Stewardship and the Ranger Uranium Mine
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This paper primarily describes how the partnership between the Ranger Uranium Mine, Aboriginal land owners and the Australian and Northern Territory governments has developed since the mine’s inception. A brief review of past and present problems is provided and proposals for future hand back of land are discussed. A particular focus is placed on capacity building and the combined application of traditional, cultural and western scientific knowledge to ensure that successful long-term stewardship of the site can be achieved following closure of the mine. The principles applied also offer a means of improving the impact assessment process in Australia’s Northern Territory.

Introduction
The Aboriginal Land Rights Act came into existence in Australia in 1976, following an unsuccessful challenge by the Yolngu of north-east Arnhem Land to prevent mining of bauxite on the Gove Peninsula (Milirrpum v Nabalco, 1971). Under this Act, Aboriginal people are now able to hold communal rights to land and with that, the power to veto exploration and mining on that land. Free, prior, informed consent and assessment of environmental impacts is an important part of deciding whether to apply the veto – and this requires matters to be expressed and discussed in terms clearly understood by Aboriginal people.

Part of the Act specifically excluded the right to veto the Ranger Uranium Mine from the Act allowing the company at the time (North Limited) to exploit uranium from two resources – Jabiluka and Ranger. Although negotiations were held between the company and the Northern Land Council (NLC) – who represented the Mirarr land owners – there is no evidence that impacts on the cultural environment were ever considered. This occurred because the assessment focus was mainly on the physical environmental and not social and cultural impacts at that time.

It was also in the mid-1970’s that Kakadu National Park (Kakadu) was nominated to the World Heritage List and two contained wetlands listed under the Ramsar Convention. Public opposition to uranium mining adjacent to Kakadu, followed by protests and pressure were able to prevent the exploitation of the Jabiluka deposit in the 1990’s. However mining had already commenced at the Ranger deposit some ten years earlier and has continued to the present, despite still being considered unacceptable to Mirarr. Mining operations are scheduled to cease by 2021 and the final land use for Ranger Uranium Mine is to have it incorporated into Kakadu.

To achieve this, a set of specific environmental requirements (Australian Government, 2000) based primarily around the attributes for which Kakadu was nominated to World Heritage List need to be met. While those related to the environment are being addressed through technical forums run by the mine’s operators – now Energy Resources of Australia (ERA) – the Northern Territory regulators and the Commonwealth of Australia through its Office of the Supervising Scientist; those related to Mirarr culture seem to have been largely ignored. In 2007, the Mirarr and the Northern Land Council started work towards a means of addressing the damage mining has done to Mirarr cultural attributes of the Ranger Project Area. Our approach involved applying Traditional Ecological Knowledge (TEK) and Aboriginal land management practices to development of closure criteria for the mine (Smith, 2008) and to re-establishing connectivity with the land.
The approach is similar to and drawn from those applied in Canada (Yukon Government, 2005) and New Zealand (Tipa and Tierney, 2006) and is consistent with the aims of the United Nations Declaration on the Rights of Indigenous People (United Nations, 2007).

By considering Ranger Uranium Mine to be a part of the contiguous cultural landscape of Kakadu, cultural attributes have visually represented by mapping the environment, how people have historically used it and how they perceive it to affect them in the future (Smith, 2009). It is an approach that is now beginning to find wider acceptance in Australia by a mining industry seeking to develop meaningful Cultural Heritage Management Plans (Smith, 2012a) and should perhaps now be construed as current best practice.

**Cultural Management Tools**

Traditional Ecological Knowledge (TEK) represents the unique set of information available to Mirarr that is used by them to manage the environment. It has evolved slowly over a period estimated to exceed 60,000 years and has become the root of Mirarr socio-economics, culture and spirituality. TEK also represents a set of information that is generally ignored by Euro-centric impact assessments undertaken in Australia.

In conjunction with Mirarr, the NLC has modified existing assessment tools to develop systems that address Mirarr concerns, and provide a means of relaying impacts in a manner that can be clearly understood by them. The principal tools that are in use include:

1: **Cultural Landscape Systems** – these consist of a Geographical Information / Audio Visual System for collation, storage and dissemination of TEK and other anthropological and archaeology information (Smith, 2009) in a visual form.

Information is stored in a structured format with a view to protecting Intellectual Property (IP) rights and allowing access according to traditional mores (e.g. gender and level of initiation). When combined with process and operational information, we find that both Mirarr and Ranger operations staff are provided with a greater appreciation of environmental risk.

**Figure 1 (left):** The cultural landscape map for the Ranger mine shown in context with the immediate surrounds of Kakadu National Park.
### Table 1: Generic risks associated with the 5 identified cultural heritage categories. These were used to define overall cultural risk assessments by Aboriginal people

2: Cultural Risk Assessment – this is based upon typical risk assessments applied by industry during the impact assessment process, but being undertaken by indigenous people, provides a clearer picture of what they consider to be the greatest threats a development poses to their way of life (Smith, 2011). It considers the complex interplay between socio-economic systems, the environment and spirituality; each component of which is specific to the project being assessed.

Five broad categories and fifteen subcategories, each with specific risks were identified for the Ranger project (refer Table 1). Each of these has links with TEK and cultural landscape mapping; and this combination leads to a broader appreciation of cultural impacts specific to Ranger.
Ideally, these tools should be applied prior to development of a mine so that the information can be fed into pre-mining environmental impact assessments and used as a guide through all stages of the mine’s development and operations. In the case of an already operating mine such as Ranger, the capacity to apply it is limited and needs to focus on mine closure and the final land use. We believe that taking this approach will lead to stakeholder engagement, greater transparency and increased capacity building amongst Aboriginal people. It opens a way forward to development of specific Aboriginal owned and operated businesses geared towards land management that are culturally and environmentally acceptable, sustainable and necessary for long-term stewardship of the post-mining environment.

