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Great Artesian Basin Strategic Management Plan Submission

Introduction

The Australian Conservation Foundation (“ACF”) is Australia’s national environment organisation. For more than 50 years, ACF has been a strong advocate for Australia’s natural world. We represent a community of more than 500,000 people who speak out, show up and act for a world where forests, rivers, people and wildlife thrive. We are proudly independent, non-partisan and funded by donations from our community.

The Great Artesian Basin (“GAB”) is Australia’s most important water aquifer. It has sustained unique and magical inland ecosystems on our arid continent for millions of years. These places are rich with ecological and cultural significance, particularly for Aboriginal and Torres Strait Islander people. Today, the GAB supports a growing number of inland communities and industries.

ACF recognises the efforts of stakeholders across multiple jurisdictions to develop strong management strategies for the GAB. The value of this work cannot be understated, as without careful custodianship, the reliability of the GAB is placed at risk. Drawing on case studies, this submission focusses on the emerging threats facing the GAB from coal mining.

Recommendations

- 1. Explicitly identify the special challenges posed by coal mining and other extractive industries, as articulated in the 2015 Review of the Strategic Management Plan.**
- 2. In the objectives and outcomes sections, emphasise the importance of independent scientific reviewers being embedded in the decision-making process.**
- 3. Ensure that any references to ‘transparency’ and ‘evidence-based decision-making’ underscore the need to identify and resolve scientific uncertainties before environmental approvals are granted.**



Coal Mining

The Draft GAB Strategic Management Plan 2018 (“SMP”) identifies mining as an emerging challenge for the GAB.¹ Mining was also highlighted as a risk in a 2015 Review of the Strategic Management Plan.² Through the use of case studies in the Galilee Basin, this section of the submission pinpoints some of the ways that regulatory approaches to coal mining threaten the protection of the GAB.

Galilee Basin

Located in Central Queensland, the Galilee Basin is one of the world’s largest thermal coal reserves, estimated to contain more than 25 billion tonnes of black coal.³ There are currently no commercial coal mining operations in the Basin, however a set of nine mega-mines are proposed. These mines are at varying stages of approval, however the most advanced is Adani’s Carmichael coal mine.

To date, community concern about exploiting the Galilee Basin and building the Carmichael coal mine has focussed on their incompatibility with a safe climate. If fully developed, the nine proposed mines would release an estimated 705.4 million tonnes of CO₂ per annum.⁴ This is fundamentally at odds with the need to drastically reduce emissions and transition away from fossil fuels and towards clean energy.

However, looking beyond these dangerous climate impacts, there is an emerging recognition that the proposed mines will have significant impacts on Great Artesian Basin water aquifers. Modelling of just seven out of the nine Galilee Basin mines shows potential cumulative average inflow of 238 ML/day, with a 2,823 GL of total inflow over the lifetime of the projects.⁵ Given that much of the Galilee Basin overlays the GAB, the potential impacts of coal mining in this region on water are vast.

¹ Commonwealth of Australia, ‘Draft Great Artesian Basin Strategic Management Plan 2018 – Summary Report’ (2018) <<https://haveyoursay.agriculture.gov.au/37538/documents/82453>> 2.

² Commonwealth of Australia, ‘Future Directions for the Management of the Great Artesian Basin – A Review of the Strategic Management Plan’ (2015) <<http://www.gabcc.gov.au/sitecollectionimages/resources/dfd46067-0d59-4056-a51d-29f641bfcc4e/files/gab-future-directions.pdf>> 49-51.

³ Australian Government, Geoscience Australia, ‘Australian Energy Resources Assessment’ (11 July 2018) <<http://aera.ga.gov.au/#!/coal>> Figure 4.

⁴ Greenpeace Australia Pacific, ‘Cooking the Climate, Wrecking the Reef’ (September 2012) <[https://secured-static.greenpeace.org/australia/Global/australia/images/2012/Climate/Galilee%20Report\(4.2MB\).pdf](https://secured-static.greenpeace.org/australia/Global/australia/images/2012/Climate/Galilee%20Report(4.2MB).pdf)> Table 1.

