

Submission on the Environmental Impact Statement – Central Queensland Coal Project (Styx)

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Healthy planet, **healthy people.**

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Doctors for the Environment Australia (DEA) is an independent, self-funded, non-government organisation of medical doctors in all Australian States and Territories. Our members work across all specialties in community, hospital and private practices. We work to minimise public health impacts and address the diseases local, national and global caused by damage to our natural environment.

The fundamental rationale of the EIS process is to assess the balance of positive and negative impacts upon which informed decisions can be made. The impacts may be environmental, health, social and economic. Whilst Doctors for the Environment Australia addresses public health issues pertaining particularly to environmental causes of ill health, it is clear that good health exists within the wider context of sustainability and preservation of ecological support systems. On this basis we make this submission.

Health Impact Assessment (HIA)

The impacts of a development must be seen in the context of national and international health. These important links are explained in “The health factor: Ignored by industry and overlooked by government”, Appendix 1: The need to protect public health.²

DEA maintains that the prevention of harm is the basis of public health. Prevention is based on careful scientific assessment of possible hazards, their risks and methods of prevention. Clean air, clean water and nutritious, uncontaminated food are all crucial contributors to public health. Healthy ecosystems are the life support systems for humanity.

Both land and marine ecosystems are being progressively compromised by global environmental changes and human activity, which pose major and increasing threats to sustainability, population health and ultimately, survival.

Development can have many benefits for society, but it may also have measured and unmeasured adverse effects. An EIA is intended to be a comprehensive review of all possible effects on the environment. The assessment of risk to human health by a development is intimately linked to the EIA. It identifies problems of air, water and noise pollution, risks of injury to workers and communities and the effects on the physical and social aspects of community life.

The process of a HIA is complex and is conducted by the states under optional guidelines issued by the Commonwealth. The decision about whether a HIA is required for a project is usually made by the same department that is dealing

with the EIA. The opinions of health officials or health experts are not necessarily sought before making this decision. Thereafter, there is great variability on which health issues are assessed and how, and in the degree of public consultation and reporting.

In the case of the CQCP EIS, it appears that government thought a HIA unnecessary despite the expected impacts of the Project on state, national, and international health. In this Project, a HIA would bring together the likely health impacts under public health review to identify possible human harms now and for many decades to come.

Introduction

We are aware that it is not within the remit of the EIS to question the prudence of the Queensland Government in considering an open cut coal mine so near to coastal waters, when scientific evidence indicates the Reef is already damaged by a range of environmental events including climate change and run-off. However, it is within the remit of the EIS to consider in detail, the scientific evidence that the mine will harm the reef and recommend appropriate precautionary principles. Furthermore, the EIS identifies that that the Project will require adaptation measures for climate change (Section 4.7.2), the necessity for which will be partly caused by its own contribution of greenhouse emissions.

The potential health issues should be predominant in the EIS because the consequences of loss of the reef are huge. The Deloitte Access Economics report indicates that the reef underpins 64,000 jobs in tourism-related industry and fishing, and these contribute A\$56bn to the economy each year. Unemployment from loss of the Reef is a health hazard for the unemployed and their families.

Therefore, the important issues of water runoff and climate change will be considered first.

Chapters 9 and 10: Surface and Ground Water

We note from the TOR section 2.5³ that water quality is considered a critical matter given the proximity of the Great Barrier Reef World Heritage Area. We do not consider that the risks detailed in section 2.7 of the TOR are adequately addressed in the EIS.

We recognise that the national expertise of the Independent Expert Scientific Committee requires referral from the state or federal government, but we would have hoped that the Queensland Government would have sought this expertise at an early stage, in order to reassure the public that all possible measures were available to investigate possible impacts on the Reef should this unfortunate Project proceed.

We believe that the water sections are inadequate, for they fail to identify likely run off into the Styx river from water and pollutants. The conclusions reached in Table 9.57 fail to recognise the toxic nature of run off from many sources in open cut mines, which will not be removed by sediment control and which reach the estuary in an on-going basis and certainly in flood conditions -this is a cyclone region. This situation is summarised as "accidental release of pollutants". In fact, bioactive pollutants from coal are inherent in the process of coal mining and are a constant feature of the operation during mining and indeed after many rehabilitations.

This summary paragraph in **Cumulative Impacts 9.2** is worthy of comment.

