intention of operators to on-sell any water licences following operation of the mine. This is despite the fact that many mines will continue to 'take' water long after even rehabilitation is complete either through evaporation from final voids or leakage of groundwater from the disturbed aquifers. Increased consideration must be given upfront to the capacity of a water resource to support mining operations, and ultimately rehabilitation activities, over time. This involves greater integration of land use planning and water management frameworks.

In some cases legislation inappropriately limits the extent to which a decision-maker or court may consider environmental impacts when determining a development application for a coal mining development or CSG development. In Queensland, lower risk mining and gas applications cannot be refused by the regulator; they must be approved where they meet certain relatively broad criteria that may not capture all environmental and community impact considerations.[16] Similarly, there is now precedent in NSW which confirms that preliminary groundwater studies are sufficient for the purposes of approving a CSG

[14] ESD requires: 'decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;' EPBC Act (Cth) s. 3A(a).
[15] Full submission available at: https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/3782/attachments/original/1492645887/Senate_Inquiry_into_mine_rehabilitation_EDOs_of_Australia_Submission_April_2017.pdf?1492645887.
[16] *Environmental Protection Act 1994* (Qld), ss170 and 171.

production project involving 110 wells, approximately 100 km of pipeline and a processing facility under State planning law.[17]

Lack of requirements for objective decision making

The Queensland regulatory framework is not ensuring the best decisions are made with consideration of scientific understanding. Unlike other matters within the Land Court's jurisdiction, such as CSG approvals or water licences, the Land Court does not make a final decision on referred objections, but rather makes a recommendation to the regulatory decision makers. In this respect, the mining assessment and Court objection hearing process is an anomaly when compared to the typical assessment and Court appeal functions in other development approvals processes, which generally involve a final decision by the government and then a post-approval merits appeal process.

Lack of final decision making powers for mining referrals has increased complexity and assessment times and reduced the Court's power to control proceedings. This limitation on the Queensland Land Court's power in mining objection hearings has hampered the Court's ability to conduct matters fairly and efficiently and increases the time, complexity and costs for all parties. Limiting the Court's role to only recommendatory powers also hinders the benefits provided from involving an independent court forum in the assessment process.

The ineffectiveness and injustice of this process is clearly demonstrated in the New Acland Stage 3 expansion mining objection hearing process.[18] Here 60 objectors went through one of the longest public interest matters in Australia's history, with 99 days of hearings in Court, and obtained a recommendation of refusal of the mine expansion.[19] This recommendation was based in large part on the uncertainties as to the groundwater impacts of the mine and the impact on intergenerational equity if they were to allow the mine to go ahead. The Court's decision was provided in May 2017 and then was referred back to the regulatory decision makers for their final decisions as to whether to grant the mining lease and environmental authority. This matter remains unresolved at December 2017. If the Court was empowered with a post-approval judicial determination role, all parties and the community would have certainty as to the final decision on the mine and the independence of this decision from political consideration would be better ensured.

To assist with objective decision making that achieves minimum standards across jurisdictions, consideration should be given to formulating mandatory Codes of Practice which set out the most up to date proven, cost-effective technology, practices and requirements for the industry both nationally and internationally. The Codes should cover mandatory requirements in relation to a number of matters including water resource protection and water management.

---

[17] *Barrington - Gloucester - Stroud Preservation Alliance Inc. v Minister for Planning and Infrastructure* [2012] NSWLEC 197. This case concerned an approval issued under the former Part 3A of the *Environmental Planning and Assessment Act 1979* (NSW).
[18] *New Acland Coal Pty Ltd v Ashman & Ors and Chief Executive, Dept of Environment and Heritage Protection (No 4)* [2017] QLC 24.
[19] Ibid.

Key matters could include a case-by-case assessment of the implications of proposed operations on groundwater quality and quantity which takes into account hydrogeological conditions at a site and then specifies the level of engineering and oversight required to manage and monitor water usage. Precedent for this approach exists through the Council of Australian Governments Standing Council on Energy and Resources which in 2013 released a '*National Harmonised Regulatory Framework for Natural Gas from Coal Seams*' (**CSG Framework**).

