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MINING RIGHTS AS A COMPONENT OF ABORIGINAL LAND RIGHTS: AN ECONOMIC ASSESSMENT

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ABSTRACT

This paper examines the economic consequences of the mining rights component of Aboriginal and Land Rights legislation. Section 1 sets out the differences between the mining rights on Aboriginal Land in the Northern Territory and those which hold elsewhere in Australia. Section 2 outlines the historical and economic basis of public ownership of mineral resources in Australia. The different regulations on Aboriginal Land derive from the recommendations of the Woodward Report (the Aboriginal Land Rights Commission) and the Fox Report (Ranger Uranium Environmental Inquiry). The main features of the Woodward-Fox Scenario are outlined in Section 3 and they are criticised strongly in the following Section. The fundamental difficulty is that these reports were not clear as to the objectives of government policy. The choice of veto powers to the Land Council and the associated power to negotiate royalties have several adverse effects. They impose substantial costs of regulation on the mining companies. For the aboriginal groups they do not provide the mining companies with an incentive to reduce the damages which mining may cause to Aboriginal groups, and do not ensure that the royalty payments correspond to the value of the damages done to the Aboriginal groups - which was the basis of the provisions in the Aboriginal Land Rights Act relating to mining. The author recommends the substitution of a damage tax liability for the present veto powers and royalty payments, plus other measures to improve the real incomes and welfare of all Aborigines on and off Aboriginal Land alike.

MINING RIGHTS AS A COMPONENT OF ABORIGINAL LAND RIGHTS: AN ECONOMIC ASSESSMENT*

A number of actual or proposed mines in Australia are located near Aboriginal communities. In the Northern Territory these include the bauxite mines at the Gove Peninsula, the uranium mines in the Alligator Rivers region, the manganese ore mine at Groote Eylandt and the proposal to mine base metals in the McArthur River region and, in Queensland, the bauxite mines at Weipa and Arukun. Exploration activities have also concerned Aborigines, notably the attempt to set up an oil rig an Noonkanbah in Western Australia and recent exploration activities in the country of Pitjantjatjara people in South Australia. Aborigines feel threatened by these developments. The two main areas of concern are the protection of sacred sites and the adverse effects from the development of new communities which threaten the Aboriginal society.

The effects on Aborigines of mines in the Northern Territory were examined in detail first by the Reports of the Aboriginal Land Rights Commission (1973, 1974) and subsequently in relation to the Alligator Rivers region by the Second Report of the Ranger Uranium Inquiry (1977). Both of these inquiries found that the development of mines poses severe problems for Aboriginal communities. The Ranger Uranium Inquiry (1977, p.322) found that "The greatest threat to the environment, and particularly to the welfare well-being and culture of the Aboriginal people, may prove to be the large white population which the mining ventures will bring." These problems have also been

* I am grateful to Fred Fisk for his encouragement to write this paper and to J.C. Altman for his comments.

examined by anthropologists (Academy of the Social Sciences in Australia, 1981; Berndt, 1981; Peterson and Langton, 1982; von Sturmer, 1980a,b,c) and others sympathetic to the Aboriginal cause, especially Coombs (1980, 1982). There is little dispute about the costs which some mining developments impose on Aboriginal communities, though mining companies sometimes grumble about the exaggeration of the importance of sacred sites. Vachon and Toyne (1982) noted "For those working for Aboriginal organizations the conclusion that mining is not in the interests of Aborigines comes easily; they seem to be recipients of all the negative aspects of mining". The dispute has concerned the way in which these problems should be handled.

Increasingly the discussion of these two problems has become entangled with a third issue, that of land rights. The most extensive presentation of the views of both Aboriginal and non-Aboriginal groups occurred before the Aboriginal Land Rights Commission (see the two Reports of the Aboriginal Land Rights Commission, 1973 and 1974) but it has continued since then. In particular, the Australian Mining Industry Council, which represents almost all hard rock mining companies in Australia, opposed the granting of mining rights to the Aborigines before the Commission and has continued to oppose them (see AMIC, 1981 and 1982).

This paper concentrates on the relationship between the problems of sacred sites and damage done to Aboriginal communities on the one hand and mining rights on the other. For the purpose of this discussion I accept that some mines and mineral processing activities do cause substantial harm to Aboriginal communities in these respects, though this leaves open the difficult question of assessing the extent

or value of such harm. I accept that the welfare of Aboriginal communities is a concern of the Commonwealth government and requires a larger budget allocation. I shall also assume that the granting of surface land rights to the traditional Aboriginal landowners, where they have been granted, is an appropriate policy. I shall not consider whether these rights should be extended to further land inside or outside the Northern Territory as this issue is not the concern of this paper. On these premises, this paper questions whether the assignment of mining rights to the Aborigines as a component of land rights is the appropriate instrument of government policy to address these problems.

