

## **Doctors for the Environment Australia**

### **Submission on the China Stone Coal Project**



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## **Doctors for the Environment Australia Inc**

Doctors for the Environment Australia 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 address the diseases – local, national and global – caused by damage to our natural environment. In effect we are a public health voice in the sphere of environmental health which embraces asbestos, cigarette smoking, lead poisoning and environmental pollution.

The voluntary time we provide for our assessments is outside our full-time medical practice and reflects our concern for the public health.

### **China Stone Coal project**

This project producing 60 million tonnes of coal per annum will be one of the biggest mines in the world. All such mines have significant health impacts. Our review of the TOR does not make it clear how the health components of the project are to be addressed.

In Australia, States operate the EIA process under HEALTH IMPACT ASSESSMENT (HIA) GUIDELINES September 2001  
[http://www.health.gov.au/internet/main/publishing.nsf/content/35F0DC2C1791C3A2CA256F1900042D1F/\\$File/env\\_impact.pdf](http://www.health.gov.au/internet/main/publishing.nsf/content/35F0DC2C1791C3A2CA256F1900042D1F/$File/env_impact.pdf)

In the Guidelines it is recognised that

Health is determined by many factors including genes, age, a person's social and economic circumstances, lifestyle and access to services, as well as environmental health factors such as air and water quality, housing, etc. HIA seeks to ensure both the positive and negative impacts on health (as viewed from a wider perspective than just physical illness or injury) are effectively considered during impact assessment. The proponent's role is to prepare a Health Impact Statement (generally as part of a broader impact assessment) that addresses the issues identified during scoping, and which includes

1. assessment of the likely risks and benefits to health from the development, as well as
2. management of the risks.

The **health authority** should provide its view on the **health risks requiring attention (at the scoping stage)** and ensure that the level of amelioration recommended is in proportion to the level of risk to health.

The health authority may also advise on data requirements and data availability and provide input into assessment of the Health Impact Statement. The decision-making agency (Environment or Planning) should ensure that human health is included in the issues to be addressed in the statement of requirements issued to proponents; it should refer assessments to the health authority for consideration and forward monitoring and evaluation data provided by the proponent or their agent.

A HIA will require much of the same data as needed for a general impact assessment, but there will often be additional data requirements. These include:

- demographic and health status data for local and other affected populations (eg. adjacent to transport routes), and details of any special populations, eg. children, the elderly;
- environmental health data – potential impacts
  1. on air quality,
  2. soil,
  3. water and
  4. waste-water
  5. will be of particular relevance in health assessment; as are
  6. any potential impacts on the quality, availability or price of food or impacts on food-producing land;
- additional demands on community infrastructure – such as sewerage, water supplies, waste management services, schools, health and social services;
- transport issues, including the risk of injury, pollution and amenity. Both the positive and negative aspects of transport changes may need to be considered; and,
- social and economic impacts, where these may have an effect on health.

It is important to add that with the advent of global environmental change, it is apparent that the health impacts of one mine may become national (the extreme example is asbestos mining) or indeed international.

### **National**

These are impacts arising from the burden of water pollution within the Basin, throughout the catchment and potentially within coastal waters and

the Reef. These potentially involve water for agricultural use (food production) and water in the Burdekin Dam (human use) damage to coastal waters and Great Barrier Reef (loss of sustainable employment is a health problem).

There are impacts for air pollution along the rail corridors and at the Ports and even in uninhabited areas deposition of TSP increases polluted run off into the catchment.

There are also health impacts within Australia from greenhouse emissions arising from global temperature rise due to the contribution from Galilee mines.

### **International**

These arise from global environmental change from the burning of Galilee Basin coal. There are also health impacts in the countries which burn this coal in preference to cleaner forms of energy generation.

### **Health impacts of the project**

In the TOR it is clear that occupational health and safety issues will be dealt with adequately for there is a secure statutory framework.

However the mention of other broader and public health issues which impact wider communities is perfunctory. The words 'human health risk' are mentioned once on page 38. Many of the wider health issues need to be considered in the context of cumulative impacts. Even within the Basin a wide consideration of the potential impacts of intensive mining described in the international literature [http://coalhealthstudy.files.wordpress.com/2009/09/douglasdale\\_v42.pdf](http://coalhealthstudy.files.wordpress.com/2009/09/douglasdale_v42.pdf) need to be considered

This report will consider the following key health issues

- **Cumulative health impacts**
- **Greenhouse emissions**
- **Water management and pollution**
- **Air quality and pollution**
- **The proposed power station**

## **Cumulative Health Impacts**

The Galilee Basin faces ten coal mining proposals and probably more in future if port capacity can be expanded as demand from Asia is expected to triple by 2030. There will be considerable disturbance to the environment and therefore potential impacts on human health.