The CSG Framework identified 18 leading practices across four areas that may be adopted by State or Territory Governments. The four areas are: well integrity; water management; hydraulic fracturing; and chemical use. While providing a useful starting point, the EDOA submission to the draft CSG Framework identified a number of limitations which should be addressed in any future Codes of Practice.[20]

Insufficient consideration of climate change

The EPBC Act only applies to development that is likely to have a significant impact on the nine listed Matters of National Environmental Significance (**MNES**). It does not regulate a range of other impacts associated with extractive industry including GHG emissions and land clearing. This is despite a climate change trigger being a live issue even when the EPBC Bill was introduced, and being further recommended in the 2009 review of the Act.[21] Current state and territory regulation also fails to adequately incorporate consideration of climate change – often deflecting responsibility back to the Commonwealth. This has implications for the environment, other water users and extractive industries themselves. EDO NSW has prepared a Discussion Paper on the need to adapt state planning systems to better consider climate change.[22]

Under current legislation, maintaining a healthy and productive aquatic environment largely relies on ensuring sufficient environmental water allocations. EDOA is concerned that water allocations do not take into account likely future climate change. This poses a significant risk to both the environment and users as water becomes scarcer in certain catchments across the country. Professors Pittock and Grafton note that:

[20] In our submission on the CSG Framework, we identified three key limitations. First, while the 18 leading practices could in theory reduce some of the impacts of CSG development on agricultural land, the CSG Framework 'does not require developing new, specific legislation in all jurisdictions, as many jurisdictions already have in place legislation and regulation'. Rather, it is designed to 'provide guidance to regulators'. Second, the CSG Framework does not apply to all forms of unconventional gas development. Third, the CSG Framework is underpinned by the 'Multiple Land Use Framework' (MLUF). The MLUF assumes that CSG development can occur in any landscape, providing impacts are 'managed'. As discussed elsewhere, this is not necessarily a realistic assumption. The full EDOA submission is available at: https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/1406/attachments/original/1398406177/130228-CSG_draft_national_framework_-_ANEDO_submission.pdf?1398406177.

[21] See Australian Government Consultation paper on a possible greenhouse trigger (1999); and Hawke et al. *Report of the Independent Review of the EPBC Act 1999* (2009).

[22] EDO NSW *Planning for climate change: how the NSW planning system can better tackle greenhouse gas emissions* July 2016, available at: http://www.edonsw.org.au/planning_for_climate_change.

> *It is our view that the failure to use current knowledge on projected impacts of climate change in the computation for the Basin Plan's sustainable diversion limits, or provision for systematic adjustment into the future, significantly increases the risks to the ecological heath of the river systems. It also increases the uncertainty to communities, who now have no clear policy setting or process to manage the anticipated changes in water availability into the future.*[23]

In Queensland, recent proposed changes to the water planning framework sought to incorporate the consideration of water-related effects of climate change on water resources, however these changes lapsed with the recent change of Government.[24] If these changes had passed through Parliament, questions remained as to how this would be assessed and implemented.[25] For example, the Government received a number of submissions on this Bill in relation to the assessment of risks to water availability posed by climate change and the application of these risks to the planning framework which the Government said would require further research and public participation to formulate.[26] Further, the Government acknowledged that only climate change risks and potential effects likely to be experienced over the life of the water plan would be considered[27] and although this is appropriate in the circumstances it may not be conducive to adequately planning for long-term effects of climate change.

In relation to the Murray Darling Basin, we note that a significant proportion of the entitlements recovered by the Commonwealth for environmental water are what may be broadly classified as low- to medium-security entitlements. These are particularly vulnerable to climate change as they do not guarantee reliability of supply during drier years. In practical terms, this means that the water held on these licences will be unavailable for the environment as water availability decreases in certain parts of the Basin. This contrasts with extractive industries that regularly purchase high-security water entitlements as discussed below.

In summary, it is imperative that the issue of climate change be addressed in order to maintain water security for the environment, industry and regional communities.