1. Mining Rights on Aboriginal and Non-Aboriginal Land

Mining rights are property rights over the disposition of mineral deposits. (The term mineral is used in the generic sense of all natural endowments of deposits of hard minerals or of liquid fuels and gas which lie below the surface of the land.) The ownership of mining rights bestows on the owner rights to access to the deposits, to extraction, and to explore for such minerals where their presence is suspected but not known with certainty. In Australia and the great majority of countries mining rights are separated from the surface land rights.

All mineral rights are vested in the Crown, except those on land which was granted before the Crown began to reserve mineral rights.[1] In practice private mineral rights are important only in the New South Wales coalfields and the New South Wales government is

now moving to reserve these rights. No specific mention is made of mineral resources in the Australian Constitution. The Australian Constitution, unlike the Canadian for example, specifies only the powers of the federal government and everything else reverts to the State governments. Hence rights to mineral deposits in State territories are held by the State governments. Prior to 1980 rights to all minerals in the Northern Territory and the Australian Capital Territory were held by the Commonwealth government. This is important in the present context as these rights enabled the Commonwealth to introduce legislation relating to Aboriginal land in the Northern Territory. As a result of the granting of self-government to the Northern Territory, executive authority with respect to mining and minerals in the Northern Territory other than those minerals prescribed in the Atomic Energy Act (principally uranium), was transferred from the Commonwealth to the Northern Territory government on July 1, 1980. Rights over offshore mineral deposits were disputed between the Commonwealth govenments and the State governments in the early 1970s but this dispute was finally resolved when the High Court in 1975 upheld the federal legislation which the Labor Party had introduced in 1973. Thus, with the exceptions of uranium in the Northern Territory and offshore resources, the mining rights are now held by the governments of the States and the Northern Territory. While public ownership of mining rights is the dominant practice around the world, Australia is one of the very few countries in which rights are held by a sub-national level of government. (These constitutional issues are examined by Stevenson, 1977.)

Mining rights give the relevant government the control over the issue of exploration licences and of mining leases which permit exploration or extraction respectively within the area designated. The lease transfers to the lessee the right to extract the deposit subject to specified conditions and for a fee. These conditions have included a variety of stipulations relating to the environment, processing of the minerals and other matters as well as the protection of Aboriginal sites.

In the States and offshore territories the fees have been exclusively in the form of royalty payments.[2] No bonus bids or other "upfront monies" having been imposed. With the sole significant exception of the 1981 lease to the coal deposits in the Winchester South area of Queensland, all the royalty rates have been determined either by regulation under the Mining Acts of the State or Commonwealth governments or by special Acts relating to individual lease areas, as in the case of iron ore leases in Western Australia. The Winchester South lease was allocated on the basis of sealed bids. No royalty payments on non-Aboriginal land have been fixed by negotiation.

The situation in the Northern Territory differs from that of the States and offshore territories. The Northern Territory (Self-Government) Act 1978 vests all mineral rights, other than the rights to uranium and other substances prescribed under the Atomic Energy Act 1953, with the government of the Northern Territory. In respect of minerals other than uranium, royalties are paid to the Northern Territory government. When these minerals are won from Aboriginal land the Memorandum of Understanding (1978) between the

Commonwealth and the Northern Territory government provides that an amount equal to royalties, as prescribed in the Aboriginal Land Rights (Northern Territory) Act,[3] would be paid by the Commonwealth into the Aboriginal Trust Account established under the Land Rights Act. In respect of uranium, the Memorandum states that the Commonwealth would make a grant to the Northern Territory of an amount in lieu of uranium royalties at the then existing rate laid down under the Northern Territory Mining Act. This rate was 1.1/4 per cent of the gross value of production less certain costs of treatment and transport. This may be called net revenue for short. (It is not equal to profits or rents or even value added by all primary factors. Indeed, for uranium this net amount is close to gross value.) Thus while retaining its mining rights over uranium in the Northern Territory, the Commonwealth has agreed to transfer these royalty receipts from uranium mining to the Northern Territory. In the Nabarlek Agreement the company also agreed to pay an amount into the Aboriginal Benefits Trust Fund which is 2.5 per cent of the value of uranium production. Thus the company pays a royalty of 3.3/4 per cent. In the case of the Ranger project the company pays a royalty of 4.1/4 per cent to the Aboriginal Benefits Trust Account and a further 1.1/4 per cent to the Northern Territory Government. These arrangements conform to the payments to the Aboriginal Trust Account and the Aboriginal Benefits Trust Account which had been established by the Aboriginal Land Rights (Northern Territory) Act. The Land Rights Act also contains consent provisions of this Act applying to mining on Aboriginal land which were not affected by the Memorandum.

