Coronation Hill Report

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1.0 INTRODUCTION

The Resource Assessment Commission's (RAC) draft report of its Inquiry into the Kakadu Conservation Zone (KCZ) was released for public scrutiny by all interested parties on 8 February, 1991. The RAC plans to accept further comment, both in written form by 22 March, 1991 and at public hearings in the next month, before firming up its final report which is to be delivered to the Prime Minister by 26 April, 1991.

The two volume report acknowledges the three major forms of contribution to the Inquiry, viz,

* Evidence presented by interested parties in written submissions (total of 119) and at the public hearings;
* Commissioned research carried out by a range of public and private sector authorities; and
* Analysis and interpretation by RAC technical staff of published and unpublished information.

A related Inquiry being conducted concurrently by the Chairperson of the RAC for the Minister for Aboriginal Affairs under s. 10(4) of the Aboriginal and Torres Strait Islander Heritage Protection Act 1984, aims to assess the significance of the KCZ to Aboriginals and the nature and extent to which Aboriginal sites in the Zone are under threat of injury or desecration.

The Resource Assessment Commission Kakadu Conservation Zone Inquiry has been established under the provisions of the Resource Assessment Commission Act 1989 and is chaired by The Honourable Mr Justice Donald Stewart assisted by Special Commissioners Dr Greg McColl (a resources economist) and Professor Roger Kitching (Professor of Ecosystem Management, University of New England).

This present background paper provides a concise summary of the thrust of the RAC draft findings followed by an assessment of the Inquiry progress.

2.0 DESCRIPTION OF THE SUBJECT AREA

The Kakadu Conservation Zone is a 47.5 square kilometre area excised from and surrounded by Stage 3 of the Kakadu National Park (KNP) (of area 19 760 square kilometres) which is located in the South Alligator River region at the Top End of the Northern Territory of Australia. The KCZ is an area of Commonwealth land proclaimed as a conservation zone under s. 8A of the National Parks and Wildlife Conservation Act 1975. Under this legislation the KCZ is not a park or a reserve and minerals
FIGURE 1.1 KAKADU CONSERVATION ZONE: GENERAL LOCATION

Source: Resource Assessment Commission.
exploration may proceed under controls that protect wildlife and natural features. The KCZ lies about 250 km south-east of Darwin and its two parts straddle the South Alligator River. The nearest town to the KCZ is Pine Creek (population ca 1000) some 90 km to the west. Refer to location maps in Figures 1.1 & 1.2.

The KCZ in its present form was created at the time of proclamation of an extension to Stage 3 of the Kakadu National Park (22 November, 1988). Valid Mining Leases held by the Coronation Hill Joint-Venture (CHJV) now managed by Newmont Australia Ltd (formerly BHP Gold Mines Ltd) existed over the significant gold, platinum and palladium mineralisation at Coronation Hill (Guratba) and other mineralised localities within a north-west striking mineralised zone extending from Coronation Hill in the south-east of the KCZ to El Sherana 12 km away to the north-west.

No mining has been carried out in the KCZ since ca 1964 when small-scale mining of uranium at Coronation Hill ceased after 75 tonnes of uranium oxide were produced. Exploration for gold and platinoids was undertaken up to mid-1989 by the CHJV, but has been halted pending the outcome of the RAC Inquiry which was announced by the Prime Minister on 5 October, 1989. The delivery of the reference, *inter alia*, "to identify and evaluate the options for the use of the KCZ resources", to the RAC took place on 26 April, 1990.

To achieve its optimisation goal, the RAC will seek to identify the option(s) that will be efficient in resource use, respecting of ecological integrity, sustainable and equitable. Some objectives will clash with others and hence the RAC is seeking to identify trade-offs.

### 3.0 ISSUES CANVASSED IN THE RAC DRAFT REPORT

The RAC Inquiry has covered the following broad areas of investigation in its report;

* Resources of the Zone (archaeological, physical, biological, mineral, water, recreation, tourism),

* Environmental and Cultural Values,

* Impacts of Mining on the Identified Natural Amenities,

* Mine Project significance to the national economy,

* Interests of the Aboriginal people,

* Environmental management requirements, monitoring, procedures and the regulatory requirements.
4.0 OUTCOMES OF THE INVESTIGATIONS

4.1 Resources

Archaeological resources of the KCZ include rock art sites, scattered artefacts and occupation sites. Rock shelters at Pul Pul and Palette Fault and art sites at Saddle Ridge are the sites of note in the KCZ. Aboriginal people say that a network of sites exists in KNP Stage 3, including some in the KCZ, where ancestor creator beings known as Bula entered the ground. Overlapping spheres of influence around the Bula sites constitute what is called the Sickness Country. The Jawoyn hold the view that disturbance of Bula sites may result in natural disaster. Two Aboriginal sites in the KCZ are registered under the Northern Territory Sacred Sites Act 1988.