⁵ HydroSimulations, Geoscience Australia, ‘Galilee Basin Hydrogeological Model’ (November 2015) <<https://www.bioregionalassessments.gov.au/sites/default/files/galilee-basin-hydrological-model.pdf>> Table 4-3.



Carmichael Coal Mine

As the most advanced Galilee Basin mine, the Carmichael coal mine is an excellent case study for analysing how the objectives and outcomes articulated in the SMP are weakened by regulatory practices for coal mining.

The Carmichael coal mine is a greenfield thermal coal mine proposal, located approximately 160 km north-west of Clermont in Central Queensland. The mine involves six open cut pits and five multi-seam underground mines producing up to 60 million tonnes per annum of thermal coal for export over a 60-year mine life.

As part of the mine's federal approval process under the *Environment Protection and Biodiversity Conservation Act 1999* ("EPBC Act"), the Minister applied ss 24D and 24E (i.e. protection of water resources from large coal mining development) as controlling provisions. This triggered the requirement under s 131AB for the Minister to obtain the advice of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development ("IESC").

The IESC provided its advice on 16 December 2013.⁶ The key conclusions were:

- Insufficient data was provided in the Supplementary Environmental Impact Statement to substantiate the proponent's groundwater flow conceptualisation.
- The groundwater model assumed the Rewan Formation will respond uniformly as an aquitard. However, this assumption is questionable and further data collection and assessment is necessary.
- The conceptual model did not take into consideration the influence of faulting within the Rewan Formation.
- The IESC expressed "little confidence" in the groundwater flow conceptualisation and model to predict the impact of the mine on important GAB ecosystems such as the Mellaluka and Doongmabulla Springs Complexes.
- The cumulative impact assessment for the project was limited and should have been expanded to include the impacts of other proposed large coal mines in the vicinity.

The uncertainty around these impacts was considered by the Minister in approving the mine, subject to conditions. However, as Currell et al note:

⁶ IESC, 'Advice to Decision Maker on Coal Mining Project – Carmichael Coal Mine and Rail Project, Queensland' (16 December 2013) <http://epbcnotices.environment.gov.au/_entity/annotation/45fa5322-3368-e511-9099-005056ba00a8/a71d58ad-4cba-48b6-8dab-f3091fc31cd5?t=1538618840431> 2-3.



The approval conditions for the project require Adani to fill these data gaps in order to resolve the uncertainty, and these mandated research programs are clearly a valuable and warranted step. However, we argue that much of this investigation could (and should) have been conducted during the Environmental Impact Assessment, following which they could be assessed by the public and made subject to expert review and technical assessment, for example in objection hearings in the Land Court.

...

[T]he conditions governing future operation of the mine need not be subject to any revision if the updated modelling produces different results to the original modelling.⁷

SMP Implications

Numerous objectives and outcomes outlined in the Draft SMP highlight the need for evidence-based, transparent decision-making. This is fundamental for ensuring that the GAB is preserved as a healthy resource for the Australian people and environments that depend on it.

The case study of the Galilee Basin highlights the profound groundwater impacts proposed coal mines will have on the GAB. Concerningly, analysis of just one of the nine proposed mines reveals substantial flaws in the federal assessment process. The IESC's conclusions, and the academic commentary included above, demonstrate the failure of the approval process for the Carmichael coal mine to ensure that decision-making was evidence based and transparent. Consultation with other environment groups suggests that these findings are replicated across other extractive industries in the GAB such as unconventional gas mining.

This underscores the need to strengthen the legal framework for extractive industries by:

1. Identifying and resolving scientific uncertainties during the up-front environmental impact assessment process, rather than after approval for the project has been granted.
2. Embedding the role of independent scientific reviewers (e.g. the IESC) in the pre-approval process and ensuring that their advice is adopted by proponents.

The recommendations section of this document identifies how these important suggestions and other issues raised in this paper could be articulated in the SMP.

⁷ Matthew J Currell, Adrian D Werner and Chris McGrath et al, 'Problems with the Application of Hydrogeological Science to Regulation of Australian Mining Projects: Carmichael Mine and Dongmabulla Springs', 548 *Journal of Hydrology* 674, 680.

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