Thus mining operations in the Northern Territory differ from those in the States and offshore in two respects. First, on Aboriginal land the consent of the Aboriginal landowners is required. Second, royalties are paid to Aboriginal landowners and other affected persons. These royalties are an addition to the royalties paid to the Territory government. From the mining company point of view it makes royalty payments directly to the Northern Territory government in the standard way or in the case or uranium indirectly via the Commonwealth government, and it makes additional payments which go to Aborigines via the Commonwealth government. These two features are related because the payments are negotiated between the mining companies and the Aborigines and the Commonwealth government as a part of the agreement which gives the Aboriginal consent to the mining project.

2. Public Ownership of Mineral Resources

To comprehend the significance of the present situation it is necessary to first understand the origin of public ownership of mineral resources and the associated property rights. In Australia there has been almost no discussion of the grounds on which mineral taxes are paid although there has been much discussion of the advantages of shifting from a system of royalties to a system of taxes based on mineral rents (see, for example, Smith, 1979 and Emerson and Lloyd, 1982). Yet these grounds are germane to the treatment of mining rights on Aboriginal land.

The argument for public ownership of mineral resources is very old. Livingstone (1979) points out that royalty payments derive from the regalian system of ownership of mineral resources, the term "royalty" itself being in the first instance a payment to the sovereign for the right to mine. In Australia today the mineral rights are still "vested in the Crown". Originally the regalian system may have been justified in part as a payment for royal protection from marauders but it seems to have arisen more basically as a part of the patrimony of powerful kings. Actually the regalian system cannot be regarded as the historical norm. In the republics of Ancient Greece mineral resources were owned by the state and in the Roman Empire the deposits were owned by the state as distinct from the Emperor, though in the late period of the Roman Empire there was a "freeing" of the mines in which the rights of individuals to quarry and mine were extended. In post-medieval European history there was a period in which individualism and anti-monarchy sentiments were asserted. This reached its culmination from the standpoint of private mineral property rights in the US Constitution which assigned these rights wholly to the individual surface landowner. Apart from these periods some form of community or state ownership has been normal.[4] The central theme which is now common to all systems of public ownership is that mineral deposits are the fortuitous bounty of "nature" rather than the creation of the mining companies.

In Australia this question of public ownership has also been related to the taxation of mineral rents. Mineral rents are the income accruing to the company which operates a mine after payment has been calculated to all inputs into the mining activity at the minimum rate necessary to attract these inputs into this activity. These

input payments include due allowance for risk-taking by the company during both exploration and extraction. Rent-based taxation of mines in lieu of royalties and other taxes has been advocated by Australian economists, notably Henderson (1971, 1972) and Garnaut and Clunies Ross (1975). Rent-based taxes have the twin advantages that they maximise the revenue collected by the government and do not distort production as do royalties and other forms of taxes.[5]

Another feature of this debate about the taxation of mines is that the Commonwealth government has become increasingly interested in taxing this rent income, despite the fact that ownership of the mineral rights in State territories is held by State governments. The Commonwealth government has always collected some of this rent through the taxation of the incomes of mining companies. As an example of this sentiment, the Prime Minister said in his 1980 Australia Day speech: "I express tonight the firmest determination to see that the prosperity flowing from these great ventures will lift the living standard of every Australian family not just those immediately involved."

The proponents of rent taxation have argued, in effect, that the benefits from mineral extraction should accrue to the Commonwealth government on behalf of all residents of the nation. Though the argument has not been made explicity it appears to be based on the observation that the location of some mineral in a particular State is fortuitous, just as is the location within that State in some particular tract of land. More recently, it has been recognized that the division of powers to control mining between the State and Commonwealth government has the consequence that the State in which a

mine is located must receive some of the revenue directly if any agreement on taxation is to be reached betwen the State and Commonwealth governments. (See Garnaut, 1981 and Emerson and Lloyd, 1982).

3. The Woodward-Fox Scenario for the Northern Territory

The present basis of Aboriginal rights in relation to mineral desposits in the Northern Territory was laid down by the Reports of the Aboriginal Land Rights Commission (1973, 1974). This Commission was appointed by the Labor government and conducted by Justice Woodward. During the 1971 federal election campaign the Australian Labor Party advocated land rights for the traditional Aboriginal landowners on reserves, including "full rights to minerals", and upon election the ALP moved to appoint the Commission. Following the Commission's Second Report, the Labor government introduced a Bill to enact its recommendations. However, this Bill lapsed when Parliament was dissolved in 1975. After the election the newly-elected Coalition government introduced the Aboriginal Land Rights (Northern Territory) Bill 1976. This Bill followed closely the Labor government Bill but there were some differences, as the Coalition government recognized. The Bill and subsequent Act "provided for an inquiry to be made where Aboriginal consent to mining is withheld and where it may be appropriate in the national interest to over-ride Aboriginal wishes; we have also provided for an arbitrator to be appointed where Aborigines and mining companies are unable to reach agreement on terms for mining developments." (Parliamentary Debates, 1976, p.4) Under the Act the "national interest" provision is decided by the

Governor-General, which means effectively by the Cabinet, whereas the Labor Bill would have required the consent of both Houses of Parliament to over-ride the Aboriginal veto.