"The Project resides within the middle region of Styx Basin in which there are numerous proposed mines and developments. Many of the exploration permits within the Basin are dominated by mineral and coal exploration permits. The Styx River is currently undeveloped which effectively minimizes surface water cumulative impacts associated with the Project as there are no developments which are likely to increase the impacts of the central Queensland coal mine."

(note; we have added a missing word and punctuation to this quote)

Presumably an "undeveloped" river means it is not yet polluted, or that there are no human developments around it. This is a particularly anthropocentric view of the natural environment. The view expressed in this paragraph appears to support and use Peter Cullen's concept of "assimilation capacity". This concept is now widely discredited, for there is no safe level of most industrial pollutions.

There is one important positive in the Surface Water study - the base line water assessment from February to June. We are conscious of the statement made by proponents of many projects when contaminants are found in groundwater - that they may have been present before the mine. On this occasion, the baseline data will be important in future assessments if the mine proceeds.

We note that 245mm of precipitation was recorded on March 30, 2017 in response to Cyclone Debbie. This highlights that this mine will be subject to cyclones more frequently as climate change brings them further southward along the Queensland coast. Furthermore, they are likely to be more severe. The EIS estimate of cyclones is 0.2-0.4 per year (BOM data) but recent climate change projection data suggests this will be an underestimate. Since the Project is only 14km from a tidal estuary, it is likely that any contaminants harmful to the Reef will be rapidly transported to the Coral Sea when flooding overwhelms the water management systems. It is rare for any mine to remain free from flooding despite assurances of safety. The EIS claims that mine waste washed offsite during flooding will be highly diluted, but this does not alter the fact that large amounts of mine waste will be transported by floods. Nor does it alter the fact that hydrocarbons and other toxics which are active in extremely low concentrations are likely to harm the Reef.

The fact that successive Queensland governments have been prepared to accept these risks from mining in the face of scientific evidence of progressive damage to the Reef does not absolve the EIS from providing a balanced view on this risk.

Coal dust (particulates) in the air, and possibly also in water, are extremely toxic substance to living cells. The scientific evidence of its toxicity in humans is extensive, and Queenslanders have become aware of these impacts from the recurrence of black lung disease in miners, coal dust harms from trains and loaders, water contaminations, and harm to workers from ill-advised coal gasification projects, all of which are attributable poor regulation and monitoring.

The EIS needs to include in its risk assessment the direct impact on corals of coal particulates⁴ and the likely exposure to these harms over the 20 year life of a mine. We need to remind ourselves that the purpose of an EIS is to present impartially to government the scientific risks, health and environmental impacts, for them to make judgement in the interests of the public. The increasing understanding of nano-particles as carriers of toxins from coal combustion⁵ and presumable mining also needs to be considered within the precautionary principle.

We note that Table 9-27 lists "Petroleum hydrocarbons" measured in samples and refers to "Model water conditions for mines in the Fitzroy". This is not mentioned further. It needs to state which hydrocarbons are being sought, which other hydrocarbons and toxics should be measured once the project begins, and where and when should they be monitored.

Climate Change and the Project

Greenhouse emissions arise from the project (2,329,125 tonnes CO₂-e) and most importantly, as Scope 3 emissions which the federal government has ignored in its deliberations, but which impose harms on the community because of the increasing impact of the change of climate in Queensland. The EIS acknowledges these by the inclusion of climate change adaptation measures to ensure that the mine can continue even as conditions deteriorate (Executive Summary and 4-15). The EIS must acknowledge these harms particularly because climate science suggests that the Queensland climate will suffer change more severely than many.

Therefore the paragraph "the project has proactively considered climate change adaptation..." is inadequate and we recommend climate science is studied further.

The EIS does list the expected greenhouse emissions from the project, but it is vital that these Scope 3 emissions for the 20 year life of the project be listed, for this figure is essential in estimated costs that will return to Queensland from warming of the world climate. This figure will become increasingly important when other countries soon move to curtail their emissions.

Indeed the EIS displays a worrying lack of understanding of the role of climate change. For example, Table 12.1 **Description of legislated air pollutants; - Air pollutant-** "Carbon dioxide (CO₂) - combustion by-product, tobacco smoke, metabolism and expired air from lungs"! Is the word '-product' using a John Cleese strategy (Don't mention the war)? It is **combustion by coal** - the main cause of climate change. Expired air might become important when 2 billion extra persons arrive on the planet but even then their consumption will be the problem and not their breathing!

