



# AUSTRALIAN SOCIETY OF EXPLORATION GEOPHYSICISTS

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22 July 2002

**The House of Representatives  
Standing Committee on Industry and Resources  
Parliament House  
CANBERRA ACT 2600  
Email: [ir.reps@aph.gov.au](mailto:ir.reps@aph.gov.au)**

## **SUBMISSION TO THE HOUSE OF REPRESENTATIVES INQUIRY INTO RESOURCES EXPLORATION IMPEDIMENTS**

**BY**

**THE AUSTRALIAN SOCIETY OF EXPLORATION GEOPHYSICISTS (ASEG)**

Over the past five years mineral exploration expenditure in Australia has declined significantly. The long-term future of the minerals industry is at stake and the House of Representatives is commended for its active role in seeking remedies for this fall in investment. The Australian Society of Exploration Geophysics (ASEG) is pleased to comment on these issues for the Parliamentary Inquiry.

The ASEG is a professional society founded in 1970 to promote the science of geophysics, specifically exploration geophysics, and to foster cooperation between geophysicists and the exploration industry. Australia has a rich history of mining and mineral exploration, with a strong contribution from the membership of the ASEG. The ASEG's 1,400 members are committed to ensuring that Australia maintains a vibrant petroleum, mining and mineral exploration industry.

The ASEG respectfully submits the following comments with respect to your terms of reference and recommendations which we believe will significantly address impediments to increasing investment in exploration in the resource sector.

- 1. An assessment of Australia's resource endowment and rates at which it is being drawn down.**

The Australian minerals sector is a major contributor to the economy. Exploration expenditure and its downstream effect contributes billions of dollars of revenue for the country and its rural and urban development. Australia is currently the largest exporter of coal (33% of world trade), alumina (40% of world trade), iron ore, lead, diamonds, rutile, zinc and zirconium. Australia is the second largest exporter of gold and uranium (20% of world trade), and the third largest exporter of aluminium metal. The minerals and petroleum sectors accounted for 8.5% of Australia's GDP in 2001-2002. The minerals industry in Australia directly employs over 72,000 people with 336,000 direct downstream manufacturing jobs as a result.

If new Australian mineral deposits are not discovered to replace the resources mined each year, production will continue to decline. To date, exploration has concentrated mostly on areas where prospective rocks are exposed at the surface. In Australian mineral fields this makes up less than 10% of the prospective area. Modern exploration in areas of the nation which are covered by younger rocks, soil and sand relies heavily on geophysical methods for indications of prospectivity. We refer the committee to an article by Dr Bruce Hobbs (Reference 1) and other communications (Reference 2), which documents these issues. His data demonstrates that the discovery rate has decreased, the cost of exploration has increased dramatically, and this is true of both the Petroleum and Mineral industries.

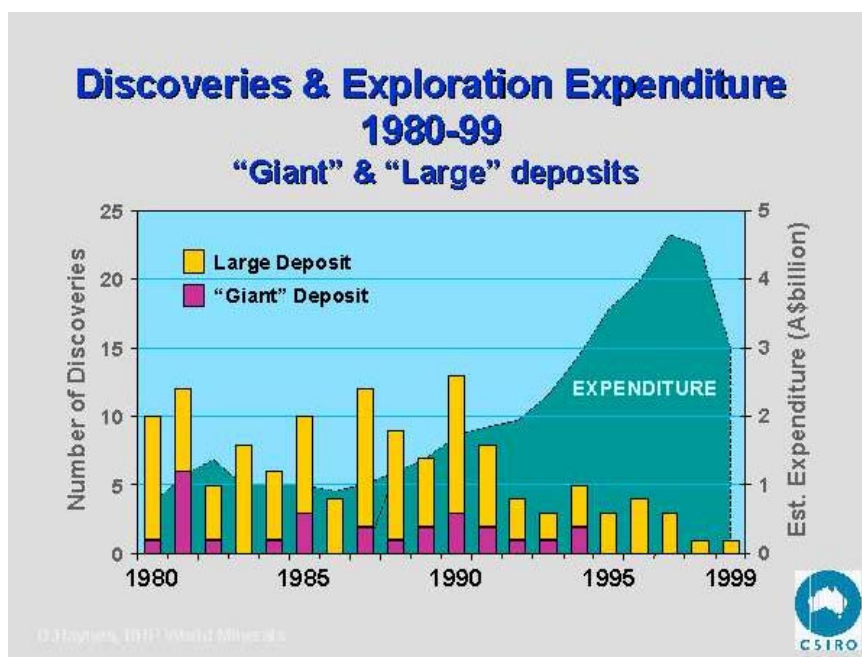


Figure 1

Historical data for Mineral Discovery Rates and Exploration Expenditure (Hobbs Reference 1)

