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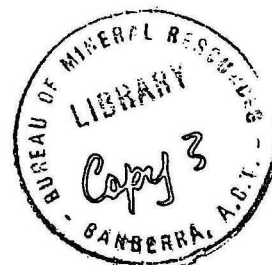
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CONFERENCE ON MINERAL PROCESSING IN AUSTRALIA

by

P.J. Roberts

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CONFERENCE ON MINERAL PROCESSING IN AUSTRALIA

The Australian National University Centre for Continuing Education

This conference was held in Canberra from the 29-31 August 1973 and was well attended by industry and government representatives, P.J. Roberts attended the conference under the sponsorship of the Canberra Branch of the Professional Officer's Association and this report is a brief summary of the material presented and the more important topics and points of interest discussed. The full text of all papers together with official conference recommendations will be published shortly by the A.N.U.

Five broad aspects of mineral processing within Australia were discussed, technical, financial, transport, energy and environmental.

TECHNICAL

Technical papers on aluminium, iron, nickel and copper lead zinc processing in Australia stressed the following points.

1. Australia has substantial reserves but no world monopoly.
2. The mineral industry is heavily dependent on the export market for these commodities.
3. Processing in Australia can only be undertaken where it is clearly profitable and where the processed product is readily saleable. For instance large markets exist in Japan for iron ore but not steel. The E.E.C. has tariff barriers for a number of metal imports but not for concentrates.
4. In general Australian processing costs are high and the country lacks adequate financial, human and energy resources to substantially increase the level of processing in the near future.
5. The level of processing undertaken is very sensitive to Government policy. The recent removal of the 20 percent investment allowance and 25 percent revaluation of the Australian \$ are examples of policy changes which reduce the viability of mineral processing.
6. A special plea was made for the establishment of well funded interdisciplinary groups to conduct research into mineral processing with the particular aim of adapting existing methods and technology to domestic problems of mineral processing.

FINANCIAL

Three papers concentrating on the financial aspects of mineral processing projects highlighted the following points.

1. Under the new government, mining will be treated the same as any other industry for taxation purposes. Special allowances will be restricted to aspects of the mining industry which are particular to that industry only.
2. New development proposals to the Australian Industry Development Corporation will be subject to standard financial assessment methods although the AIDC is expected to adopt a more "risk venture" approach than most commercial banking establishments.
3. In Australia about two thirds of the total capital costs of new mining projects has been expended on infrastructure. Decentralisation could be encouraged by government assistance with infrastructure, especially so in the cases where the high initial capital costs involved in a proposed new development result in cancellation of the project.

TRANSPORT

One paper dealt with the economic evaluation of various transport systems for freight in north west Australia, and thus indirectly related to the economics of mineral processing in this area.

ENERGY

An absorbing paper on energy introduced the concept of matching fuel resources to potential demand with particular regard to Western Australia. Figures were cited to show that Australia's fuel resources are sufficient to fully process only a moderate proportion of the available mineral resources. For example using present technology all of the uncommitted domestic reserves of high quality coking coal would be required to smelt approximately 53 percent of domestic iron ore reserves.

The author suggests careful allocation of priorities in the use of our relatively scarce fuel resources. Future domestic energy requirements should be balanced against the benefits derived from utilisation of fuel in export oriented mineral processing. The same author briefly discussed water needs in later sessions emphasising that no mineral development is viable in Western Australia until an adequate water supply has been established. Thorough water conservation studies must be undertaken before the establishment of any industry in any areas of prospective water shortage. Such studies must also allow for the influx of people and increase in standards of living with their associated increase in total water requirements.

ENVIRONMENT

The first paper on "Environmental Aspects of Mineral Processing" emphasised that environmental controls on mining are now a permanent feature and will probably become more restrictive with time. Environmental impact studies will be required for any new projects in sensitive areas, and the

costs of such studies will be borne by the project developer, and hence ultimately the buyer. In Australia, the State and Federal Governments hope to reach agreement on uniform rules and standards for domestic environmental impact studies, before the end of 1973.

A case history on the development of an environmental authority, and its subsequent action on a planned new project, was presented in a second paper. The author recommended a cost benefit analysis approach in which the first step involved early establishment of the commercial feasibility of the project. If the project should prove viable then the potential value must be balanced against the tourism and ecological value of the area disturbed.