The topography is dominated by hills and ridges with the celebrated escarpment outside the zone to the south and east. The soils are erosion-prone, stony and of poor quality. The following biological representation has been identified; 17 vegetation types, 270 terrestrial vertebrates, 46 fish species and 7 aquatic reptile species, giving in all a rich mammal count and heightened plant diversity compared to parts of the Kakadu National Park surrounding the KCZ.

Aquatic fauna investigations are notably incomplete.

The mineral resources at Coronation Hill are estimated to contain 3.49 million tonnes (Mt) of indicated ore grading 5.12 grams of gold per tonne (g/t), 0.21 grams of platinum per tonne and 0.56 grams of palladium per tonne. Additional resources amounting to 2.87 Mt registering higher grades in all three elements are inferred. Uranium is present at depth while highly prospective precious metals mineralisation exists elsewhere in the KCZ. Estimates by CHJV and Bureau of Mineral Resources (BMR) of the Coronation Hill open-pittable resources vary, respectively 2.3 Mt and 1.8 Mt both at 3.6 g/t gold, because different methodologies have been used.

The KCZ experiences a monsoonal climate with the wet season between October and April. Average rainfall is 1212 mm per year and evaporation rates are double this level. Ground water is very important in the region because the South Alligator River forms a series of pools in the dry season.

Tourists seeking wilderness experience are attracted to the region.

4.2 Environmental and Cultural Values

The KCZ has faunal and cultural features of world significance and worth preserving. The report confirms that the fauna is exceptionally rich. However it does not establish that the KCZ has significantly different representation of these species compared to surrounding areas although abundance of some species is greater and indirect evidence has been presented that the area may be a refuge for some species in dry seasons. The land is not pristine.
The RAC records that the archaeological resources are significant artistically and culturally.

4.3 Mining Impact

The CHJV has proposed that any mine at Coronation Hill be located within the 13 square kilometre part of the KCZ west of the South Alligator River. The planned open pit would be 400 metres long, 170 metres wide and 150 metres deep. The lowest lip of the open pit would be less than 20 metres above the peak flood level of the river. The processing plant, ore stockpiles and residue management systems would be 2 km from the river. Ore treatment would be by cyanide recovery employing the now common carbon-in-leach process. Water run-off from the plant and ore stockpile areas would be trapped. Specifications proposed by CHJV for water catchment, bores, roads, tailings, waste rock, slope stability, environmental monitoring, personnel accommodation and power generation infrastructure match accepted international engineering standards.

The RAC believes that direct mining impact on archaeological sites would be minimal but some visitor interference to sites could result. Clearing of vegetation with attendant dust and fire risk, and introduction of exotic species and fertilisation would impact but no species of special conservation significance would be adversely affected. Vertebrates would be affected by noise, traffic and lighting but not to significant levels. The greatest potential ecological impact would be through any introduction of material into the South Alligator River.

In summary, the existing evidence suggests that a single mine, properly managed and monitored would have a small direct impact on biological resources of the KCZ and little effect on the archaeological resources. Impact on the water resources is uncertain but seepage of pollutants could occur and longer term release of pollutants and sediment loads is possible. The large mine ponds could appear intrusive on the landscape. The Office of the Supervising Scientist (OSS) suggests that development of mines sequentially is superior in ecological terms to concurrent development.

4.4 National Economic Impact

In present value terms, the net benefit to the Australian economy of the mining project is estimated by ABARE to be $82 million in 1991 dollars using an 8% real discount rate of return. This figure results from factoring in the mineral sales revenues, capital, operating and rehabilitation costs, and an estimated mine life of 12 years at initial annual production of 1300 kilograms of gold peaking at 3675 kilograms. The report concludes that this estimate would assist marginally Australia's external debt position and contribute around 2% to Australian annual gold output. The RAC has not allocated any premium to the "strategic" value of the platinum and palladium output from any mine.

The impact on the Northern Territory economy would be through employment, royalties and infrastructure development, particularly during the mine construction
Some leakage from the Territory economy would flow to other states but Territory dependence on Commonwealth revenue would decrease to a small extent.