The Aboriginal Land Rights Commission (1973, paras. 242-59, 1974, paras. 537-708) considered at length mineral rights in relation to other land rights. Justice Woodward observed that "Of all the questions I have had to consider, that of mineral rights has probably caused me the most difficulty and concern" (Aboriginal Land Rights Commission, 1974, p.103). He began by asking what traditional Aboriginal law implied concerning these rights:

> "In the first place, it is clear that Aboriginal ownership was not expressed in terms merely of the land surface. In many of the legends which gave expression to man's spiritual connexion with his land, his mythical forbears emerged from the ground and returned to it at different points in their sagas. Their spirit essences still pervade those places and are retained in the soil and rocks.
>
> In practial terms the only minerals used by Aborigines were flints, ochres and, of course, water. Places specially favourable for flints and ochres had great significance, particularly the ochre deposits because of the religious purposes to which they were often put. The ownership of such places was a matter of importance.

> On the other hand, it must of course be conceded that Aborigines had no traditional use for petroleum, manganese or bauxite."

Anthropologists agree that Aborigines did not view minerals separately from surface land (for example, Vachon and Toyne, 1982; Berndt, 1981).

In their submissions to the Commission the two Aboriginal Land Councils pressed for the granting to the Aboriginals of the full ownership of minerals on their traditional lands. Justice Woodward specifically rejected this claim. His views are worth quoting in full:

> "I have stopped short of recommending Aboriginal ownership of minerals for several reasons. The chief of these is my belief in the general approach adopted in this country that minerals belong to all the people. I think Aborigines should have special rights and special compensations because they stand to lose so much more by the industrial invasion of their traditional lands and their privacy than other citizens would lose in similar circumstances. But this does not justify a claim to ownership.
>
> Secondly I think that the legitimate objectives of Aborigines in this connexion would be met if the recommendations I have made were accepted. To go further would be unnecessarily divisive and could lead to reactions

among other members of the community which, in the long-term, would not be in the best interests of Aborigines.

Thirdly, the whole of Australian mining is based on the assumption that minerals belong to the Crown. To provide otherwise in a particular case could well create problems and sorting these problems out could delay necessary legislation."

Justice Woodward recommended that the Crown retain ownership of the minerals. In making this judgement he determined that European law should prevail over Aboriginal law, and that the Crown should retain ownership of the minerals though it would have been possible at that time to have transferred ownership and full mining rights to Aborigines. While his reasons were manifold, primary reliance was put on the fact that in Australia "minerals belong to all the people".

Justice Woodward did, however, recommend that the Aboriginal landowners have a right of veto over applications to explore and mine. "I believe that to deny Aborigines the right to prevent mining of their land is to deny the reality of their land rights" (Aboriginal Land Rights Commission, 1974, p.108). This right could be over-ridden if in the opinion of the government of the day the "national interest" requires it. He recommended that any such decision by the Government should be subject to disallowance by either House of Parliament.

Further, in order to obtain consent the mining companies must negotiate with the Land Council acting on behalf of the traditional owners. These negotiations would include payments to the Aborigines

for exploration rights, royalty payments and perhaps an equity interest in the venture. Concerning the distribution of these monies, he recommended that the royalty payments as well as the payments for permits and leases be paid over by the Government to the regional Land Council for distribution among the traditional landowners.

All these arrangements would apply only to land which is subject to Aboriginal Title, that is, reserves and other land granted to the traditional Aboriginal land-owners under other recommendations of the Commission.

These recommendations were, with the modifications to the consent provisions noted above, incorporated in the Aboriginal Land Rights (Northern Territory) Act. Section 63 (4) of the Land Rights Act provides that where mining operations are carried on under the Atomic Energy Act, amounts equivalent to the royalties which would have been received under a lease are to be paid into the Aboriginal Benefits Trust Account, and Section 64 deals with the disposition of these moneys. Of the royalty payments 40 per cent is to be distributed among the Land Councils and 30 per cent is to be paid via the Land Council in whose area the mine is located to affected Aborignal groups. These provisions extend the Act to uranium mining.

Later the Ranger Uranium Inquiry, chaired by Justice Fox, considered the Land Rights Act in relation to the Ranger proposal to mine uranium in the Northern Territory. It considered this Act to be a "turning point" in the history of the treatment of the Aboriginal peoples. The Inquiry recommended further measures to protect Aboriginal communities in the neighbourhood of the proposed Ranger mine and other mines. These included the establishment of a National

Park and the granting of further land claims and the limitation of the population of the mining town of Jabiru.

