

## Adani Water Factsheet

### Summary:

The Adani coal mine will:

- Suck out at least 270 billion litres of groundwater over the life of the mine
- Put aquifers of the Great Artesian Basin at risk
- Dump mine polluted wastewater into the Carmichael River
- Threaten ancient springs- 160 wetlands that provide permanent water during drought
- Leave behind 6 unfilled coal pits that will drain millions of litres of groundwater forever

Adani's associated water licence allows unlimited access to groundwater for 60 years for free.

### Introduction:

If built, Adani's proposed mega-coal mine will be the largest in Australia and one of the largest in the world. The mine puts at risk water resources that are the lifeblood of Central Queensland.

These sources include rivers, ancient springs, and aquifers of the Great Artesian Basin (GAB) adjoining the mine, which are all vital in times of drought.

The GAB is our greatest inland water resource - it covers 22% of Australia. Sometimes the Basin expels water from deep underground up to the surface, in the form of natural springs.

These springs are like oases, providing reliable water in times of drought for rural communities and farmers. They also support remarkable ecosystems. The Doongmabulla Spring complex under threat from the mine is one of these unique GAB springs complexes.

Adani will not be charged for the groundwater they take during mining<sup>1</sup>, while the Queensland government has removed the rights of the community to object to the grant of water licences to Adani.

### Impact of mine on Ancient Springs

The Doongmabulla Springs complex is a system of 160 separate wetlands which act as rich and ancient oases in a very dry landscape<sup>2</sup>. They are located just to the west of the proposed mine.

These springs are dependent on groundwater and are potentially threatened by Adani's plans to extract groundwater for its mine<sup>3</sup>. A water expert has recently raised concerns that the mine could cause these extraordinary springs to dry up permanently<sup>4</sup>.

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<sup>1</sup> Most groundwater users in Queensland are not required to pay for groundwater use. However, there is a strong argument that the mining industry should be required for groundwater take, as it is required to do in NSW.

<sup>2</sup> Ecological 2017. Draft Groundwater Dependent Ecosystem Management Plan: Carmichael Coal Mine Project

<sup>3</sup> Independent Expert Scientific Committee [Advice on the Carmichael Coal Mine](#)

<sup>4</sup> <http://www.abc.net.au/news/2018-03-21/adani-groundwater-plan-risks-permanent-damage-to-desert-springs/9569184?section=politics>

The springs have exceptional ecological values<sup>5</sup>. They are home to 56 endemic species, including a number of threatened species, and they act as a unique drought refuge in a very dry landscape<sup>6</sup>.

They also have exceptional cultural significance to the Wangan and Jagalingou people<sup>7</sup>.

The springs are part of the Great Artesian Basin Discharge Springs ecosystem, which is listed as threatened under Federal environment laws<sup>8</sup>. They are also recognised as nationally significant under the Directory of Important Wetlands of Australia.

### **Impact of mine on groundwater**

The Associated Water Licence granted to Adani by the Queensland Government, allowing Adani to take groundwater, does not place a limit on how much groundwater can be extracted<sup>9</sup>. However, it is restricted to water take associated with mining activities.

The licence is valid for sixty years and there are no independent review processes available. Also, the license does not provide any thresholds to halt the mine if its impacts on groundwater are too severe.

Legal avenues for communities to object to the grant of the licence were removed during a midnight sitting of the Queensland Parliament in 2016.

Although the volume of water that will be taken is still uncertain, the company estimates that the Carmichael coal mine will extract an average of 4.7 billion litres per year<sup>10</sup> which equates to 270 billion litres over the life of the mine.

The direct groundwater take for the mine is from non-Great Artesian Basin (GAB) coal-bearing formations. However, these are situated under the Great Artesian Basin (which occurs west of the mine footprint), leading to risks of indirect drainage and depressurisation of aquifers forming part of the GAB.

The scale of the impact on both the GAB and the Doongmabulla Springs are highly uncertain. Risks to both hinge on the extent of connectivity between the coal beds and GAB formations, which depends on the integrity of the base of the GAB, a layer known as the Rewan Formation.

However, little is known about the Rewan Formation, and the federal government's Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) has raised major concerns that underground longwall mining planned by Adani may cause subsidence which could fracture the Rewan Formation and allow for substantial GAB drainage<sup>11</sup>.

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<sup>5</sup> [Adani Mining Pty Ltd v Land Services of Coast and Country Inc & Ors \[2015\] QLC 48](#), [297] and Carmichael Coal Mine and Rail Project EIS (2013), Vol 4, Appendix H - Matters of National Environmental Significance, Pages ix and 71.

<sup>6</sup> [Adani Mining Pty Ltd v Land Services of Coast and Country Inc & Ors \[2015\] QLC 48](#), [297].