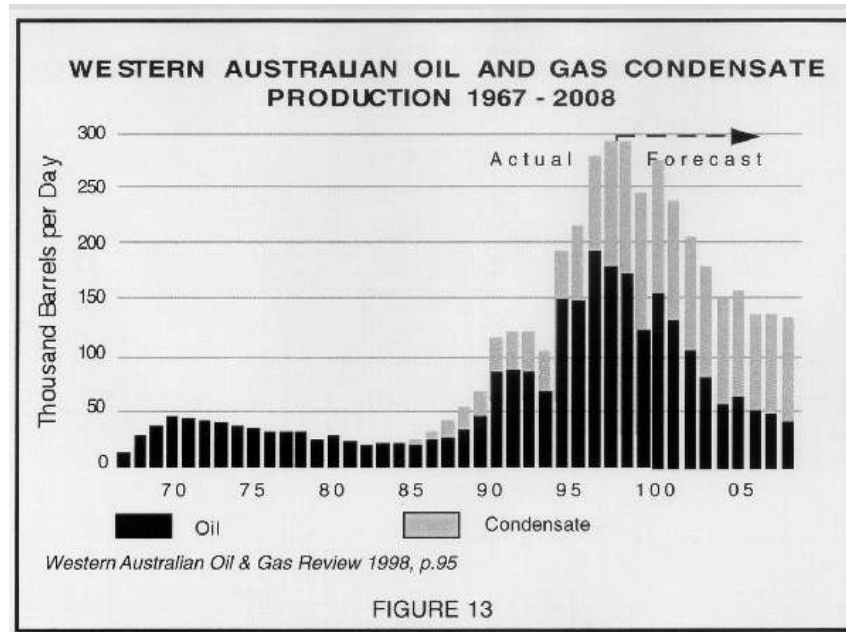


Figure 2

Historical data for WA Petroleum Production (Western Australian Oil & Gas Review p95, Ref 2)

He concludes that although there is a limit to Petroleum reserves with consequent draw down and the economic consequences, this is not true for the mineral industry, since there is a high probability that further giant metal deposits remain to be found, concealed beneath complex surface. The strategies may differ, for petroleum the recoverability of the existing reserves needs to be targeted, while for the mineral industry more cost effective exploration strategies need to be targeted, such as a common technical strategy to meet the challenge of moving to the next paradigm of exploration.

## 2. The Structure of the Industry and Role of Small Companies in Resource Exploration in Australia

The business of mineral exploration has changed significantly in recent years because large, well-funded exploration groups no longer dominate the industry. Permanent exploration teams of more than a dozen people are now uncommon. Consequently, small mining companies and geoscience consultants with limited resources are now the primary beneficiaries of initiatives implemented by government agencies to stimulate exploration activity.

The range and coverage of information and its access for target analysis is not available for smaller companies and hence this gap is a definite impediment to investment. The trend of large companies to reduce their exploration expenditure, or manage their portfolios globally, through amalgamation, acquisition and downsizing means there is less incentive to embark on high risk exploration strategies locally, while the smaller explorer's don't have the scale to undertake comprehensive exploration.

