

Inquiry into the Environment Protection and Biodiversity Conservation Amendment (Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development) Bill 2012.

Submission from JIM LEGGATE. Dated 3/4/2012

Quite rightly – Australia is now calling for science-based regulation of our mining industry. We have not had that in the past.

Mining in Australia has been booming since the 1970s with significant areas of land and significant water resources being utilised. There has, regrettably, been a lot of missing science, and also sloppy engineering, in this mining. This has had serious consequences and such shortcomings must be avoided in the future, particularly since the potential for environmental impacts is rising, as a result of deposits being of a lower grade, and because of increasing scale.

The spin of *best practice and continuous improvement* have not served this industry well and should be discarded. Mine bosses now making decisions are more often accountants rather than engineers. Consultants and researchers assisting the industry have lacked professionalism and objectivity, because of “capture.” There has been a smoke screen created by reference to “the very small area of land occupied by mining “ as if mining is merely land disturbance. Areas of mining wastes are, to describe them more accurately, becoming a massive toxic and hazardous waste-dump. Throughout its history Australian mining has always resulted in *more* environmental impact than was stated at the outset.

These are the reasons why this new committee and new legislation are so important. These scientists should be involved, principally, in assessments before mining approvals are given; and also in the scrutiny of operations, to ensure compliance with the conditions attached to approvals.

I have the credentials, including work experience and publications, to make these broad statements. I have been quite intimately involved in the following:-

- the very tough and largely successful regulation of radiation safety and environmental impact from uranium mining in Kakadu .
- the regulation of sandmining on Australia’s east coast.
- the failed regulation of coal mining in Queensland and in the Hunter Valley, NSW.
- the soft regulation of bauxite mining at Weipa , Cape York.
- the soft regulation of various gold mines in Queensland.

I wish to draw to the attention of the newly formed committee of experts the following examples of missing science;

1. Mining-waste emplacements. Mining generates a lot of wastes which are often toxic and hazardous to the environment and to people’s health. The engineering of such wastes should be according to the associated risks, but most often, that consideration is relegated below a costs-saving priority. Mine owners are frequently adopting the cheapest, and often the nastiest, mining methods. In many instances the engineering of mine overburden and mine tailings has been grossly inadequate. It has not been commensurate with the long term risks. eg:-

- Waste rock and Overburden – the coal mining industry is generating thousands of tonnes of overburden every hour of the day. There are, literally, mountains of waste being generated and yet standards and limits of slope configuration have not been determined, and mandated, for these dumps. Vague and false promises are made re sequential land use, and pollution containment, without any due diligence applied. Successful mine rehabilitation appears to be a myth. Cost savings often lead to excessive dumping of

volume (cubic metres of waste) on *areas* (square metres of surface) that are too small, and excessive slope configurations result. Erosion and instability, and a wasteland , is often the consequence. At worst a point source of long term pollution arises.

- Tailings – mine tailings dams have become the most problematic for dam-safety engineers around the country. They invariably pose high risks and that is because most tailings dams are not sited and designed and operated to be decommissioned. Once again that is because of cost saving. Most mine tailings needs to be dewatered to be decommissioned, and yet a lot of tailings ends up in a saturated condition, incapable of bearing the load of a cap. Without a cap they are likely to generate seepage to the environment.
- Sub-economic ore stockpiles – many of these eventually are declared to be waste and require a high standard of rehabilitation, but mine owners have been negligent in drawing up contingency plans for that decommissioning.

2.Acid mine drainage (AMD). Far too often mine planning is being finalised without the potential for acid generation from mining wastes being adequately determined. A significant proportion of mine wastes is acid-generating. For decades the mining industry has been publicly advocating proper planning, and at the same time as not actually doing it. Far too often the attempted management of AMD is an add-on, and it fails.

3.Final voids. There are some huge final voids and open pits looming as an end result of mining , and the planning for their decommissioning is not apparent . There are huge risks associated with flooding. There are also risks to do with public safety. Vague talk of rehabilitation off-sets does not allay the fears.

4.Under-ground water resources . There has been an appalling example of “shonky” science at a mine near Gladstone. See EEMAG web site and Senate submission. Proper hydro-geological studies tend to be missing from open cut feasibility studies.

5.Other impacts arising from mining are :- sedimentation downstream of the mines, spontaneous combustion in carboniferous wastes, subsidence of surfaces above mines, and a lack of progressive rehabilitation leaving final clean up to be done at taxpayers’ cost. Proper engineering and applied science could have mitigated these impacts.

Our mining industry is expanding rapidly and many projects are “too big to fail”, once started, and that means adopting the precautionary principle is essential. Mine owners are notorious risk-takers and should not receive our approval until we are very sure about their projects. To that end, the scientists who are called upon to make critical recommendations about coal seam gas and coal mining developments , need to be completely independent (of mining interests and influence), and also completely objective.

I wish the new committee well. Its creation is long overdue.

Jim Leggate