Coombs (1980, 1982) refers to the principles laid down by the Land Rights Commission and the Ranger Uranium Inquiry, appropriately, as the Woodward-Fox scenario.

Payments have been made to Aborigines within the terms of the Land Rights Act under two Agreements, the Ranger Agreement and the Nabarlek Agreement. Under the Ranger Agreement (1980) the Ranger Uranium Mining company is to pay a royalty of 4.1/4 per cent of the net revenue of which 2.1/2 per cent is the ten existing royalty on uranium in the Northern Territory and 1.3/4 per cent is an additional royalty as part of the payments negotiated in the Agreement to obtain Aboriginal consent. These are paid to the Commonwealth who in turn pay it into the Aboriginal Benefits Trust Account. In addition, the company is to pay 1.1/4 per cent to the Northern Territory Government through the Commonwealth government and to the Northern Land Council through the Commonwealth Government an annual rental of $200,000 and total up-front monies of $1.3 million. The rent is paid because the mine is on Aboriginal land (This amount seems very generous. A rent should equal the value of the alternative use of the land in each year.) Under the Nabarlek Agreement the company pays a royalty of 3.3/4 per cent of the value of production (Green Paper, 1981, p.146) of which 2.1/2 per cent is paid to the Aboriginal Benefits Trust Fund and 1.1/4 per cent to the Northern Territory in lieu of royalties (Green Paper, 1981, p.146). It also pays up-front monies and an annual rental.

4. Criticisms of the Woodward Report

Following from the Woodward Report, and its endorsement by the Ranger Uranium Inquiry and its acceptance by the governments of the Commonwealth and Northern Territory, Aboriginal groups have received payments from mines on Aboriginal land. Unfortunately, the reasons for these payments to Aborigines is unclear. The Aboriginal Land Rights Commission stated plainly that the ownership of mineral resources in the Northern Territory should remain with the Commonwealth government and it appears to have accepted the view that the Crown holds mining rights on behalf of all of the people of Australia (Aboriginal Land Rights Commission, 1974, para 616). Perhaps the clearest statement the Commission made in relation to the reason for these payments was:

> "I think it is important that any such payments should go to the relevant community or communities which would be affected by the exploration activities, and not to individual landowners. Provided the monies are to be spent on community purposes they will appear in their true light as a compensation for disturbance and not as an inducement" (Aboriginal Lands Rights Commission, 1974, p.111)

And elsewhere (Aboriginal Land Commission, 1974, para 585) Justice Woodward spells out that consent should be required of any Aboriginal community affected by a mine in addition to the traditional owners of the land. Similarly, the Ranger Uranium Inquiry interpreted the royalty provisions of the Land Rights Act as a "compensation for disturbance of the land" (Ranger Uranium Inquiry, 1977, p.241). Other commentators have also interpreted the royalties as compensation

payments (for example Coombs, 1981; AMIC, 1981: Kesteven, 1981). Thus it seems that, apart from the annual lease payments for the use of the surface land, the ultimate justification for royalties and up-front monies is compensation for damage done to the traditional land owners or other Aboriginal communities affected by the mine.

Despite this commitment to compensation payments the Report of the Commission refers to "special rights" for Aborigines and in particular to "exploration rights". However, such rights are held by the owners of the land, namely in this instance, the Commonwealth government. All royalties under the Land Rights Act are paid to the Commonwealth government.

The difficulties of interpreting the Commission's recommendations are compounded when we consider the rate of royalty payment.

> "As to what the appropriate royalty rate should be, I can only say that this would have to be either laid down by legislation as at present, or negotiated by government in a particular case (as with Banalco), since the royalty is payable in the first instance to government and I do not suggest any change in that arrangement." (Aboriginal Land Rights Commission, 1974, p.112)

The Commission then recommended that these rates be determined by negotiation as a part of the agreement to obtain Aboriginal consent. The Commission (1974, p.111) recognized that the rates and other conditions "would no doubt depend to a large extent on the keenness of the explorer to obtain a permit".