The conference ended with an open discussion on marketing and export controls with special reference to Australian-Japanese trade relations. In a very concise summary of the discussion Sir John Crawford made the following points:


1. The domestic mineral industry cannot expect future growth rates to equal those experienced in the past. Past growth took place from a relatively low base, expansion at the same rate from the present base, would require vast deposits and expenditures.
2. Trade patterns may be expected to change as exporters and importers strive to reduce their dependence on any single market or supplier respectively.
3. Overseas demand for various commodities exported may be expected to change in line with technological changes, introduction of environmental controls and changes in government policies in both importing and exporting countries. At present a world trend is developing to site mineral processing facilities with pollution problems in the producer countries rather than the consuming countries which are generally more highly industrialised.
4. Communication between industry and government must be improved. There is considerable concern in industry over exchange rate moves and it appears to be an opportune time to re-examine the role of government in accepting some responsibility for such changes.
5. The Australian Mineral Industry needs, and has the right to expect, rapid clarification of the government's mineral policy with regard to exports, capital raising and foreign equity in new projects.

CONCLUSIONS

The mining industry in Australia accepts the change in government and government policies and desires to work in harmony with the new policies. However this will be possible only when policies, expressed in general terms to date, have been clearly spelt out and firm guidelines laid down. Further investment in the industry will not be committed by either foreign or domestic developers until the rules of the game are clearly established.

Throughout the conference a basic conflict of ideals was apparent between government and industry. Industry representatives argued strongly that the extent to which mineral processing should be undertaken in Australia is best decided by the free interplay of market forces. Furthermore, processing will only be undertaken where this is clearly profitable. Government spokesmen have long expressed a desire for an increased level of processing in Australia, mainly on the grounds of increasing the value of exports, building up technology and providing employment opportunities.

Clearly Australia's resources are not unlimited and I believe the nation would be best served by concentrating available energy, labour and capital resources into areas of the mineral industry which are competitive with the rest of the world and offer the best return. A spokesman for the BHP Co. illustrated this point by stating that "iron ore mining in Australia is economically attractive, processing of the ore to steel returns only 2% on capital invested, and steel fabrication in ship building is unprofitable". The desire for further mineral processing in an individual industry must be carefully weighed against the returns available from investment in other areas of the national economy.



(P.J. ROBERTS)

5 September 1973

Papers presented at the Conference on Mineral Processing in
Australia held at the Australian National University
from 29-31 August 1973.

- Mr J. Craig, General Manager, Administration and Finance, Hamersley Iron Pty Ltd
"The Outline for Iron Ore Processing in the Pilbara"
- Mr J. Reynolds, Commercial Manager, Nickel Operations, Western Mining Corporation
"Nickel Processing"
- Mr P. Spry-Bailey, Company Secretary, Alcoa of Australia Ltd, Melbourne
"Review of the Australian Aluminium Industry"
- Mr K. Finlay, Operations Manager, Mt Isa Mines Ltd
"Problems associated with Mineral Production in Australia with particular
reference to copper, lead and zinc"
- Mr H. Melouney, Mary Kathleen Uranium Ltd, Melbourne
"Australian Uranium - Significant Energy Source"
'Case Studies of a Hypothetical Mine and Mill'
- Mr I. Newnham, Director, Minerals Research Laboratories, CSIRO, Melbourne
"Research on Mineral Processing in Australia"
- Discussion: Dr R. Ward, General Manager, Planning and Research, The BHP Co Ltd
Melbourne
- Mr N. Connop, Commonwealth Taxation Office, Canberra
"Taxation: Mineral Processing and Infrastructure"
- Mr M. Game, Australian Mining Industry Council, Canberra
"Infrastructure Cost and Mineral Processing"
- Mr D. Dyer, Senior Project Officer, Australian Industry Development Corporation
"A Lender's Approach to Mineral Processing Projects"
- Mr D. Saunders, WA Fuel and Power Commission, Perth
"Fuel Needs for Processing"
- Messrs J. Jones, J. Latham and P. Riddy, Bureau of Transport Economics,
Department of Shipping and Transport
"Evaluating Alternative Transport Systems to serve a Remote Area"
- Dr D. McMichael, Secretary, Department of the Environment and Conservation, Canberra
"Environmental Aspects of Mineral Processing"
- Mr P. Browne-Cooper, Department of Environmental Protection, Western Australia
"Fitzgerald River Reserve: A Decision in Environmental Management"