Air Quality and Related Matters

The air quality section of the EIS has been completed in a sloppy and superficial manner.

- The air quality standards referenced are out of date as they do not include the 2015 revisions, for example the annual average standard for PM₁₀.
- The modelling is based on assumptions of the background air quality without any measurements at the site having been done.
- We are even told that an important source of carbon dioxide is from burning tobacco!
- Table 12.9 reports the 70th centile of 24-hour PM₁₀. This is novel. No standard is set for the 70th centile, and with the 70th centile of 20µg/m³ there could be a large number of days over 50µg/m³.

Chapter 12 of the EIS should be rejected as a poor quality piece of work as it omits the two important health and safety issues of blast plumes and spontaneous combustion of coal as described below.

Blast Plumes

The mine is planned to straddle the Bruce Highway, with open cut pits on both sides of the road. Open cut mining will include blasting, presumably with ANFO explosives, with the attendant risk of production of blast plumes containing highly toxic nitrogen dioxide when combustion is incomplete. Perfect blast management results in no nitrogen dioxide, but in practice only one third of blast plumes achieve this, and many blasts result in high levels of toxic gas. Exposure to this gas for even a few minutes can cause severe respiratory irritation, pulmonary oedema, and death. There have been multiple occasions when mine workers have been hospitalised after exposure to these plumes, with exposure up to 6km from the blast site. There is a high risk to people travelling on the Bruce Highway during mining operations, and a lower risk to the 30 residents of Ogmore 6.8km away, which is at the limit of previously observed risk from blast plumes. In the Hunter Valley people have suffered toxicity after driving through blast plumes so this is a real risk to the public from the proposed Styx mine and is not addressed in the EIS. This alone is a sufficient public risk to reject the proposal.

Spontaneous Combustion of Coal

Spontaneous combustion of coal has the potential to create substantial health risks from release of air pollution in the form of fine particles and sulphur dioxide. The EIS includes brief mention of this risk for coal stockpiles, but completely ignores the risk from spontaneous combustion of coal rejects in the overburden. This occurs when uneconomic coal, that either contains too much rock or is in seams too thin to be worth recovering, is included in overburden piles. The exposed coal oxidises when exposed to air and can ignite. This releases large amounts of PM_{2.5} and sulphur dioxide that have not been modelled in the air quality chapter of the EIS. These pollutants travel long distances, up to 1,000 km, and contribute to the health burden from ambient air pollution at the regional and national scale. Spontaneous combustion also releases large amounts of carbon dioxide that have to be included in the greenhouse gas assessment. The extent of SO₂ pollution from spontaneous combustion depends on the sulphur content of the coal, but this critical detail is missing from the EIS. The risk of spontaneous combustion in overburden can be predicted, but this important work is missing from the EIS.

The Accommodation Camp

The accommodation camp that may be built for staff is in close proximity to the mine. It is claimed that this is not a sensitive receptor, but it is a residential area and people will be exposed so this is an unreasonable claim. The appropriate air quality standards for the camp are the ambient air quality standards, not the occupational exposure standards which are based on an 8 hour shift length. Details of the camp are entirely lacking, for instance the camp residents may include children who are more sensitive to harm from respiratory toxins. There is likely to be respiratory harm to people living at the camp.

The EIS fails to answer its Terms of Reference as shown in the following table:

Terms of Reference

<p>Assess the risk of spontaneous combustion for the proposed coal mine and provide the following information:</p> <ul style="list-style-type: none"> describe the quality and quantity of carbonaceous waste material including coarse rejects and fine tailings stockpile at the mine site 	<p>Risks from coal stockpile is covered, but from overburden is not addressed. FAIL.</p> <p>Chapters 3 – Project Description and 21 – Hazard and Risk</p>
<ul style="list-style-type: none"> discuss the potential risk of spontaneous combustion from the coal and waste stockpile areas 	<p>Waste stockpile ignored. FAIL</p>
<ul style="list-style-type: none"> discuss the prevention and control measures adopted for spontaneous combustion 	<p>Superficial coverage for stockpiles only. FAIL</p>
<ul style="list-style-type: none"> describe likely impacts of spontaneous combustion incidents on the receiving environment 	<p>FAIL</p>
<ul style="list-style-type: none"> develop and implement “spontaneous combustion management plan” by considering NSW spontaneous combustion management guidelines 	<p>The intention to develop a plan is there for stockpiles, but there is no plan. FAIL.</p>

Social and Economic 19.2 4.3

A regional input-output economic approach was used. This is inappropriate and details possible income from coal while ignoring externalities and fails to consider proportionality. A properly conducted study might find there is no overall value from the project. This would be vital information for governments and peoples.