The extent of the confusion is evident from the Commission's discussion of the royalties paid by BHP at Groote Eylandt. The royalty rate was 3.3/4 per cent of the net revenue. The Commission clearly saw these royalties as a precedent.[6] It recommended that the government give careful consideration to the Northern Land Council submission that the basic royalty rate for mining on Aboriginal land should be raised from 2.1/2 per cent to 3.3/4 per cent as at Groote Eylandt. Indeed this was the rate subsequently set in the Nabarlek Agreement. However, these Groote Eylandt royalties were paid to the Aborigines because the mission had earlier taken out the exploration permit on behalf of the Aborigines and agreed to transfer this permit to BHP for a consideration in the form of the royalty! Farm-outs and other agreements between a mining company or companies which hold an exploration or mining licence and a company or companies which seek to explore or develop a mine are common. Such agreements transfer the rights to explore and/or develop from one private party to another while the ownership and associated royalties remain with the government concerned. By contrast, with the royalty arrangements on Aboriginal land recommended by the Commission, the royalties paid by the mining company to the government are divided between the Northern Territory government and the Aboriginal groups. It is astounding that the Commission could see "no difference in principle" between these two types of arrrangements. And the Groote Eylandt royalties were paid for manganese ore rather than uranium production. Within most states in Australia the royalty rates have been differentiated among minerals, and in several cases among mines producing the same mineral, in recognition of the variation of the profit margins in one year.

The link between the royalty rate and the payments to Aborigines on the one hand and the consent provisions on the other has a number of adverse consequences. Fundamentally, these all follow from the fact that a royalty payment is not related to the level of damages done to the Aborigines through disturbance to sacred sites or the local communities. These damages, which were the supposed justification for the payments, will depend on factors such as the frequency of access, the level of mine development and the spread of this development over time. Indeed, the Ranger Uranium Inquiry recognized this in its recommendations concerning the size of the Ranger mine township and the sequencing on mines.

Royalty payments, on the other hand, are a function of quite different factors. The actual payments are the product of the rate and base. The rate is determined in the Agreement well before the output comes on stream. The rate negotiated depends chiefly on the expected profitability of the mine,[7] and also upon the bargaining skills of the Land Council negotiating for the Aborigines vis-a-vis those of the company. The latter will determine the proportion of the mineral rent which accrues to the Aborigines rather than the mining company. The base of the royalty payments is the actual value of production less the allowable deductions for the costs of processing and transport. Now the allowable costs of processing and transport vary with the quantity produced and the gross value of production is the product of the quantity and the (average) price. Finally, the quantity produced is a function of the price.[8] Hence, the base of the royalty is a function of the price received by the mine producers. In the case of the output from the Northern Territory all output is exported. Therefore, the royalty payment in each period, given that

the royalty rate was fixed by the negotiations, varies with the price of the mine output on world markets. In brief royalty payments are determined in a two-stage process which involve expected and realized world prices.

The divergence between the factors which determine the level of damage done to Aboriginal groups by mining on the one hand and the factors which ultimately determine the royalty payments on the other means that there are several adverse consequences attached to the choice of a royalty as the instrument to compensate for the costs of mining.

First, royalty payments do not ensure that the payments correspond to the value of the damages, as well as the latter can be assessed. However, the payments are more likely to overcompensate the Aboriginal groups than to undercompensate them. In the bargaining process the Land Council, as the representative of the Aborigines, can withhold consent and will not accept an offer from the mining company concerned unless it at least compensates for the damages. Yet, this outcome is conditional on the Land Council reflecting accurately the views of its constituents and hence it might undercompensate them if the Council does not accurately represent its constituents. A more serious possibility of undercompensation arises if the "national interest" provisions are invoked by the Commonwealth because the Aborigines wish to deny consent. Furthermore, under both the Ranger and Nabarlek agreements the Aboriginal recipients have included traditional landowners as well as "affected communities" and "affected peoples". (See Kesteven, 1982).

Second, the royalty scheme provides no incentive to the company to reduce damages after it has obtained consent and satisfied any further conditions which might be stipulated in the lease or licence. By contrast the alternative instrument of gearing payments to actual damages does provide such an incentive. If payments equal to the value of the damage actually done were paid in all circumstances the Aboriginal groups would be compensated and the company would make all of its production decisions with this liability in mind. For example, if an attenuation of the development of one mine over time substantially reduced the damage done to the Aboriginal community - perhaps because it allowed a smaller white township or more time for the Aborigines to become accustomed to the changes - the company would have an incentive to attenuate. Campbell and Scott(1980, 1982) have recommended that attenuation be required in the case of environmental damage from uranium mining. The issue is essentially the same. However a damage tax is preferable to enforced attenuation or any other direct regulation since it allows the company to choose the time path of production, without imposing any cost on the Aborigines.[9] If instead of attenuation the costs to Aborigines could be reduced by, say, a different siting of the processing plant or township further away from the Aboriginal community a damage tax would again provide the company with an incentive to do so. Moreover, these incentives are optimal since the company will make adjustments at several margins of production so as to maximise its own income without imposing a cost on those who are potentially harmed. Such a scheme has a further advantage when it is difficult to assess the value of such damages since it will reduce the level of the damages.