"Externalities" such as the value of training, environmental impacts and the knowledge and techniques which could be generated by any mining operation, have not been considered in the Commission's cost-benefit and regional economic analyses.

The above estimate of net benefits however, does not take into account the benefits of not mining Coronation Hill. The RAC attempted to ascertain a value for these benefits by commissioning a highly controversial Contingent Valuation Survey (CVS) by which surveyors elicited from a sample of 2034 Australians (including 502 Territorians) an estimate in dollar terms of how much they would pay to prevent possible environmental damage from mining in the KCZ. By projection of the sample trends to the entire Australian population, an estimate of the national welfare of not mining exceeded the value of mining.

The base outcome of the survey shows that Australians are willing to pay $52.80 per person per year for ten years to avoid the effects of the minor impact scenario. Territorians are prepared to pay considerably less ($14.50).

4.5 Aboriginal People

Jawoyn people are the traditional occupants of the land enclosing Coronation Hill and three senior custodians have been consistently identified by all Jawoyn as the responsible and representative spokesmen. The Jawoyn exhibit a comparable socioeconomic profile to other Aboriginal communities: high unemployment, low income, welfare dependency and low educational achievement by western standards.

The RAC Inquiry has been advised that the Bula Complex, which incorporates Coronation Hill, is a sacred site and information spanning over four decades of the Bula tradition has been presented to the Inquiry. The Sickness Country is associated with the Bula tradition and Coronation Hill is the repository of Bula's blood. The belief is that disturbance of Bula could lead to natural disasters.

The RAC advises it is not possible to make decisive observations about the Jawoyn attitude to mining in the KCZ away from Coronation Hill. A minority of Jawoyn, mostly younger men, strongly favour mining Coronation Hill but they also generally agree that the three senior custodians have the right to speak for all on the mining question. The three custodians unequivocally oppose mining of Coronation Hill. Some Jawoyn hold no position.

The Commissioners conclude that mining in the KCZ could have a substantial negative social impact on the Jawoyn community.
4.6 Regulation

The draft report discusses regulatory matters relating to environmental management, monitoring standards, rehabilitation and authority arrangements.

Environmental management at Ranger is relevant to any KCZ mining. Consultation before mining should involve regulators, operators and Aboriginals. Public comment on the Plan should also occur. Use of an adaptive approach would enable the dynamics and experience of the operation during its life to be incorporated. For greater confidence, monitoring standards should involve biological monitoring of aquatic ecosystems. Rehabilitation could follow Ranger's goals. Regulatory arrangements envisage substantial cooperation between Commonwealth and Territory agencies but there is a possibility that some responsibilities currently resting with one or other government could merge, hence the RAC believes that it is premature for the Commonwealth to give up its responsibilities until the merger questions are resolved. Further consideration will be given to these matters in the final report.

5.0 CONCLUSIONS OF THE COMMISSIONERS

Together with the observation that Coronation Hill and the KCZ have become major symbols of the resource use debate in Australia, the Commissioners' main conclusions are that any mining development at Coronation Hill would be incompatible with the values of Aboriginal people and contrary to the wishes of the Jawoyn. Mining would impact on environmental values adversely but to a limited extent at Coronation Hill and the economic worth of the project, although significant on a project scale, would be marginal on a national scale.

6.0 OPTIONS PRESENTED BY THE COMMISSIONERS

Options identified by the RAC as worthy of further deliberation;

I Mining of Coronation Hill; with remainder of the KCZ to become part of the KNP;

II Mining of Coronation Hill; with the KCZ to remain but no more exploration;

III Mining of Coronation Hill; with exploration to proceed and any new mining proposal to be assessed at the time;

IV No mining; the KCZ becomes part of the KNP; and

V No mining; exploration to continue and any new mining proposal to be assessed at the time.

The choice of option will need to involve consideration of economic potential, Aboriginal interests and the environment. Reconciliation of the different views will need
to involve efficiency of resource use, ecological and ecosystem integrity, sustainability and equity.

7.0 ASSESSMENT OF THE ADEQUACY OF THE REPORT

The RAC draft report has assembled a wealth of original and additional data and has assessed these data objectively and from all relevant viewpoints: heritage, environmental, scientific, technical, economic, recreational and cultural. Some significant new observations, particularly relating to faunal diversity and abundance, have come to light through the expert studies. Interesting geochemical observations showing above normal crustal concentrations of heavy metals in an area roughly coinciding with the Sickness Country have been recorded. However, further work will be required prior to concluding that any correlation exists.

