

Bauxite Mining in Western Australia

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This article seeks to explore some of the interrelationships between economic interests and environmental consequences. The extreme case in question is Alcoa's bauxite mining operations in Western Australia, which are destroying the only Jarrah forest in the world and are threatening Perth's total supply of fresh drinking water.

Alcoa of Australia Ltd., a subsidiary of the Aluminium Company of America, has very close links with Western Australia's Liberal government, headed by Sir Charles Court. The company has extracted its present 21 year mining lease, with the right for three more 21 year leases, under conditions that make other multi-nationals boggle with envy. The lease runs for more than 250 kilometres down the Darling Range, and within this lease are the catchment areas for all of Perth's dams, as well as the Mundaring Weir, which supplies water to Kalgoorlie, more than 500 kilometres to the east.

Camping, shooting, fishing, swimming or picnicking are not allowed in these catchment areas, but Alcoa is mining the bauxite to within 200 metres of the water's edge at one of the dams, the South Dandalup Dam, which provides Perth with its purest drinking water.

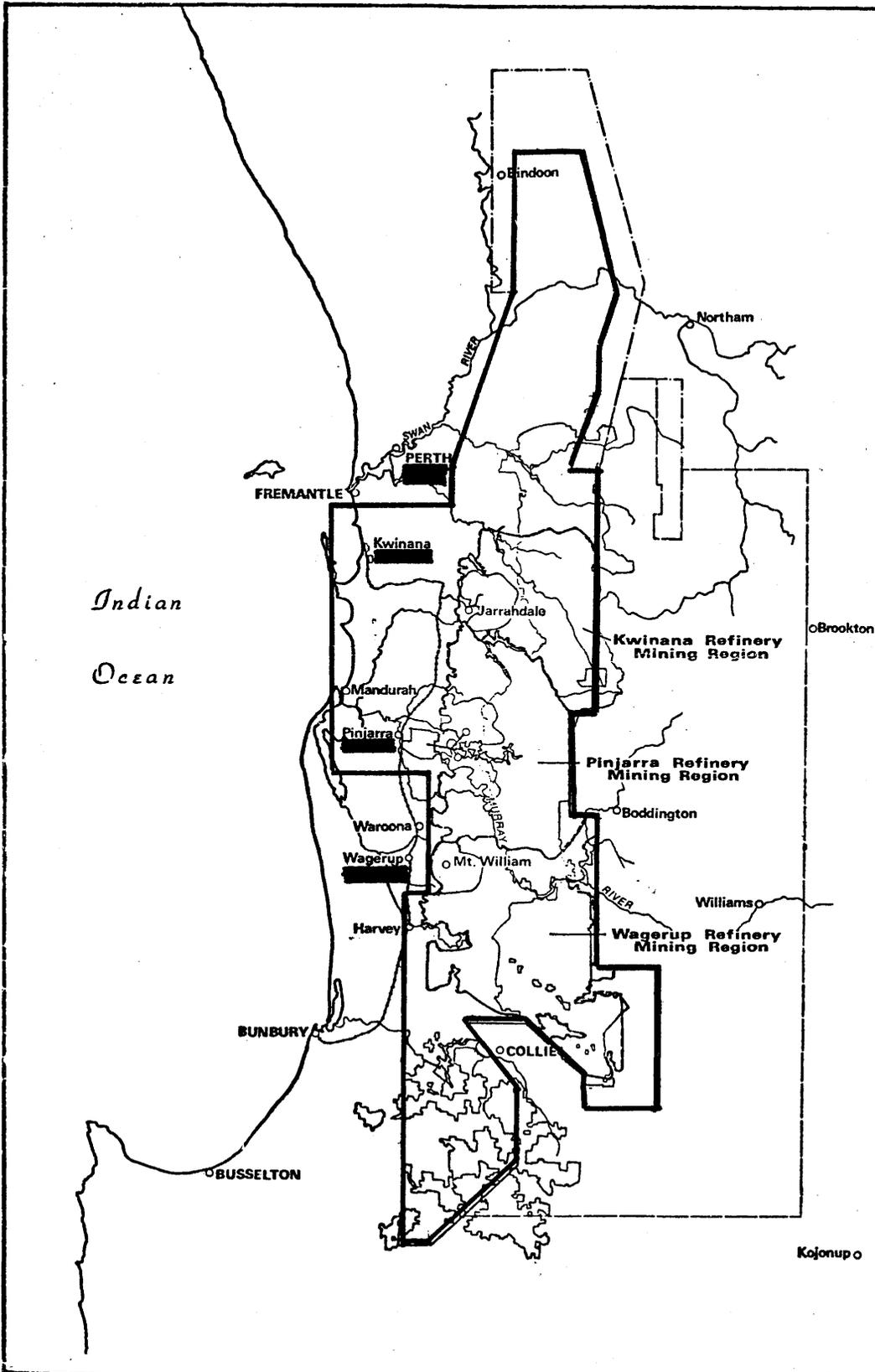
In addition, Alcoa's mining operations are destroying the irreplaceable Jarrah forest for ever. It is doing this in two ways. Firstly, mining operations take away the actual soil in which the Jarrah trees grow, leaving a hard impenetrable claypan. Secondly, the mining operations are also spreading the fungus disease known as dieback. The natural rate of spread of this fungus is about a metre per year, but with Alcoa's vehicles moving constantly throughout the forest, the rate of dieback spread has increased in almost geometric progression (even in those parts under quarantine).

