

INCORPORATING INDIGENOUS KNOWLEDGE IN MINE CLOSURE: RANGER URANIUM MINE

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ABSTRACT: The Ranger Project Area, located on the lands of the Mirarr clan, is surrounded by Kakadu National Park. After 40 years of uranium production at Ranger Mine, rehabilitation has begun, with a commitment that the land will be restored to a standard such that it could be incorporated into Kakadu National Park. Historically, mine closure has not been done well in the Northern Territory, and little if any consideration has been given to the views of Aboriginal landowners. An Aboriginal perspective of country recognises the interrelationship, via local kinship and moiety systems, of all things — the rocks, plants, animals, people, stories, weather, ceremonies and tradition. There is an opportunity for this worldview to be incorporated into the rehabilitation of Ranger Mine. The mine's operator ERA (a subsidiary of Rio Tinto) has agreed to Cultural Closure Criteria that reflect a desire of Bininj (Aboriginal people from the region) to again use the land for hunting and gathering, recreation and cultural practice. Allowing Aboriginal people to have input to rehabilitation planning demonstrates a respect for people's knowledge and connection to country. At Ranger, where the mine was imposed against the wishes of the traditional owners, this is an important step in a return to stewardship of this land and reconnecting people to place.

BACKGROUND

The estate of the Mirarr clan include parts of northeast Kakadu National Park and West Arnhem Land. On this land lies Australia's oldest known site of human occupation, Madjedbebe, dated to at least 65,000 years, located on the Jabiluka Mineral Lease. Nearby is the Ranger Project Area and the township of Jabiru. These places are synonymous with uranium mining in Australia. Uranium mining has had a major impact on the Mirarr people, including prompting them to lead a David and Goliath struggle to stop mining at Jabiluka. That is a story for another time; this paper focuses on the Ranger Uranium Mine.

The Commonwealth's *Aboriginal Land Rights (NT) Act 1976* was a double-edged sword in this part of the Northern Territory. It delivered land rights and a right of veto over all development on granted land, except for one place, the Ranger mine, which was especially carved out from the veto provisions of the Act. The Ranger Uranium Mine was a project initiated by the Commonwealth Government, which originally held a 50% stake. The mine was established by overriding local opposition.

The Ranger Project Area is totally surrounded by the World Heritage-listed Kakadu National Park, Australia's largest terrestrial national park, one of only 32 World Heritage sites listed for both natural and cultural values (Figure 1).

In August 2000, Rio Tinto, as part of gaining control of much of the iron ore assets of the Pilbara, gained a majority

stake in the mine's operator Energy Resources of Australia (ERA). After first trying to sell ERA, Rio Tinto admirably entered into an agreement with the Mirarr and the Northern Land Council to never mine Jabiluka without written consent. It was true 'Free, Prior and Informed Consent', a high-water mark in relations between the resource sector and indigenous people worldwide.

MINE CLOSURE AND REHABILITATION

Today, after 40 years and the export of approximately 130,000 tonnes of uranium oxide, production has ceased and rehabilitation work has begun. The closure of Ranger Uranium Mine is another major test for Rio Tinto (following closely the controversy surrounding the destruction of the Juukan Gorge caves in Western Australia) with a commitment to rehabilitate the area such that it could be incorporated into Kakadu National Park.

The history of mine closure in the Northern Territory — and Australia more generally — does not bode well for the Mirarr. Mining inevitably leads to environmental changes — changes to the landscape, creation of hills and voids, and often changes to water chemistry. These changes are particularly important to Aboriginal landowners, whose tradition teaches of a created and interconnected landscape. Traditional owners and their families generally remain in the area after the mine and economic benefits cease, and live with the changed landscape.



Figure 1: The Ranger uranium mine in Kakadu (Google Earth image).