There are good reasons for the RAC to continue the technical studies already launched beyond the date of delivery of the final report. The CSIRO has acknowledged that some of its field studies had to take into account that the ecological knowledge base for the area was extremely low and hence no research could be conducted into the dynamics of patterns.

At this stage the Commissioners have declined to offer a preferred option. The Chairperson has indicated that the present report is "... not exhaustive or expressing a final view about any option ... ". The five options offered by the Commissioners are predictable and the debate as to which to accept has not advanced to the point of progressive elimination. Most interested parties to the outcome of Coronation Hill will still be remaining with their original positions.

Perhaps some expectations have not been realised in the draft report. In view of the fact that this is the first report to be delivered by the RAC combined with the recognition that the KCZ has become a symbol of the resource use debate, there was some expectation that the RAC would adopt a more creative role by proposing a package of guidelines designed to cater, simultaneously, for the nation's environmental aspirations, Aboriginal welfare and culture and the regional economic well-being.

The Inquiry had the opportunity to canvass attitudes and measures to adopt and to provide leadership in the resolution of development/environmental conflicts. Few guidelines of this type have emerged to date although the RAC Research Division, through a consultancy, has completed a mediation study aimed at assessing the range of dispute resolution techniques applicable when there is no self-evident 'right' or 'best' policy to adopt in environmental or resource disputes. This research could be quite valuable.

The results of the Contingent Valuation Survey have been criticised as being fanciful. Melbourne's Tasman Institute comments that the outcome of the valuation by the populace (of between $91 million and $1500 million per annum and a median value of $647 million) gives a hectare of Coronation Hill a rent value 100 times that of prime Melbourne CBD real estate (Moran, 1991). Other critics point out that the people
surveyed did not actually have to get their wallets out. Significantly, reference by the commission to the CVS has been restricted to an Appendix to the draft report.

RAC recommendations should not be based on this particular survey because the technique has been shown to be insufficiently refined for application as a general tool in resource and environmental valuation. Further reference to the CVS outcome by the RAC should be quietly avoided.

Part of the frustration in arriving at a generally satisfactory outcome for Coronation Hill is linked to the situation that there is no glaringly obvious course of action presenting itself even after the considerable investigatory efforts of the Commission.

What has emerged so far is that the respective benefits and costs of adopting any of the five options are all indistinct, transitional or marginal.

While economic and technical projections suggest that any mining of Coronation Hill will be profitable, the mine would not rank in the top ten Australian gold mines in terms of output of gold equivalent. Currently 23 Australian mines are producing at a rate of greater than 3110 kilograms (100,000 ounces) of gold per annum with the huge Boddington mine heading the list at 13,800 kilograms per annum. Projected peak annual production at Coronation Hill is 3675 kilograms five years after commencement.

The KCZ topography is fairly unremarkable and its features are repeated regularly across the South Alligator Rivers Region. The integrity of the "... include the entire South Alligator River catchment in a national park ..." recommendation of the Ranger Uranium Environmental Inquiry would be compromised if mining took place, but, on the other hand, there appears to be little likelihood, albeit based on incomplete studies to date, that any uncontrollable damage caused by mining to the waterways or aquatic fauna would occur. The diversity and richness of some of the fauna in the KCZ appear to correlate with similar patterns on other hill features in the Top End; viz, Mt Wells, Mt Bundy and Mitchell Plateau.

No aboriginals currently live in the KCZ, so mining impact on current living patterns would be nil and it would appear that archaeological damage caused by any mining would be minimal. However, Aboriginal concerns regarding the Bula tradition and the Sickness Country could not be avoided if mining took place.

Although they listened to it, evidence to the RAC of an ideological or subjective nature appears to have been given limited attention by the Commissioners who have favoured empirical evidence as a more meaningful contribution to any rigorous quantitative assessment.

From the mining industry standpoint, the "irreversible" step of Option IV (i.e., proclaiming the KCZ as National Park) would be the worst scenario. The RAC has stressed that, if no mining is allowed to take place, such a decision should be qualified as representing a special case, to restore explorers' confidence that the Australian Government maintains clear policies for dealing with mining proposals in sensitive areas.
The Resource Assessment Commission's final report will hopefully contain far tighter recommendations in order to capture the maximum benefit from the Inquiry exercise and to ensure that the considerable contributions to the debate by the participants will have been worthwhile.

8.0 RECENT KAKADU INQUIRY REFERENCES


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