Alcoa's mining operations and its dealing with the Court government have been scandalous from the beginning. It all started in 1961 when Charles Court, who was then the Minister for Industrial Development, gave an undertaking in parliament that the area of Jarrah forest to be cleared for bauxite mining would not exceed 14 hectares a year. Bauxite mining company executives chuckle when this figure is brought up, and well they might.

By 1969, about 80 hectares were being mined annually, and by the end of 1978, more than 4000 hectares had been affected by mining operations. By the year 2007, Alcoa plans to have cleared 60,000 hectares, and to continue clearing at about 3,000 hectares a year. The Department of Conservation and Environment estimates that Alcoa's operations will eventually extend through 400,000 hectares of the northern Jarrah forest. To make matters worse, the state government introduced legislation last year to allow for an expansion of Alcoa's operations and to let another mining group, Alwest, begin operations.

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ALCOA'S MINING LEASES



The early agreements to allow Alcoa to commence mining operations were so badly framed that even Court's Minister for Industrial Development, Andrew Mensaros, stated in parliament in May 1978 "that Alcoa's legal status amounted to open slather". There was nothing to stop Alcoa mining where it liked, and yet this agreement had existed for 17 years.

However, the legislation introduced last year is much worse than these earlier agreements. Charles Court pushed the Wagerup and Alwest's Worsley refinery agreements through parliament at almost obscene speed. The agreements were introduced before any environmental reports and studies had been carried out, and they led the Environmental Protection Authority's Technical Advisory Group to state that "from the legislation, some issues have emerged which we (the group) view with great concern: in particular, the legal framework of bauxite mining, and the current Environmental Review and Management Program procedure which appear to be inadequate to protect the state's interest".

Of the studies carried out, the two most influential, the System 6 report and the Stanford Research Institute report, have not been released by the State government. The latter report was prepared by an American research organisation, which cost the West Australian taxpayer over \$70,000, and it is doubtful if it will ever be made public.

Charles Court even tried to withhold Alcoa and Alwest's ERMPs, but a threatened revolt by his National-Country Party coalition partners forced him to make these public. However, before he had done this he had announced the starting date for the Alcoa refinery at Wagerup, and three days later he announced the starting date for Alwest's Worsley refinery. Announcing these dates before the release of the ERMPs was a wise political move by Court because the Technical Advisory Group had advised that Alcoa's ERMP be rejected.