The frontier or "greenfields" areas in which new ore will be discovered require the application of advanced and extensive geophysical survey technologies. This requires highly trained geophysicists and geoscientists to transform survey data into geological information suitable for the discovery of new ore. Australia also is a leader of world-renowned, cutting-edge geophysical technology that is used globally in the search for new mineral resources. The specialised skills and knowledge required are no longer primarily the domain of large mining companies, as rationalisation in the industry has pushed more exploration responsibility onto smaller junior explorers. The economic downturn, and amalgamation of companies has meant recruitment has been reduced, expertise dispersed, knowledge is not transferred, and the age demographics has increased. These smaller companies lack the resources and scale to provide the educational environment, consequently there is a shift in reliance on the educational, research sectors and

service industry to fill the gaps. Dispersed knowledge increases the risk to investment. Government lead strategies which recognise this and encourage an environment for development and retention of expertise through a strategy encompassing research and education and retention of expertise in partnership with industry would reduce this risk. This will help to ensure new technical developments and best practice techniques are disseminated and applied throughout the minerals exploration industry.

### **3. Public Provision of Geoscientific Data**

Regional geoscientific data sets are vital for mineral and petroleum exploration. Publicly available geoscience data are important to all mineral explorers. In particular, they are crucial to small to medium size companies that are taking an ever-increasing role in exploration; both in their own right and in strategic alliances with major mining companies. For example, the Northern Territory, Victorian and South Australian Governments all provide precompetitive airborne geophysical data that have shown to be spectacularly effective in stimulating exploration in those states by targeting the exploration efforts. The Mount Woods discovery amongst many others was directly due to targeting from public data. The regional data bases coverage, content, detail and age vary from state to state. Ease of access to these data bases is also important, for the thoroughness of the analysis. It is important that the various state agencies and Geoscience Australia, have industry advisory boards representing the various stakeholders to advise them on their priorities and appropriate information form. This is not uniform across Australia. There is a need for a national system to ensure the information is uniform and comprehensive. The impact of availability of data sets and access is well demonstrated by a recent story relating how a Canadian company offering their data sets on the internet in a challenge to the world's geoscientists to find their next 6 million ounces of gold. This competition was won by two Australian companies who were able to identify further targets that have been confirmed by drilling, and the winners had not even visited the site in Canada. (reference 3)

### **4. Access to Land Including Native Title and Cultural Heritage Issues**

Access to land is perhaps the single largest obstacle to effective and economic exploration in Australia. Clarification of Native Title, "Open Skies" policies for airborne geophysical surveys, and action to clear Native Title backlogs, will benefit the mining community and the local communities concerned. This barrier is a substantial impediment, beyond the means of the resource companies and traditional owners to resolve. Resolution requires attention and priority from the government and their agencies.

### **5. Recommendations**

New technologies for mineral exploration, petroleum, environmental and water resource studies often overlap and are critical for sustaining the minerals industry.

The ASEG offers the following recommendations:

- Provide incentives for improving recoverability factors on existing petroleum reserves
- Incentivise new technical methodologies to address exploration in areas masked by the regolith
- Compile comprehensive up-to-date digital databases (generation and capture of government and industry data: geochemistry, physical properties, mineral occurrences, etc.)
- Ensure national consistency of content, uniformity, range and coverage of publicly available data through coordination with states.
- Invest in digital storage and internet access to regional and national databases.
- Establish integrated industry advisory boards for state and federal resource agencies.

- Support development and application of new technologies through CRCs, University research projects, incentives for research consortia, etc.)
- Develop a national strategic plan for earthscience educational and research resources key centres.
- Ensure that the key centres and other educational institutions that emphasise earth sciences are properly funded in proportion to the wealth created by petroleum and mining interests.
- This educational support must be provided not only to weather the short term crisis, but for the long term sustainability of the world class geoscience community that exists but is threatened by short term economics of the industries in Australia today.

Respectfully submitted,

Parliamentary Submission Sub-committee -  
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On behalf of:

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Kevin Dodds  
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#### References

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Dr B. Hobbs; ASEG Preview, April 2002, issue #97 ISSN 1443-2471  
Reference 2: <http://www.csiro.au/newsline/speeches/BrodieHallHobbs/sld021.htm>;  
[http://www.csiro.au/index.asp?type=blank&id=AustralianInnovationFestival\\_April2002\\_BruceHobbs](http://www.csiro.au/index.asp?type=blank&id=AustralianInnovationFestival_April2002_BruceHobbs)  
Reference 3: The Australian Financial Review Tues 18<sup>th</sup> June 2002 p40