<sup>7</sup> The significance of the Springs to the W&J has been highlighted by them in a detailed complaint to the United Nations

<sup>8</sup> Independent Expert Scientific Committee [Advice on the Carmichael Coal Mine](#)

<sup>9</sup> Associated Water Licence 617264 granted to Adani Mining Pty Ltd by DNRM on 29/3/2017.

<sup>10</sup> Adani 2016. Supporting Document for Application for Mine Dewatering under the *Water Act 2000*: Carmichael Coal Mine. P11

<sup>11</sup> Independent Expert Scientific Committee [Advice on the Carmichael Coal Mine](#)

Once the mine closes 6 vast open cut pits, up to 200 metres deep, will be left behind. These will act as permanent sinks for groundwater. Adani itself estimates that over 800 million litres of groundwater will flow into these open pits each year in perpetuity.<sup>12</sup>

The mine will also put at risk the Mellaluka Springs Complex and an important water-dependent threatened species, the Waxy Cabbage Palm<sup>13</sup>.

### **Impact of mine on rivers**

The Carmichael mine will impact local rivers in a number of ways.

The loss of groundwater from the mine will lead to a loss of river flow in the Carmichael River, because it will reduce the water that joins the river from underground<sup>14</sup>.

The Queensland government is permitting the Adani mine to discharge significant volumes of mine affected wastewater into the Carmichael River<sup>15</sup>.

In addition, Adani has been given a licence to harvest up to 12,500 million litres each year from the Suttor River<sup>16</sup>. Adani are required to pay for water take under this licence<sup>17</sup>. The community was not given any opportunity to object to the grant of those licences.

### **Current Situation - Adani's water approvals**

The Adani Carmichael mine was approved on the basis of a deeply flawed assessment, most notably its' modelling of how the mine will impact on groundwater.

Despite the mining having gained Federal approval, there are still a number of important water-related research and management plans required by the Federal approval that are yet to be completed for the mine<sup>18</sup>.

### **Cumulative Water Impacts of nine mines in the Galilee Basin**

There are 9 proposed coal mines in the Galilee Basin. To date 5 of those have been approved without adequate information to assess their full impacts on groundwater and other water resources, and without considering the combined impacts of the operation of all these mines together.

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<sup>12</sup> Carmichael Coal Mine and Rail Project SEIS (Nov 2013) Mine Hydrogeology Report, Appendix K1, gives daily figures for inflows which we have converted to annual inflows. Page 108. NB Inflows during the life of the mine may be even larger for some voids, because partial refilling is not planned to commence for a number of decades.

<sup>13</sup> Both listed in the Federal approval under the *Environment Protection and Biodiversity Conservation Act 1999*

<sup>14</sup> Independent Expert Scientific Committee [Advice on the Carmichael Coal Project](#)

<sup>15</sup> GHD 2012. Adani Mining Pty Ltd: Carmichael Coal Mine Preliminary Water Balance. P49.

<sup>16</sup> Water Licence 617268 issued to Adani Infrastructure Pty Ltd by DNRM on the 29/3/2017

<sup>17</sup> Adani is [required to pay the Queensland Government \\$20M](#) before it can take water from the Suttor River

<sup>18</sup> Plans still required under the Federal approval are: A GAB Springs Research Plan and thresholds triggers for spring impacts; A Rewan Formation Connectivity Research Plan; A GAB Offset Strategy and implementation of GAB Offset Measures; A Groundwater Management and Monitoring Program; Matters of National Environmental Significance Management Plans.

Previous analysis shows that up to 2,007 billion litres of groundwater could be lost as a result of water being pumped out or drained by the nine proposed coal mines in the Basin<sup>19</sup> - almost double the volume of water in Wivenhoe Dam.

The IESC has found that mine assessments were, in most cases, poorly undertaken with inadequate data used to determine impacts on issues such as surface water quantity and quality and groundwater quantity and flows.

The Bioregional Assessment being undertaken by the Federal Government for the Lake Eyre bioregion (which includes the Galilee Basin subregion) is designed to better assess the cumulative impacts of mining on water resources in the Galilee Basin. However, it has not yet been finalised, despite some preliminary reports having been completed.

Queensland Labor committed to *“a detailed scientific study into the full cumulative water balance impact of the proposed coal mines in the Galilee Basin”* in the lead-up to the 2015 election<sup>20</sup>. However, despite this being crucial to properly assess the full risks to water resources from Carmichael and other mines, Labor did not deliver this study in their last term of government.

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<sup>19</sup> Hydrocology Environmental Consulting, 2013 (plus associated update). Draining the Lifeblood: Groundwater Impacts of Coal Mining in the Galilee Basin.

<sup>20</sup> 22 January 2015. Letter to Lock the Gate from the Qld Labor Party.