Everyone but the government and the companies seems to be against bauxite mining expansion, but it still goes on:

- The CSIRO has questioned the wisdom of the expansion plans.
- The secretary of the WA Timber Workers Union said the present bauxite proposals are a rip-off.
- The Institute of Foresters has said that the risks of expanded bauxite mining in the Darling Range were too great and the consequences too serious.
- The state council of the National Country Party wants no further expansion of bauxite mining in WA until doubts have been cleared up about effective forest restoration.
- The secretary of the Water Supply Union said that "this is a ludicrous situation where a Perth family cannot have a picnic in a Jarrah forest within these catchment areas because of the recognised dangers of disturbing this fragile environment. Yet a mining company can walk in and completely devastate these previous forests in the name of profit".

In a world where energy is becoming an important issue, high energy users like bauxite refineries (WA has no smelters yet) need to be closely examined. Alcoa's Kwinana refinery, on the coast just south of Perth, uses 650,000 tonnes of imported fuel oil per year. Alcoa's Pinjarra refinery (about 100 k south of Perth) uses 60% of the production of the state's only natural gas field at Dongara. This is four times as much energy used by all the households in the state, twice

as much as all secondary industry and three times as much as the entire iron ore industry in WA. Alcoa pays considerably less for its gas supplies than do domestic consumers.

When the north west shelf gas field comes into production, Dongara is expected to have been exhausted and Alcoa's Pinjarra refinery and the Wagerup refinery (which is under construction) will consume about 70% of the domestic share of the north west shelf gas.

When the known reserves of the north west shelf are exhausted, Alcoa will still be mining bauxite in the Darling Range, and the demand for power will be such that the state government will have no option but to introduce nuclear power generation. Charles Court wants this anyway, but the bauxite power demand provides him with a very good reason for WA going nuclear.

Most big industry can be accused of pollution, but it is doubtful if Alcoa could be surpassed in the diversity of its polluting activities. Its Kwinana refinery alone is discharging wastes into the already polluted Cockburn Sound and the south westerly winds that blow steadily throughout the year spread the discharge from Alcoa's chimney stacks over most of Perth's southern suburbs. Surrounding residents complain that the discharge, heavy enough during the day, increases dramatically during the night hours.

But it is the Kwinana refinery's lakes of liquid caustic mud that cause the greatest concern. The area's native bird population is being decimated for mistaking the caustic mud for water, and landing on it - never to leave. The caustic mud, a waste product of the refining process, is also leaking into the ground water in the area, and a series of bores have been drilled so that the contaminated ground water can be pumped back into the mud lake. It is not known how much contaminated water is actually picked up by these bores, nor how long this bizarre cycle of waste is going to continue. During drought conditions, the ground water from this area is used to supplement the supply of Perth's drinking water. How much of Alcoa's caustic mud makes it through the taps of Perth's residents again is not known.

Because of its relative isolation, few pollution complaints have been levelled at Alcoa's Pinjarra refinery, but a CSIRO report estimates that after decommissioning, the Wagerup caustic mud lakes alone could be between 25 and 30 square kilometres.

All these pollution problems associated with Alcoa's activities need to be seen against the general environmental problems of the region. Since the arrival of the white person in Western Australia, trees have been felled, and the result of this is only just being recognised, in the form of salt pans appearing in farming areas. Moisture laden winds blowing in from the Indian Ocean over the centuries have deposited, along with their rainfall, thousands of tonnes of salt that lies in the soil. While there are trees to suck up moisture from the water table which in most cases lies beneath these salt deposits, there are no problems. The worries start when the trees are cleared. With nothing to remove excess water from the water table, it rises into the salty levels, and it is this salty water that runs off into the creeks and rivers forming the catchment areas for Perth's dams.

Even without bauxite mining, most of the rivers running out of the wheat belt, to the east of the Darling Range, are too salty to be used by either people or animals. Early this century, 3% of the trees in the catchment area of the Mundaring Weir were ringbarked, which caused the salt level in the weir to rise so alarmingly

that quick reforestation was needed. In the next 25 years, at least 60 square miles of forest is going to be destroyed by bauxite mining. The consequences of this mining, even if only seen from a salinity point of view, could be disastrous for the people of Western Australia.

Like the bauxite expansion plans, salinity dangers have drawn much comment.