Inappropriate use of adaptive management

Insufficient upfront assessment is leading to a high reliance on adaptive management conditions and post-approval development of impact assessment reports and management plans. This is exemplified by the granting of the Queensland Carmichael mine environmental authority and EPBC Act approval

[23] Pittock, J and Grafton, R. Quentin, Williams, J, The Murray-Darling Basin Plan fails to adequately deal with climate change, Water, January 2015, pg 26.
[24] Mineral, Water and Other Legislation Amendment Bill 2017.
[25] See the submissions to the Infrastructure, Planning and Natural Resources Committee, available at: https://www.parliament.qld.gov.au/work-of-committees/committees/IPNRC/inquiries/past-inquiries/MWOLA2017.
[26] See the Government's response to submissions https://www.parliament.qld.gov.au/documents/committees/IPNRC/2017/MWOLA2017/cor-29Sep2017-MWOLA.pdf at p. 15.
[27] Ibid at 14.

without reasonable site specific investigations having been undertaken to determine the impacts to the groundwater basins and nearby springs.[28]
This approach is jeopardising the quality of decision making at a state and federal level. Not only are regulators making decisions that are not sufficiently informed as to the potential impacts of a project, members of the public are unable to provide meaningful, informed submissions about the extent or appropriateness of any potential impacts during public notification processes.

Utilising adaptive management conditioning often means there are no substantive limits on the impacts of a project, therefore rendering conditions so flexible as to be unenforceable.[29] Further, assessments such as cost-benefit analysis cannot be undertaken with any legitimacy if the environmental, economic and community costs posed by a project are not properly understood. Adaptive management should not be used as a tool to avoid rigorous and comprehensive upfront assessment or to avoid setting specific, measure limits on project impacts.

Shortcomings in water trading

Water trading has been promoted as a key tool to ensure that water is used for its highest-value use and within sustainable limits, however the current water trading systems across Australia, but particularly in relation to the Murray Darling Basin, have significant limitations. EDOA submits that the assumption within water trading that water going to its highest-value use (defined by price willing and able to be paid) is beneficial, requires further analysis and interrogation.

We are aware of instances where the highest value use in a particular valley (mining) has had, or will have, negative impacts on the integrity of the water resource and other users. We are also aware of at least one instance where the movement of water to the highest value use has resulted in a quasi-monopolistic concentration of licences in a particular part of the river system. This, combined with other rules in the relevant water plan, has resulted in negative impacts on users further downstream and more generally in unsustainable levels of extraction. In our NWR submission, we recommended that the Australian Competition and Consumer Commission investigate whether it is necessary to extend anti-competition laws to water entitlement holders for the purposes of maintaining sustainable and equitable water sharing arrangements.

Water trading away from agriculture to extractive industries can also be a significant driver of social change. Expert evidence prepared in response to the proposed Bylong Coal Project in NSW identified that a proposal for an extractive industry, including the associated land and water purchases, in advance of any approval has led to negative social impacts arising from localised land use conflict and competition triggered by the proposal. Dr Hedda Askland observed that “Any approval of the project would essentially prioritise this area - historically known for its agricultural production - for extractive industry” and the changes of co-existence are slim. Dr Askland further noted that:

[28] Matthew Currell et al, ‘Problems with the application of hydrogeological science to regulation of Australian mining projects: Carmichael mine and Doongumbulla Springs (2017) 548 *Journal of Hydrology* 674, 680.
[29] Jessica Lee and Alex Gardner, 'Comment: A peek around Kevin's Corner: Adapting away substantive limits?' (2014) 31 *Environmental and Planning Law Journal* 247.

> *"(i)n additional to the industry impacts, it was seen that the loss of the Equine Critical Industry Cluster (CIC) within the valley, as well as the future reduction of agricultural production, transforms this landscape and reduces its value as a place that contributes to regional identity and sense of place. The implications of this are not considered in the social impact assessments for the project.*[30]

In effect, approvals on the basis of an assumption that water will be accessible through trading, even if not currently owned, means there will be further social change in the future as water moves away from its current use and into extractive industry, without any requirement to assess upfront how realistic that is or what the associated social impacts may be.