The Northern Territory has a poor record with mine closure. In recognition of the problem, the NT Government established a Legacy Mine Unit in 2013 to manage and reduce negative impacts from legacy mines sites, exclusively where there was no bond security, or the security has been expended. They estimate a liability of \$1 billion to clean up these sites, a small proportion of mine sites causing environmental impacts (NTG 2016). This cost is only the cost of clean-up, not the loss of productivity and values and does not account for potential impacts of mines in operation or in care and maintenance.

Among the most notorious of the legacy mines is Redbank Copper Mine, located in the southern Gulf of Carpentaria. The NT Environment Protection Authority reported that a poorly constructed tailings dam and other inadequate infrastructure contributed to the release of toxic water for over two decades, leading to detectable contamination as far as 40 kilometres downstream (NT EPA 2014). It has been reported the NT held a security bond of just \$150,000. With the establishment of the Legacy Mine Unit, Redbank was identified as a priority. In 2013 the Territory Mines Minister travelled to the site and promised traditional owners an open and transparent process in formulating plans to fix the site. More than seven years later the area's traditional owners are still frustrated by a lack of action, pollution and continuing damage to sacred sites. *Djungai* with customary responsibility for the country Keith Rory said:

We have grandchildren and kids coming up, we need a future. The mine needs to do the right thing by the people. Our young kids need to get on the country, hunting and fishing. They can't be frightened of

contamination. We need to make sure that the country is safe for our young people to go back, to work, hunt and live on their grandfather's and grandmother's country.

Approximately half of land in the Northern Territory belongs to Aboriginal people. The long-term impact of mining most often affects Aboriginal people. So any attempt at rehabilitation should consider how they view and use the landscape.

Mining projects, and Aboriginal opposition, are inseparable from the story of land rights in the Northern Territory. When the Commonwealth Government leased some of the Arnhem Land reserve to a bauxite mining company in the 1960s, the Yolngu people objected, petitioning the federal parliament, and contesting the matter in the court. This led to the instigation of the Aboriginal Land Rights (Woodward) Royal Commission and in time the *Aboriginal Land Rights (NT) Act 1976* allowing Aboriginal people in the Northern Territory to claim land to which they could prove traditional ties.

The Gove Peninsula bauxite mine near Yirrkala commenced operations before the introduction of land rights and continues to this day, with a program of progressive rehabilitation of mined areas. The first author was involved in a study of rehabilitation success at the site. By using a scientific approach, it was found there were as many birds and as many types of birds, in rehabilitation areas as in the surrounding bush, although the species mix differed (Brady & Noske 2010). This could be considered functional restoration, which many ecologists would consider a success. When a local Aboriginal woman was asked what she thought of the mine rehabilitation she



Figure 2: Rocky outcrop in Kakadu National Park. Photograph by Peter Christophersen.

replied, ‘That area is where Stringybarks camp’’. The rehabilitation did have lots of Stringybark, but also had other eucalypts. To an ecologist these are local trees and provided ecosystem services, while to other scientists they were greater water users, likely benefiting from a lowering of ground level and hence distance to the water table. The mixing up of species was of great concern to this particular woman, who believed it could mix up the dreaming of the people responsible for that place, leading to social dysfunction. One’s cultural perspective and worldview is crucial to deeming what is a significant impact and hence any assessment of success.

The traditional owners of Ranger Uranium Mine, the Mirarr, have numerous sacred places on their land that they are obliged to protect from disturbance. Senior traditional owner Yvonne Margarula’s father, Toby, made it clear when the mine was proposed that he was worried about the potential impacts disturbance of his land could have on other people, believing it could lead to a disaster. In April 2011, following the earthquake, tsunami and subsequent nuclear disaster in Japan, Yvonne Margarula wrote to UN Secretary General to express her sorrow at the impacts radiation is having on the lives of Japanese people. The

disturbance of sacred areas in Australia causing a disaster in Japan is probably not how an objective scientist would view the Fukushima disaster, but it is a totally logical interpretation within the worldview of the Mirarr.