Third, the royalty arrangement will in some situations, depending on the prices realized for the mine output, leave supernormal profits in the hands of the mining company shareholders. It is a common theme in recent Australian literature dealing with the taxation of mines that the government (which for this purpose may be taken as the Northern Territory and the Commonwealth governments since they may share the tax revenues in some proportion) should obtain the maximum taxation revenues from any mining company. Garnaut and Clunies Ross (1975) and Emerson and Lloyd (1982) present models of taxation which adopt an explicit maximization approach. The reason for this objective of government policy is precisely because of government ownership of these resources. By comparison the royalty arrangements applying to Aboriginal land in the Northern Territory will undercollect total taxation revenues for two reasons. A royalty provides a disincentive to produce and induces marginal mines to close and supramarginal mines to produce less, as is well-known. Further, the royalty on mining in Aboriginal land is determined by a bilateral bargaining process rather than an open competition for the right to explore and/or mine. The bilateral bargain inevitably leaves in some cases a portion of rent in the hands of the company - how much depending on the skills of the bargainers. A competitive bidding or auction system for allocating new leases will capture the maximum possible rent (see Emerson and Lloyd, 1982, p.982 for a discussion of these issues.)

Fourth, the Land Council which represent traditional owners are funded, under the Land Rights Act, by mining royalties and by Department of Aboriginal Affairs loans which are repayable from future royalty receipts. Hence, the activities of the Land Councils in

pursuing further land claims are dependent on the mining companies with whom they are in conflict. This aspect of the arrangements has been appreciated by Aborigines and their supporters (for example, Vachon and Toyne, 1982; Coombs, 1980). Furthermore, there is a risk that a downturn in world demand for uranium as a fuel or a government ban on the export of production could cause mines to be closed, thus eliminating this source of revenue. This arrangement also gives Aborigines a vested interest in the development of uranium mining.

5. Choosing the Right Policy Instruments

Given these drawbacks of the present arrangements it should be possible to improve upon them. To do so it is most helpful to reconsider the objectives of government policy and to choose the instruments of government policy which best achieve these objectives. In fact this problem of choosing policy instruments is an example of what economists call the assignment problem; that is, the problem of choosing instruments of government policy-making and assigning each instrument to an objective so that the socially optimal set of policies is adopted.

There are three objectives of policy mixed up in the discussion of the taxation of companies which mine on Aboriginal land. They are:

1. the avoidance of harm being inflicted by mines on Aboriginal groups

2. the maximization of government revenues from mines

3. the improvement of the real incomes and welfare of Aborigines.

The first is quite explicit, as discussed above. The second is quite explicit in the public discussion of the taxation of all mining companies, whether on Aboriginal or non-Aboriginal land and has entered into the discussion of mining rights for Aborigines (for example, Stanley, 1982). The third underlies much of the discussion of mineral payments to Aborigines but is rarely explicit. In any case it is an important objective of policy at both the State and Commonwealth level, applying to Aborigines on and off Aboriginal Land alike.

From the discussion of the previous section we can choose the optimal assignment. The problem of damage done to Aborigines is best handled by imposing damage taxes on mining companies such that the rate of tax is equal to the estimated value of the damage and paying the proceeds of this tax to the groups harmed. Such taxes would require careful monitoring of mining activities. They would substitute for the consent provisions. If the estimated damage before a mine is developed is sufficiently high the anticipated tax becomes prohibitive and would cause the mine project to lapse. This achieves the same result as denial of consent. There is no problem in

principle of determining the allocation among Aborigines of the payments by the mining company - they should go to those groups which are harmed.

The problem of maximizing government revenue should be handled by the introduction of optimal mining tax schedules. These should be rent-based. Such a tax schedule will require the agreement of the Commonwealth and the self-governing Northern Territory governments which will include arrangements for the collection and the sharing of the tax revenues.[10] This problem can be solved independently of the first.

The third problem of improving the welfare of Aborigines in Australia is linked to the first to some degree under the existing arrangements. It could also be linked to the second tax problem; for example, the Commonwealth and/or Northern Territory government could tie some of the revenues from the taxation of mining companies to spending on Aboriginal programmes. Likewise they could do the same for Aborigines in the States. Certainly, the welfare of many Aboriginal groups in Australia must be considered one of the most urgent priorities of the governments. There are, nevertheless, distinct advantages in not linking these programmes to the taxation of mining companies. In the first place, there will be strong pressure under the linked arrangements to spend most of the monies on Aborigines in the mining areas, as at present, whereas equity demands that all Aborigines in identical circumstances be treated equally.[11] In the second place, linking the payments to deserving Aborigines makes them dependent upon the fortunes of the mining companies. The profits of mining companies are closely related to

world prices for minerals. Thus they are highly uncertain. Responsibility for the welfare of the Aboriginal peoples is the responsibility of the nation. It should, in my opinion, be funded mainly from the general Consolidated Revenue of the Commonwealth government. And it should receive a level of funding commensurate with the urgency of the problem. Of course, this policy requires the commitment of the governments (as well as the author!) to the objective.[12]

If the present arrangements persist, a number of groups in Australian society will be worse off. Some Aborigines will be worse off. These will be chiefly those who are not presently receiving payments from the mining companies, that is, the great majority of the Aboriginal population. The governments of the Northern Territory and of the Commonwealth will be worse off because of the sub- optimal taxation of mines. The mining companies will be worse off, primarily because of the continuation of royalties as a form of taxation and secondarily because of the maintenance of a high level of regulation as to what they can produce.