Under water trading schemes, it is often argued that caps on 'take' protect the environment from over-extraction. However, such an approach fails to take into account the fact that species and ecosystems do not function on the basis of the long-term annual averages used to set limits on water take. Accordingly, event-by-event management is at times required to ensure environmental outcomes are achieved (for example bird and fish breeding events) and to protect water quality.

In situations where public money is used to purchase water for the environment, such as when water is purchased by Commonwealth Environmental Water Holder (**CEWH**) to fulfil the obligations outlined in the *Water Act 2007* (Cth), it is particularly important that any water purchased is made available for the environment. We are aware of situations when water held by CEWH and released for the environment has been extracted for commercial use. This is highly concerning given that the obligations under the *Water Act 2007* include Australia's obligations under a number of international environmental treaties, including the Ramsar Convention on Wetlands of International Importance and the Convention on Biological Diversity.

Also, in our NWR submission we highlighted the importance of maintaining restrictions on water trading where they are necessary to ensure the sustainable management – and equitable sharing – of water resources. Such examples include restricting trade between systems that are not hydrologically connected or within a particular valley to prevent upstream over-extraction. Further, trade of both permanent and temporary entitlements must be considered within the context of accounting and other rules for a particular valley. Trade restrictions that are required to protect equitable water sharing (in particular protection of stock and domestic use) should be maintained and/or introduced where necessary.

Compliance and enforcement

As EDO offices operate at the interface between community and government, we are often contacted by landholders with information about possible non-

[30] *Submission To The Planning Assessment Commission – Bylong Coal Project* – SSD6367 Dr Hedda Askland May 2017 available at: http://www.pac.nsw.gov.au/resources/pac/media/files/pac/projects/2017/02/bylong-coal-project/submissions-and-presentations/submissions-received-via-email-post-and-fax/bylong-valley-protection-alliance.pdf.

compliance and/or the failure by government agencies to properly investigate or act on allegations of illegal water take. Recent public scrutiny has focussed on allegations of illegal take in the Murray Darling basin, however EDO offices have also received allegations in relation to extractive industries and:

- unlawful extractions;
- unauthorised impacts on surrounding landholders;
- failure on the part of responsible agencies to properly investigate serious allegations of non-compliance; and
- insufficient number of compliance officers.

Even if a jurisdiction has the strongest legislative enforcement provisions, a lack of compliance and enforcement activity can undermine community confidence in water regulation, and have a negative impact on the environment and other users. This is particularly true when not all water take can be directly metered and impacts of excessive water take are seen through changes to other landholders access to water, particularly groundwater.

In circumstances where many approvals for extractive industries place the burden of proof of impact on innocent third parties, the lack of government scrutiny can mean excessive water take can go unmonitored and unrectified. The impact of non-compliance on sustainable management of our scarce water resources, can have significant impacts on the environment, the equitable distribution of these resources, and the proper functioning of water markets.

Sufficient resourcing and political will must be made available to ensure adequate and effective compliance and enforcement activity.

D. Any difference in the regulatory regime surrounding the extractive industry's water use, and that of other industries

There are many differences in the regulatory regime surrounding the extractive industry's water use, and that of other industries. In this part of the submission we focus on two issues of particular concern, namely the:

- exclusion of extractive industries from full water accounting; and
- exclusion of extractive industries from some pollution laws.

Exclusion of extractive industries from full water accounting

EDOA is extremely concerned that extractive industries remain outside the broader planning and water entitlement framework in many jurisdictions and the level of accountability varies significantly between jurisdictions. Even where these industries are included in planning regimes, certain activities (such as incidental groundwater take in mining activities) are subject to exemptions that do not require activities to account for their full water use. These problems are exacerbated in jurisdictions where very little is known about water resources, such as in the Northern Territory. Failure to fully account for water management

is a significant threat to the sustainability of water use and the environment and industries that rely on it.

EDOA strongly supports the recommendation in the recent Productivity Commission's *Draft Report into National Water Reform* to review 'entitlement exemptions' for extractive industries. Current exemptions are neither evidence-based nor sustainable and in many instances operate as subsidies, thereby disadvantaging other industries (in particular agriculture).