- The WA Forestry Department regards water as the state's most vital mineral. "No forests," it says, "no fresh water."
- The Director of the Australian Conservation Foundation, Dr Mosley, has said that the state government's decision to allow bauxite mining was made without regard to the effect on the state's major population centre. "This is the first time," he said, "that a major city has invaded its water catchment areas for mining."
- Dr Barry Hopkins, Associate Professor of Cardiology in the University of WA's Department of Medicine: "A CSIRO study predicts that salt levels in some hills' reservoirs may be further increased if mining of bauxite is allowed to proceed. The levels predicted are the same as those which, in a recent study in America, were thought to cause the premature development of high blood pressure. The predicted levels could also result in unacceptable daily salt intakes for patients with heart and kidney disease, levels which will make their medical treatment more difficult (and more expensive) and may prejudice their health."
- The Department of Conservation and Environment: "The company (Alcoa) says its intention is to mine through quarantine areas, and in areas that are known to have a high salinity risk, as well as areas set aside for conservation."
- The Federal Minister for National Development, Mr Newman: "Perth's drinking water contains more dissolved salts than any Australian capital city."
- Dr G.D. Bower, Perth paediatrician and kidney specialist: "Children drinking water with the same salt content as Perth, have noticeably higher blood pressure than groups similar in all other ways."

Not only is the bauxite mining industry subsidised with cheap water and cheap power, it also received from the state rail and wharf facilities that are conservatively valued at around \$42 million. As if this is not enough, Alcoa gets away with a series of tax dodges that other companies admire. Indeed, the only reason the bauxite, which is the lowest quality being mined anywhere in the world, is being extracted by Alcoa, is because the WA state government makes every effort to make the venture attractive.

In 1975-76, Alcoa exported alumina worth \$250 million, yet it paid only about \$1 million in royalties. Alcoa manages to sell its product to its parent American company at half the world parity price, and yet in 1976, it still managed to make a taxable profit of \$74 million. To put Alcoa's Australian operations in a world perspective: the Environmental Protection Authority's Technical Advisory Group reports that direct payments made by Jamaican bauxite miners (Alcoa again) are about one hundred times that paid in Western Australia.

Naturally enough, all these revelations of Alcoa's activities have nudged the multinational into some reforestation experiments. It is not possible for the Jarrah trees to flourish in the hard claypan left after the bauxite is mined, and even when the clay is gouged deeply and the holes filled with topsoil, only imported pines or eastern state eucalyptus trees are planted, since the dieback spores have

been spread everywhere by the mining.

The bulk of the earlier mined areas were planted with pines, without the benefit of the deep gouging that takes place now, and they are constantly being blown over.

Nowhere in the world has regeneration been successfully carried out in areas similiar to those produced by Alcoa in the Darling Range, but mining, and the subsequent regeneration trials, are going on as if the success of these experiments was a foregone conclusion. No native birds or animals can live in a pine forest, and there is a total lack of ground cover, leaving the scant amount of topsoil that has been replaced to be washed away by rainfall.

Alcoa has switched to the eastern state eucalyptus trees and the deep ripping technique. These are more successful, but the trees exist only with massive applications of fertiliser. The success of full regeneration cannot be known until the trees are 15 - 20 years old, and their root structure begins to place a heavy demand on the site. At present, the regeneration sites present a totally silent monoculture.

The adverse environmental impacts of Alcoa's activities are now beyond reasonable dispute. However, as we have seen, the links between capital and the state are very close, and it is difficult to foresee the introduction of adequate safeguards which would, in effect, negate the concessions made to Alcoa by the state government. Nevertheless, major attempts are being made by environmentalists to draw attention to the issues. The environmental group that is trying to educate the public of Western Australia to this state of affairs is called the Campaign to Save Native Forests, which is based at the Environment Centre in Wellington St, Perth. After exploring all other avenues, it is now involved in a non-violent occupation of the Wagerup. An occupation took place on the weekend of May 26 - 27 when 23 members of the Campaign walked onto the refinery site, where earthmoving activity was under way for the construction of the dam wall. They walked in front of bulldozers. Some were knocked over, all were arrested and charged under section 67 of the Police Act which provides for a fine of \$1500 or 18 months jail or both for this offence.



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