These mines are within the Galilee Basin, the Belyando River Basin and Alice Uplands region of the Desert Uplands Bioregion listed by the Australian government as a Hotspot for Biodiversity. They also contain some areas of recharge into the adjacent Great Artesian Basin. Their cumulative impacts at these scales and along their transport routes and ports must be understood if they are to be managed.

Galilee mines will range from 20-60 mtpa and will be among the biggest in the world with initially 198 mtpa of coal exports. By comparison the largest open cut coal mine in the world is Black Thunder at 80 mtpa in Wyoming.

These huge mines will cause great disturbance to the environment and will therefore have a potential impact on human health at all sites within the mining, transport and power plant combustion stages.

Doctors for the Environment Australia has drawn attention to this issue in earlier submissions on the Carmichael Mine and the Kevin's Corner Mine which questioned water and air pollution issues.

This concern has been ignited by the expressed concerns of UNESCO for the survival of the Great Barrier Reef and the forthcoming strategic assessment delivered by Minister Burke in response to the UNESCO concerns.

<http://www.environment.gov.au/minister/burke/2012/mr20120831.html>

This is important in the present context for it recognises that the impact for several port developments on land and sea environmental conditions should be assessed cumulatively.

The matter of cumulative impacts was taken further by the Minister in the conditions of permission for the approval of the Alpha coal mine and rail project. This intimates that matters of national environmental significance will be looked at cumulatively for their impacts on the Great Barrier Reef.

In his statement the Minister says

*The approval conditions set out comprehensive management and monitoring arrangements including:*

- *Several management plans will manage potential impacts on the values of the Great Barrier Reef World Heritage Area and species including dugongs, turtles and migratory birds*
- *A proponent-established trust, with initial funding of \$2 million, over 10 years, to conduct research on the black-throated finch and the squatter*

*pigeon, with provision for a more strategic approach to protect all key species in the Galilee Basin in the event that any further mines are approved in the basin,*

- *Management plans covering mine rehabilitation, vegetation, water quality and regional impacts on water quality, and*
- *Identify threshold limits and management measures for any coal dust impacts on the Great Barrier Reef World Heritage Area and reporting to the Great Barrier Reef Marine Park Authority every six months.*

We also note that in his statement the Minister indicated

*In making this decision I took advice from members of the Interim Independent Expert Scientific Committee on Coal Seam Gas and Coal Mining which made recommendations related to groundwater impacts in the Galilee Basin and surface water impacts in the Burdekin Catchment.*

Clearly cumulative impacts have to be taken into consideration for all mining activity applications in the Galilee Basin. We point out that these also apply to cumulative impacts on health which need to be covered in the HIA component of the EIS.

We note that cumulative impacts are mentioned in several sections of the TOR document including the Executive Summary. However in our view they are not dealt with adequately.

## **Greenhouse Emissions (see 5.6)**

Proponents are not required to assess Scope 3 emissions resulting from the project. Clearly however, we have reached the point of recognising the acceleration of global environmental change due mainly to climate change and the need for urgent action for predictions of temperature rise are now in the 4-6 degree Centigrade range.

The China Stone project will produce 60mtpa (45mtpa exported). Greenhouse gas emissions from Galilee Coal Mines currently in the approvals process will be in excess of 535-642 million tonnes per annum (including vegetation clearing and processing, transportation and shipping). There will be an increase in global emissions in the 1-2% range and possibly more. The number of expected world deaths from the mine and cumulatively from the Galilee Basin can be equated from WHO figures and should be listed. These would be taken into account by any ethical and moral organisation even if Scope 3 emissions are disregarded officially.

However whilst Australia currently disregards these impacts, there will be an increasing toll from climate change impacts on the health of Queenslanders and Australians. These should be addressed in the TOR. One of the roles of EIA and its accompanying HIA process is to assess the

balance between positive and negative outcomes for the community. Therefore the impacts of these greenhouse emissions are highly relevant and must be detailed by the proponent, for there is a cumulative and rising cost to the public purse, as evidenced by the devastation of the Queensland floods

The TOR must recognise that WHO now regards climate change as the greatest health challenge in this century. Climate change impacts are accelerating and planning should take into account the expectation of 2-3 degree centigrade rise within the life of the mine and its likely consequences and extrapolate to the available water resources, flooding and discharge impacts in an increasingly unstable climate. These points apply to the following TOR sections.