In the Northern Territory, the mining industry (including the petroleum industry) is exempt from water extraction use limit requirements, and the general prohibition on obstruction or interference with a waterway under the *Water Act* (NT). Mining and petroleum companies are given substantial rights under exploration permits to take surface water, drill and extract groundwater without a licence issued under the *Water Act* (NT). Other entitlements generally conveyed by the issue of a permit include rights to construct a dam or alter the flow of a waterway without a permit, and interfere with or obstruct waterways in situations that would otherwise be an offence.

The operator of a mining site requires an Authorisation from the Minister for Mines and Energy if there will be a substantial disturbance of the mining site, which includes waterworks such as dams, impoundments, canals, impoundments, or alteration of a river or watercourse.[31] This extends to active remote sensing and seismic techniques in water.[32] The operator is also required to submit a Mining Management Plan that sets out potential environmental impacts of the mining operation as well as how they will be managed, which includes details of water requirements and management issues.[33] A mining site operator must ensure that the environmental impact (including impact on water) is limited to what is necessary for the 'establishment, operation, and closure of the site'.[34] Similar requirements exist under the *Petroleum Act (NT)* for shale gas activities.

The NT Government does maintain that there is an MoU in place between the Department responsible for the Water Act and the Department responsible for mining and petroleum legislation. This is a completely non-transparent process that fails to allow the public to have any kind of confidence in the current regulatory regime. This is particularly the case in circumstances where a number of NT aquifers have been fully or over-allocated – without having factored in water take by the mining or petroleum industry. Of additional concern in the Northern Territory is the absence of water set aside as a strategic indigenous reserve to support Aboriginal people and businesses which require the use of water. The current framework effectively priorities the extractive industry, above all other users of water.

In South Australia, extractive industry is the subject of separate controls regarding environmental protection. This means that a number of the key

[31] *Mining Management Act 2001* (NT) s 35(3)(e).
[32] *Mining Management Act 2001* (NT) s 35(3)(k).
[33] *Mining Management Act 2001* (NT) s 35(3).
[34] *Mining Management Act 2001* (NT) s 16.

environmental statutes in South Australia – most notably the *Environment Protection Act 1993* (SA) and the *Planning, Development and Infrastructure Act 2016* (SA) (in the process of replacing the *Development Act 1993* (SA)) – do not generally apply to the assessment and approval of extractive activities, nor to the regulation of activities undertaken pursuant to licences and leases. Furthermore, the Olympic Dam mine – the State's largest and the greatest user of water from the Great Artesian Basin – is regulated by a special Act, the *Roxby Downs (Indenture Ratification) Act 1982* (SA). This Act takes precedence over any other state government environmental legislation.

In Queensland, where other water users are required to obtain a licence and pay for their groundwater take,[35] mining, petroleum and gas operators have a statutory right to an unlimited quality of water without paying for the water taken.[36] Further, the take of groundwater from the mining, petroleum and gas operators under the statutory right is not included transparently in regional water plans.[37] The quantity of groundwater take by the resource industry can be significant and therefore should be transparently referred to in regional water plans to demonstrate the quantity of resource industry take compared to water availability and competing demands.

Incidental take of water by extractive industry can also have significant environmental impacts. 'Incidental take' refers to water that travels through the groundwater system to be released in mine pits or CSG tunnels. Unlike other sources of water take where a change in activity may prevent the water take, incidental take cannot be stopped, even during periods of low environmental flows when other users may be prevented from taking water. This inability to manage water take, and its consequence for the environment and other users, must be considered upfront in environmental assessments. As noted in an article by EDO NSW staff concerning incidental take in the Hunter coal field:

> *If we concede that many mines in the Hunter cannot help but continuously extract water from aquifers, this necessarily involves assessing cumulative impacts of mining and other activities at a catchment level, and ensuring that overall development does not exceed the capacity of ecosystems within the catchment.*[38]

Exclusion of extractive industries from some pollution laws

Discharges from extractive industries can be a significant source of pollution in many areas. These discharges may be managed, incidental (for example as a result of change to groundwater systems), or as a result of infrastructure failure (for example overtopping of dams during flood events).

