

## **Submission to Inquiry into the rehabilitation of mining and resources projects as it relates to Commonwealth responsibilities**

Environment and Communications References Committee  
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24 April 2018

Dear Committee,

The Australia Institute welcomes the opportunity to make second submission to the Inquiry into the rehabilitation of mining and resources projects as it relates to Commonwealth responsibilities. Our submission relates to point (h) of the Amended Terms of Reference:

*(h) the potential social, economic and environmental benefits of adequate rehabilitation, including job opportunities in communities affected by job losses in the mining, resources and electricity generation sectors;*

Employment opportunities are often mentioned as a key reason to expedite and enforce mine site rehabilitation requirements, particularly in areas where mining activity has declined and looks unlikely to return. While often mentioned, estimates of how many people could be employed in site rehabilitation are scarce.

The Australia Institute was recently asked to estimate the number of jobs that could be generated by addressing Queensland's rehabilitation 'deficit' over five years, as part of submissions by the Lock the Gate Alliance on the *Mineral and Energy Resources (Financial Provisioning) Bill* in Queensland. Our calculations are included in the briefing note, *Just to fill you in...Jobs and mine rehabilitation in Queensland*, attached to this submission.

Based on workforce estimates in the Adani Carmichael Coal Mine Environmental Impact Statement, we calculated that on average one worker is required to rehabilitate 2.4 hectares in a year. From this basic calculation we estimated that around 18,000 people would be required for five years to address the area of unrehabilitated land in the state, estimated by the Queensland Government at 220,000 hectares.

Many factors could affect the accuracy of this estimate. Rehabilitation may be more difficult than expected, could vary with type of mine or surrounding environment. The quality of rehabilitation required by government and expected by the community could also affect this estimate substantially. While far from definitive, we hope the attached briefing note may assist the committee in considering employment impacts. We would be happy to expand on this work if it is of interest to the committee.

Best regards,

# Just to fill you in...

## ***Jobs and mine rehabilitation in Queensland***

**Rod Campbell**

April 2018

### **Introduction**

Lock the Gate asked The Australia Institute for assistance in estimating the potential employment impacts of increased mine rehabilitation in Queensland. This relates to the *Mineral and Energy Resources (Financial Provisioning) Bill* currently before the Queensland Parliament.

Lock the Gate hope this bill, if passed and implemented, will reduce the mine rehabilitation ‘deficit’ in Queensland: the area that has been disturbed by mining activities but has not been rehabilitated. Queensland government estimates suggest the area of land disturbed is 12 times greater than the area under rehabilitation, a substantial increase on 2006 when disturbed areas were only three times greater than areas under active rehabilitation.<sup>1</sup>

### **Estimating employment impacts of rehabilitation**

A Queensland government assessment estimates that there are 220,000 hectares of disturbed land from all mining in the state.<sup>2</sup> Lock the Gate suggest that – if properly resourced – initial rehabilitation of these areas could be completed in five years.

Most economic assessments of mine projects include rehabilitation spending and employment as part of the mine’s operations, assuming rehabilitation is done progressively. The Queensland government estimates show that this does not occur in practice.

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<sup>1</sup> Queensland Government (2017) *Better Mine Rehabilitation for Queensland, Discussion Paper*, p 10

<sup>2</sup> Queensland Government (2017) *Financial Assurance Framework Reform, Discussion Paper*, p 1

As a result, few published economic studies separately assess the mine's production phase from the rehabilitation phase, making it difficult to assess the employment impact of rehabilitation. A partial exception to this is the assessment of the Adani Carmichael mine, the controversial coal proposal in the Galilee Basin. Adani's Supplementary Environmental Impact Statement (SEIS) includes an estimate of the workforce involved in the final rehabilitation phase. Adani intends to cease coal production in 2071 but will keep a workforce of 250 people for a further three years to complete rehabilitation.<sup>3</sup>

Adani's SEIS also includes a rehabilitation strategy, with information on total areas to be rehabilitated and general timelines.<sup>4</sup> In total, Adani intends to rehabilitate an area of 26,837 hectares over a period of 45 years, or almost 600 hectares per year. Assuming that rehabilitation is progressive, with a similar sized workforce throughout, on average a worker can rehabilitate 2.4 hectares per year. This calculation is summarised in Table 1 below:

**Table 1: Adani mine rehabilitation and workforce**

<b>People in final rehab phase</b>	250
<b>Area (ha)</b>	26,837
<b>Years</b>	45
<b>Area per year (ha)</b>	596
<b>Area per person per year (ha)</b>	2.4

Source: GHD (2013) *Report for Carmichael Coal Mine & Rail Project SEIS – Economic Assessment*

Assuming Adani's rehabilitation task is typical of Queensland's wider situation – likely, as coal mines account for the vast bulk of the disturbance area – this figure can be used to estimate the number of jobs generated by eliminating the rehabilitation deficit. This calculation is summarised in Table 2 below:

**Table 2: Employment and rehabilitation in Queensland**

<b>Area to be rehabilitated (ha)</b>	220,000
<b>Number of years</b>	5
<b>Area per year (ha)</b>	44,000
<b>Area rehabilitated per worker per year (ha)</b>	2.4
<b>Workers required to complete rehabilitation in 5 years</b>	18,445

Sources: GHD (2013) *Report for Carmichael Coal Mine & Rail Project SEIS – Economic Assessment*; Australia Institute calculations

<sup>3</sup> GHD (2013) *Report for Carmichael Coal Mine & Rail Project SEIS - Economic Assessment*, p 31, figure 22

<sup>4</sup> EMM (2013) *Carmichael coal mine Closure and rehabilitation strategy*, table 3.1

Table 2 shows that based on Adani's estimates of rehabilitation and workers required, eliminating Queensland's rehabilitation deficit would require more than 18,000 workers for five years.

## Conclusion

The purpose of this estimate is not to be definitive, but to provide some order of magnitude of how many people might be employed with increased mine site rehabilitation. Given that around 60,000 people work in Queensland's mining industry at present, expanding rehabilitation efforts for an intense period of five years would be expected to generate many thousands of jobs.

Many factors could affect the accuracy of this estimate. Rehabilitating some areas may be more difficult than others. The quality of rehabilitation required by government and expected by the community could affect this estimate substantially. If, as is likely, rehabilitation involves monitoring and maintaining landforms and ecosystems over extended periods, the five-year timeframe may be optimistic.

Overall, the details of how such a policy would be implemented are likely to affect employment numbers. It seems clear, however, that a major program to reduce the rehabilitation deficit would generate considerable employment, particularly in parts of regional Queensland where mining activity has declined in recent times.