### **5.1 Climate, natural hazards and climate change**

*Describe the climatic conditions that may affect management of the project. This includes a description of the vulnerability of the project area to seasonal conditions, extremes of climate (for example, cyclones) and natural or induced hazards (including bushfire). Provide a risk assessment (as part of the requirements of Subsection 8.1 of this TOR) and management plan detailing these potential climatic threats to the construction, and operation of the project.*

*Include the following:*

*a risk assessment of changing climate patterns that may affect the viability and environmental management of the project*

*the preferred and alternative adaptation strategies to be implemented*

*commitments to working cooperatively, where practicable, with government, other industry and other sectors to address adaptation to climate change.*

*Address the most recent information on potential impacts of climatic factors in the appropriate sections of the EIS.*

With regard to the section

### **5.6.2 Potential impacts and mitigation measures**

*Discuss the potential for greenhouse gas abatement measures*

This should include (1) the benefits of renewable technologies instead of coal fired generation power station. (2) economic studies which use cost of externalities in full accounting.

### **5.3.2. Vegetation clearance and damage**

Estimates are required for greenhouse impacts, loss of fixed carbon and impact on Australia's emission targets for this mine and **cumulatively** for the Galilee Basin. This is essential in assessing whether this project is economically viable when all positives and negatives are accounted for.

## **Water Management and Pollution**

These sections of the report must have in mind that-

(1) Drainage from the Galilee Basin is mainly to the Eastern seaboard via the Belyando River within the Burdekin River Basin and therefore to the Great Barrier Reef.

(2) There has to be a cumulative study of drainage from all proposed mines because of the volume of coal mined. This should be extrapolated from the expected drainage from the 15 megatons waste through washing procedures, environmental drainage and pollution proceeds from the proposed coal fired power station. We understand that the interim IESC has already given advice to the Federal Minister. The new IESC should continue this study now that it has eco-toxicological representation.

(3) That total discharges into the groundwater and river system should be subject to studies for heavy metals and detailed chemistry of toxins- a cumulative study for the entire basin.

(4) That recognition be given to the fact that this development is a public health issue, and will continue to be over many decades to come. Emphasis should therefore be placed on measures to prevent current and future health impacts.

(5) Replacing existing food production with short term projects, threatens future food security, directly and through land use change, and the availability of adequate and uncontaminated fresh water. Australia will play an increasing role in feeding the world. Loss of agricultural land therefore has long term economic and health consequences domestically and in countries that will rely on our food exports.

(6) It is interesting to note that the words "food" and "agriculture" are not mentioned in the text. Both EIA and HIA assess the positive and negative aspects of a project; clearly a comprehensive economic study of the China Stone project is required to decide where this balance lies.

(7) It is unclear where sufficient water for the China Stone coal mine and future coal mines permitted in the Galilee Basin will come from. There is no SunWater water grid study that shows where future water supplies for the proposed Galilee Basin coal mines will be sourced. We understand that the GVK/Hancock mine has had to purchase water from the Fairburn Dam near Emerald that was originally targeted for agricultural water use during droughts. This suggests that the Galilee Basin mines will be competing with agriculture for water. What impact will this have on the agricultural industry? This question has not been addressed to date for the Galilee Coal mines, yet it is of great significance as the mines will be able to pay more for water than most agricultural concerns.

We recommend that the sections of the TOR be reorganised and expanded using the above principles for example;-

#### *5.4.3 Potential impacts and mitigation measures*

*Assess the project's potential impacts on water resource environmental values identified in the previous section. Assess the potential cumulative impacts of this project with the known developments in the Galilee Basin region in accordance with the practices and procedures set out in the Water Accounting Framework for the Minerals Industry (Minerals Council of Australia 2012)—refer to [www.minerals.org.au/focus/sustainable\\_development/water\\_accounting](http://www.minerals.org.au/focus/sustainable_development/water_accounting)*

This is inadequate and unrealistic taking into account the needed water studies to protect the Great Barrier Reef and human health and does not take into account such intervention as the Queensland government's guideline *Model Water Conditions for Coal Mines in the Fitzroy Basin* on the 23 July 2012. <http://www.ehp.qld.gov.au/land/mining/pdf/model-water-conditions-mining-fitzroy-em288.pdf> It appears that these new model conditions have doubled the trigger levels for Selenium above the current Australian and New Zealand Guidelines for Fresh and Marine Water Quality. New state guidelines have increased trigger levels for particular contaminants to levels above national guidelines.

In the TOR, these matters are discussed in relation to water ecology and potential damage. Ecological harm in fresh water is potential human health harm and activates HIA considerations. These are not mentioned.