The Water Act (NT) prohibits pollution of water (including waterways, ground water, and tidal water), and directly or indirectly causing waste to come into contact with water, yet this does not apply to waste or pollution occurring in the

[35] Under various water licence or allocation requirements under the *Water Act 2000* (Qld).
[36] *Mineral Resources Act 1989* (Qld), s334ZP and *Petroleum and Gas (Production and Safety) Act 2004* (Qld), s185.
[37] *Water Act 2000* (Qld), Part 2.
[38] Carmody, Emma, Exemptions from cease-to-pump rules in the Hunter coal field: mines 1, aquifers 0. *Australian Environment Review*, Vol 28, No 4, p. 568.

course of carrying out a mining or petroleum activity if the waste or polluted water is confined to the mining site. Rather a waste discharge licence is required under the *Mining Management Act* (NT).[39]

In NSW, mines discharges are regulated by pollution laws and schemes such as the Hunter River Salinity Trading Scheme (**HRSTS**). However, as described here, the full impact of water pollution by mines in the Hunter Valley is not always captured. The HRSTS is an economic instrument designed to protect waterways by monitoring of environmental conditions and discharges, and scheduling saline industrial discharges at times of high river flows and low background salinity levels. This is designed to ensure that in-river salinity targets are not exceeded because of the discharges, and the total allowable discharge is shared amongst users according to the tradeable salinity credits held by dischargers.[40]

In response to a 2014 Discussion Paper on the operation of the HSTS, EDO NSW identified concerns regarding salt from other sources entering the Hunter River and interacting with the HRSTS and potentially undermining the intention of the scheme.[41] One example of this problem was raised in Hunter Environment Lobby Inc v Minister for Planning and Infrastructure and Ashton Coal Operations Pty Ltd, where expert evidence highlighted that as a result of the construction of the South East Open Cut Project, there would be an increase in the discharge of salt into the Glennies Creek and thereby into the Hunter River through changes in groundwater composition. This discharge would not be licenced under either the HRSTS or relevant pollution licencing but would contribute to increases in the baseload of salt in the River. This has implications not only for the health of the Hunter River but for the management of the HRSTS, in that any increase in the baseload of saline water in the Hunter River reduces the 'gap' between baseload and the specified discharge limits, thereby reducing the opportunities for managed discharge. Unless these issues are managed holistically the potential exists for unconstrained increases of salt into the Hunter River regardless of the operation of the HRSTS.

Significant community concerns have also been raised in relation to potential pollution arising from chemical use in unconventional gas extraction. A report by the US Standing Committee found that approximately 750 different chemicals were used in fracking compounds in the United States.[42] Lack of compulsory reporting means it is currently unclear how many chemicals are using in hydraulic fracturing throughout Australia. As of March 2016, 21 of 23 fracking fluid chemicals known to be commonly used in Australia had not been assessed for their environmental and safety impacts in Australia under the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cth) (**NICNAS Act**). EDOA outlined significant concerns with the operation of the NICNAS scheme both in

[39] *Water Act 1992* (NT) s 7(4).
[40] For more information see http://www.epa.nsw.gov.au/licensing-and-regulation/licensing/environment-protection-licences/emissions-trading/hunter-river-salinity-trading-scheme.
[41] Full submission available at: http://www.edonsw.org.au/submission_on_the_hunter_river_salinity_trading_scheme.
[42] United States House of Representatives Committee on Energy and Commerce, Minority Staff, *Chemicals used in Hydraulic Fracturing*, April 2011, p. 1, available at: http://democrats.energycommerce.house.gov/sites/default/files/documents/Hydraulic-Fracturing-Chemicals-2011-4-18.pdf.

terms of its operation as it relates to unconventional gas and recent changes to the operation of the scheme. We refer the Inquiry to those submissions.[43]

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

EDOA strongly supports the ongoing operation and expansion of the 'water trigger'.