With 40 years of mining at Ranger, there has been total destruction of the local landscape, including, to the great regret to the Mirarr, the loss forever of the Djalkmara billabong. The mine had two deep pits and a colossal tailings dam, more than one kilometre across and with walls some 65 metres high. This is all upstream of world-renowned wetlands where Aboriginal people have their homes and hunting grounds. The largest outstation in Kakadu, Madjinbardi, lies only 10 kilometres downstream.

There has been, and remains, significant uncertainty around the closure of the mine, with no approved plan to deal with a contamination plume beneath and beyond the tailings dam, or certainty around the level of contamination that will remain in other areas of the lease. There is also uncertainty around the sufficiency of funds and questions around the adequacy of the five-year timeframe, after which, under current arrangements, the mining company will not have legal access to the site.



Figure 3: Rocky outcrop in Kakadu National Park. Photograph by Peter Christophersen.

PROGRESS

However, there is a lot of positive progress being made towards the closure of Ranger Mine. The mine's operator, ERA, has done a significant amount of closure planning, including funding a substantial piece of work with traditional owners focused on development of Cultural Closure Criteria. The work is actively considering the Bininj (Aboriginal people from the region) worldview and land use — the desires of people to use the land for hunting and gathering, recreation and cultural practice.

ERA has recently welcomed a committee of Bininj, which has been regularly visiting the site, to discuss and facilitate the process of cultural reconnection. The committee has been facilitated by the Northern Land Council with the objective of promoting the achievement of the Cultural Closure Criteria for the mine by giving Bininj an opportunity for input into closure planning and monitoring.

The committee has been working on a design to guide ERA on landform reconstruction, incorporating traditional knowledge and perspective into the rehabilitation. The design is informed by a view of country that recognises the interrelationship, via local kinship and moiety systems, of all things — the rocks, plants, animals, people, stories, weather, ceremonies and tradition. All things are interrelated and have a relational place.

The conceptual landform design developed by ERA has focused on the important goals of limiting erosion and ensuring the contaminated material is not exposed. The result is a very gently sloping landscape with maximum coverage over buried contamination. Although meeting engineering objectives, the resulting landscape would be

featureless and would not integrate with the surrounding cultural landscape. Incorporating an Indigenous view of the landscape provides an opportunity to better integrate the rehabilitation into the surrounds, with co-benefits from a Western science perspective, such as increasing species diversity of plants and animals.

Local Bininj man and this paper's co-author, Peter Christophersen, has decades of experience with mine rehabilitation. Peter has identified natural landscape features that could be recreated in order to link the rehabilitation with the surrounds. The initial focus of discussion has been the rocky outcrops that occur throughout Kakadu and in the area around the Ranger Project Area. These vary in size from a few boulders to monoliths hundreds of metres long, and in rock type, and occur in a range of land systems (Figures 2 and 3). These features often provide natural fire protection and host plant species distinct from the surrounds. They also provide shelter for a range of animals such as insects and small marsupials, encouraging endemic habitation.

The cultural reconnection committee would like to see similar features included in rehabilitation at Ranger Mine. The placement of these features can be done in a way that recognises the importance of reconnecting the mined areas with the surrounds. Just to the south of the Ranger Project area is Djidbidjidbi (a *djang* site — a very important sacred site), the resting place of the King Brown Snake. The stories of the King Brown continue to the north, through what is now the Ranger Mine, and connect with other dreaming places. It is hoped that placing rock features along the path of these important stories will help to renew connections and preserve stories for future generations.

The selection of plant species for these rocky outcrops can be informed by traditional ecological knowledge. The committee have begun discussing links between desired flora and fauna and their connection to each other and to places, people, story and cultural practice.

Allowing Aboriginal people input to rehabilitation planning demonstrates a respect for people's knowledge and connection to country. At Ranger, where the mine was imposed against the wishes of the traditional owners, this is an important step in a return to stewardship of this land and reconnecting people to place.

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