We note that the Queensland Government's 2009 study of the Fitzroy system concluded that in the Fitzroy Basin:

- *discharge quality limits and operating requirements for coal mine water discharges are inconsistent;*
- *the discharge quality limits and operating conditions for some coal mines do not adequately protect the downstream values of the environment;*
- *background data relating to the quality of the waterways receiving discharge water is extremely limited;*
- *there is insufficient data to quantify the cumulative impacts of mining water discharges;*
- *additional and ongoing monitoring and analysis is needed to develop a modelling program for assessing cumulative impacts; and*
- *based on a risk assessment using salinity, six mines were identified as being the highest contributors to potential cumulative impacts (Coppabella, North Goonyella, Goonyella Riverside, Millennium, Peak Downs and Ensham).*

These lessons have not been learned. The China Stone project must develop data so that a comprehensive cumulative study can be provided.

### **Air Quality and Pollution (5.5)**

We note that consideration will be given to;-

*human health risk associated with emissions from project activities of all hazardous or toxic pollutants*

This section needs detailed attention

- Within the project, modelling of potential pollution should be done in relation to dispersal of particulates in relation to surrounding inhabitation.
- Details are needed of the placement and technology of the assessment for pollutants over time.
- Estimates need to be made of total air pollution to provide estimates of the burden of land (and therefore water) contamination. For example modelling of the accumulation of heavy metals from deposition of air pollutants in Lakes Buchanan and Galilee and in the more static internal waterway systems.
- A cumulative assessment of all Galilee mines is needed leading to a health impact assessment for the Basin region.

### **Air pollution impacts outside the Basin**

These impacts should be included in the health impact assessment

#### ***(1) Impacts along the rail corridors***

Coal dust will be lost in transit with potential adverse effects on communities, land owners and livestock near the coal rail lines. A veneer of fixative spray over the coal in the rail wagons will be required after 2013 by QR National. Its effectiveness for trains making a 495-500 km journey is unknown.

#### ***(2) Impacts at Dudgeon Point and Mackay***

*With the tripling of capacity for arrival and loading at Dudgeon Point a similar increase of TSP would be expected. There will be consequential increase run-off of pollutants and potential health impacts for Mackay for particulates. These considerations should be part of a cumulative impact study which includes health.*

#### ***(3) Impacts at Abbot Point***

*Here the proximity of significant habitation is not a health consideration.*

*However there are likely to be environmental impacts from heavy metal accumulation in wet lands and run-off into the coastal waters.*

## **Power Station**

The terms of reference are totally inadequate and it is recommended that these be subject to a separate EIA and HIA to enable a more focussed assessment of potential impacts.

Coal combustion is a significant cause of cardio-respiratory illness and increased mortality

[http://dea.org.au/images/general/Coal\\_Policy\\_Document.pdf](http://dea.org.au/images/general/Coal_Policy_Document.pdf) and HIA for any power station must be comprehensive.

Some of the fundamental points required are;-

- An economic justification in the light of increasing expert opinion that several renewable technologies will provide cheaper power during the next decade; this is likely if the environmental and health externalities of burning coal are considered.
- The emissions are not Scope 3 and need to be detailed.
- Details of the air pollution studies to be conducted, methods, sites and duration and modelling based on existing power stations. Details of the combustion profile of coal washery rejects and drainage from fly ash.
- Much of the region is subject to internal drainage. Both airborne and waterborne coal pollutants, either from coal dust or coal ash will accumulate in situ rather than be "diluted" during larger rainfall and waterway flow events. The toxic effects from coal ash are considerable <http://www.abc.net.au/unleashed/42476.html> What will concentrations of heavy metals be in the surrounding environment at the 40+ years' end of the China Stone mine's life? What toxic effects will those concentrations have on wildlife and remaining agricultural operations (and therefore food production) within the region?

It has to be questioned why further pollutants are to be produced when alternative sources of clean energy could be harnessed?

## **Concluding Remarks**

This project is of national and international significance, most importantly because of its potential health impacts.

It has to be viewed in the context of the cumulative impacts of all Galilee mines which increase its significance further.

It has to be of deep concern that during a decade when health impact assessments were to be implemented at state level, there is little indication that the TOR has considered these issues.

When projects have far reaching consequences it is essential that full cost accounting studies are done to assess whether there is benefit to the entire Australian community. We note that if full cost accounting was used for the coal industry in the USA, the cost of electricity would double.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1749-6632.2010.05890.x/full>

We remind the community that in a globalised economic world in which we prosper from our ability and trade opportunities, the seriousness of climate impacts are soon likely to become accountable. We have referred to one such potential accountability, the rise in death toll from climate change.

However we are not only exporting emissions that we do not have to account for at present but we are exporting ill health to the importing country. We will conclude with an important example;-

Coal from the China Stone coal mine is expected to be burned in the city of Taiyuan in northern China which is one the top four polluting cities in China.

The health toll is enormous. It is tempting to theorise that if Australia does not supply this coal some other nation will. However there is evidence that others cannot supply in the time line required in which case the Chinese authorities would have to source other energies.

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for Doctors for the Environment Australia