The implication of this principle is that some issues are of minor importance and can be discounted in the submission process. However, who is to decide the importance of the issue at hand? Is the most important issue related to the profitability of a project or to the environmental impact? Are the concerns of five or ten local residents and their cattle grazing enterprise considered a minor detail, or do these carry some weight against importance of multi- million dollar profits?

One way of dealing with this is a cost benefit analysis.

Cost-benefit analysis is a method used to make decisions about alternative courses of action based on the net welfare gain to the community as measured by criteria such as net present economic value (NPEV) and benefit cost ratio (BCR). Benefits and costs are social in that they are measured irrespective of how they are distributed, and they are not limited to actual market transactions. Cost-benefit analysis is particularly relevant to public sector decision making

where the costs and benefits of a project are often not reflected in market transactions.

These economic values of costs and benefits are forecast over the life of the project, costs are subtracted from benefits, and the sum of the resulting net benefits are discounted to give the net present economic value (NPEV) of the project. The NPEV allows project options to be compared on the same basis and hence allows the determination of the greatest net benefit to the community or the most economic use of resources.⁶

The economics profession shows rare unanimity on this point that project assessment should rely firmly on cost benefit analysis. Commonwealth and other state treasuries make similar statements, as do academic economists⁷, private consultants⁸ and the Business Council of Australia.

Over many years, the Business Council of Australia has promoted the importance of using cost-benefit analysis (CBA) to evaluate major public expenditure and regulatory decisions.⁹ To put it simply, the value of a project is usually stated without the externality costs. Without taking into account the health and social costs of the project, it is not possible to be sure of the economic desirability of the project. Examples include coal projects which incur health costs sufficient to outweigh the benefits of the project, as outlined by publications such as Muller, Mendelsohn & Nordhaus, 2011.¹⁰

DEA notes the reference to the paper by Jones and Morrison-Saunders¹¹, "Making sense of significance in environmental impact assessment", which outlines a framework for making a decision regarding significance, however there remains uncertainties regarding the final decision-making process.

Cost-benefit analysis of the project should also include an assessment of greenhouse gas emissions that will arise from the project (see Climate Change and the project).

Conclusions

There are many errors and omissions in the EIS and these should be remedied.

There is a strong case for rejecting the Project because of potential damage to the Reef and its contribution to warming of the world's and Queensland's climate and the health impacts including deaths which will result.

Evidence is not provided that the project will be of economic value to Queensland.

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References

- ¹ <http://cqcoal.com.au/publications-approvals/>
<https://www.ehp.qld.gov.au/management/impact-assessment/eis-processes/styx-coal-project.html>
- ² https://www.dea.org.au/wp-content/uploads/DEAtheHealthFactorV2_2013.pdf
- ³ <https://www.ehp.qld.gov.au/management/impact-assessment/eis-processes/documents/styx-draft-tor.pdf>
- ⁴ <http://www.nature.com/articles/srep25894>
- ⁵ <https://www.nature.com/articles/s41467-017-00276-2>
- ⁶ <https://s3.treasury.qld.gov.au/files/paf-cost-benefit-analyis.pdf>
- ⁷ Dobes,L & Bennett,J (2009). Multi-Criteria Analysis: Good Enough for Governement Work? Agenda,16(3).
- ⁸ Ergas, H (2009). In defense of Cost-Benefit Analysis.Agenda,16(3), 31- 40
- ⁹ BCA (2012) Cost-Benefit Analysis. Policy Essentials report for the Business Council of Australia, prepared by Deloitte Access Economics.
- ¹⁰ Muller,N.Z., Mendelsohn,R. & Nordhaus,W (2011). Environmental Accounting for Pollution in the United States Economy. American economic review,101 (August), 1649 -1675
- ¹¹ <http://www.tandfonline.com/doi/full/10.1080/14615517.2015.1125643>