A problem as complex as the relationship of mining to Aboriginal groups requires a careful assignment of the instruments of government policy.

FOOTNOTES

1 For an account of the evolution of this policy in the States and the Commonwealth territories before and after Federation, see Lang and Crommelin (1979).

2 Royalty payments vary from State to State and within each State they vary among minerals. The base on which these taxes are calculated is sometimes the volume or value of production and sometimes profit or even a mixture of these. The Bureau of Mineral Resources (1981, Appendix) sets out these bases and the rates of tax for each mineral in all States and the Northern Territory.

3 Hereafter this will be referred to as the Land Rights Act.

4 Hoover and Hoover (1950, pp.82-86) provide a most interesting account of property rights in different societies before the 16th century. It begins with the observations: "There is no branch of the law of property, of which the development is more interesting and illuminating from a social point of view than that relating to minerals. Unlike the land, the minerals have ever been regarded as a sort of fortuitous property, for the title of which there have been four principal claimants - that is, the Overlord, as represented by the King, Prince, Bishop or what not; the Community or State, as distinguished from the Ruler; the Landowner; and the Miner Operator to which class belongs Discoverer. The one of these that possessed the dominant right reflects vividly the social state and sentiment of the period. The Divine Right of Kings; the measure of freedom of their subjects; the tyranny of the land-owning classes; the rights of the Community as opposed to its individual members; the rise of individualism; and finally, the modern return to more communal view, have all been reflected promptly in the mineral title."

One of the co-authors, Herbert Clark Hoover, later became President of the United States.

5 For a discussion of mineral rent and a critical review of royalties and the ways in which the latter distort the production of mines see Emerson and Lloyd (1982). Strictly speaking the maximization of revenue means the maximisation of the mathematical expectation of utility from these revenues since the rent is a random variable whose value is only revealed fully at the end of the life of the mine.

6 More generally the precedent goes back to the Northern Territory Ordinance. In 1964 the law was amended to encourage mining activities on Aboriginal reserves. In granting an application for an exploration licence on Aboriginal reserve land the Administrator must have regard to 'the continued interest, well-being and employment of Aborigines in the vicinity' and pay a royalty of 2.1/2 per cent of net value of production (Aboriginal Land Commission, 1974, p.105).

7 To be precise it depends on the prior probability distribution of the net present value of the mine (see Emerson and Lloyd, 1982). This distribution specifies the risk as well as the expected or mean value of net present value of the mine.

8 Strictly speaking current output may depend on future prices but if expectations of future prices are formed on the basis of the current price this reduces to the current price.

9 There is a close parallel between the problems of choosing the best policy to handle the adverse side effects of mines on the environment and the problem of handling the adverse side effects on Aboriginal groups. For a good discussion of the alternatives of regulation and damage taxes in the first context, see Smith (1982).

10 There is a large literature on this subject to which I have already alluded. For a recent survey of the issues and further references see Emerson and Lloyd (1982).

The Northern Territory government has passed legislation in 1982 to change the base of royalties in the Territory from value at production to profit, following the recommendation of the Green Paper (1981). This is a partial movement towards a rent base as profit comprises the return to capital as well as residual rent. Of more relevance to the issues discussed here, it is not clear how the profit-based taxation will be related to the net revenue-based provisions of the Aboriginal Land Rights Act.

11 When income supplements are paid to Aborigines on land which is mined as a disguised component of royalty payments and no comparable payments are paid to Aborigines on other land or in towns and cities, this is tantamount to running a welfare programme as a lottery where the draw is made by mining companies.

Kesteven (1982) tells how the differences between the payments under the Ranger Agreement and the Nabarlek Agreement and the effects of these payments on other Northern Territory Aborigines outside these areas are creating jealousies and divisions among the Aboriginal communities.

12 It should be evident that my proposals differ markedly from those of AMIC (1981, 1982). AMIC opposes any consent provisions whereas I favour the replacement of consent provisions by appropriate damage taxes. AMIC is strongly opposed to rent-based taxes on mining companies. AMIC believes the land claim procedures of the Land Rights Act are too generous whereas I regard this as a separate issue.

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