Effectiveness of water trigger

The 'water trigger' was introduced in response to widespread and ongoing community concern regarding the impacts of CSG and mining development on water resources. It followed on from several unsuccessful private members' bills which similarly sought to improve national regulation of mining and unconventional gas activities likely to have a significant impact on water resources. Introduction of the 'water trigger' was therefore seen as an important – albeit overdue – step toward restoring community confidence in national environmental laws.

The water trigger is important in ensuring that extractive industries appropriately consider impacts on water under the EPBC Act. One strong positive of the 'water trigger' is its requirement to consider cumulative impacts.[44] However, it does not require the Minister to refuse a given mining development on the basis that it will be associated with significant cumulative impacts.

Further, the water trigger involves assessment on a project-by-project basis rather than strategic assessment of the impact of the activity on an entire catchment or water resource, including on overall capacity of a catchment or water resource to support other development. While bioregional assessments are being undertaken in areas with significant coal deposits to determine the cumulative impacts of coal and coal seam gas development on water resources, this is yet to result in any legislated strategic planning for those areas (and associated limitations on mining development) or limitations on project approvals. Bioregional assessments should be completed as a matter of priority.

Another strength of the water trigger is the ability for decision makers to benefit from the work done by the IESC. There are numerous examples from across the country of the IESC identifying significant flaws in individual assessments and systemic problems in project assessment processes. This independent

---

[43] EDOA *Submission responding to the Select Committee Inquiry into the adequacy of Australia's legislative, regulatory and policy framework for unconventional gas* (March 2016) and submissions on reforms to the National Industrial Chemicals Notification and Assessment Scheme, available at: http://www.edo.org.au/pollution1.

[44] Commonwealth of Australia, 2013, *Significant impact guidelines 1.3, Coal seam gas and large coal mining developments— impacts on water resources,* available at: http://www.environment.gov.au/system/files/resources/d078caf3-3923-4416-a743-0988ac3f1ee1/files/sig-water-resources.pdf.

assessment approach has improved the standard of ground and surface water assessments for many projects.

Value of expanding the water trigger

The 'water trigger' was, and still is, considered a relatively modest intervention. For example, it does not prohibit hydraulic fracturing (as is the case in several foreign jurisdictions); it does not require the Minster to refuse a development likely to have a significant impact on water resources; and it does not require the Minister to act consistently with the advice of the IESC. To that extent, further amendments are required if the concerns of the community regarding water are to be properly addressed.

In our submission, the 'water trigger' should be expanded in the following ways:

- to apply to all large mines that excavate beneath the water table and to all unconventional gas projects (including shale and tight gas);
- to apply to exploration for all forms of unconventional gas (particularly shale gas developments), as in many cases for the activity of exploration is the same as the activity of extraction;
- Part 9, Sub-division B of the EPBC Act must be expanded to include specific assessment criteria for the 'water trigger' including to not act inconsistently with the Convention on Biological Diversity and, where relevant, the Ramsar Convention and Bonn Convention;
- the Minister should be required to not act inconsistently with the IESC's advice when determining the project;
- conditions of consent should be required to reflect the IESC's advice; and
- the Minister must not approve a project until the proponent has providing adequate baseline data and has adequately addressed any concerns raised by the IESC.

The provision of comprehensive baseline data is fundamental to understanding whether or not a substantial change to water quality, hydrology or ecosystem function and integrity is likely to result, directly or indirectly, from an action. EDOA therefore submits that mining and unconventional gas developments should not be assessed under the EPBC Act in the absence of comprehensive baseline data. Baseline data is also vital to subsequent measures of actual (as opposed to predicted) impacts, once development has commenced. Such data further enables the consent authority to either halt development or vary conditions of consent where actual impacts diverge from predicted impacts.

The IESC has been involved in developing the scientific framework for bioregional assessment across coal and CSG-intensive regions. It is crucial that the information acquired through this strategic assessment process informs decision-making made under the 'water trigger', particularly in relation to cumulative impacts on water resources. This will necessarily involve refusing certain CSG and large coal mining projects, something that rarely happens under the EPBC Act.