3: Consultation – this was used to link cultural requirements with western scientific precepts (refer table 2) for the establishment of closure criteria and to encourage cross-fertilization of information necessary for development of cross-cultural closure plan (Smith, 2008). TEK was used as the focus because this is the key driver defining the Aboriginal perception of how individual parts of the environment (e.g. flora and fauna species) are integrated into Aboriginal culture and spirituality.

During the consultation process, three critical questions were asked: whether the proposed criterion was technically possibly, culturally acceptable and economically viable. If any of these was answered in the negative, an alternative solution had to be sought. Further details on how this information was obtained and processed along with the NLC’s wider approach to ensuring free, prior and informed consent is available elsewhere (Smith, 2012b).

<table>
<thead>
<tr>
<th>Environmental Parameter</th>
<th>Cultural Considerations</th>
<th>Key Closure Criteria</th>
<th>Scientific Considerations</th>
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<tbody>
<tr>
<td>Topography</td>
<td>Protection of existing sacred and ceremonial sites</td>
<td>Post-mining landform design.</td>
<td>Erosion</td>
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<tr>
<td></td>
<td>Recreation of damaged sacred and ceremonial sites</td>
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<td>Slope</td>
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<td></td>
<td>Recreation of cultural landscape</td>
<td></td>
<td>Levels of contaminants in soil</td>
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<tr>
<td></td>
<td>Recreation of natural landscape</td>
<td></td>
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<td></td>
<td>Access for cultural activities</td>
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<tr>
<td>Rivers and water bodies</td>
<td>Spiritual implications</td>
<td>Water quality and human health</td>
<td>Water chemistry</td>
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<td>Sources of food and potable water</td>
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<td>Riparian zones</td>
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<td>Water quality and biota health</td>
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<td>Sources of traditional medicines and craft materials</td>
<td>Correct vegetation patterns</td>
<td>Abundance</td>
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<td>Presence of fauna used for food or ceremony</td>
<td>Correct species</td>
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<td>Removal of weeds</td>
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Table 2: High level links between traditional cultural information and western scientific principles for developing mine site closure criteria.
Application to closure of the Ranger Uranium Mine

Application of these tools to the Ranger Project has seen ERA’s approach to assessing ‘best practicable technology’ include a greater focus on cultural matters. In addition, ERA is undertaking a series of pilot projects designed to embed the approach in their final closure of the Ranger mine (Jacobsen, 2012). These pilot projects increase in complexity and size and will contribute to the wider closure and exit strategy for the mine. They will assist in re-establishing Mirarr connection with land, improving engagement and building respect.

The projects include

- Rehabilitation of the Jabiluka Interim Water Management Pond and hardstand;
- Rehabilitation of the Djarr-Djarr mining camp;
- Completion of the Mine Valley bore reclamation;
- Rehabilitation of Ranger access tracks;
- Progressive rehabilitation of Land Application areas affected by irrigation of contaminated water;
- Restoration of the Magela Creek riparian zone; and
- Closure of Pit #1.

The first six projects are scheduled for 2012-13, while Pit #1 closure will not be completed until 2017. None will result in direct relinquishment of land, but will provide a platform for achieving a number of objectives including:

- Demonstrating the suitability of the tools for rehabilitation methods/capacity in restoring the landscape to an agreed beneficial land-use;
- Addressing existing legacy issues in a targeted and staged manner;
- Facilitating a focussed engagement on targeted projects and knowledge sharing;
- Implementing the incorporation of traditional ecological and cultural knowledge into the closure process;
- Developing appropriate measuring tools; and
- Piloting the development of fit-for-purpose restoration or closure criteria with flow on benefits to the life of mine closure strategy.

We anticipate that this will help develop capacity amongst Mirarr and within ERA to develop a strong system of co-management that will ultimately reach a point where Mirarr will be able to once again manage the land according to their cultural precepts. We note that, unless these can be achieved, ERA will be unable to divest its responsibilities and that integration of the post-mining landscape into the wider Kakadu National Park becomes less likely.

Conclusions

Tools that adequately define the nexus between traditional and western scientific knowledge systems in Australia have until recently been hard to find. Consequently, the Aboriginal viewpoint has been poorly represented at every level of environmental impact assessment that applies throughout the mining process. Continuation of this practice increases the risk that proposed mining projects will be rejected by affected Aboriginal groups.
The need to demonstrate that cultural attributes can be ‘rehabilitated’ to World Heritage standards for the Ranger Uranium Mine has driven the development of tools that reduce this risk. The three briefly described here – cultural landscaping, cultural risk assessments and comparative links between traditional knowledge and western science – have been developed for this purpose. Application to a set of pilot projects is in progress and this will assist in defining a system of metrics against which satisfactory outcomes can be measured.

We believe these relatively simple tools should be considered current ‘best practice’ because they are consistent with the goals of the United Nations in encouraging greater engagement with indigenous peoples. Provided that the process can remain sensitive to cultural change and enhance connectivity of people with their land, these tools can play an important role in guiding impact assessments, mine development and shaping the outcomes of the post-mining landscape.

Acknowledgement

The author acknowledges the kind assistance of Energy Resources of Australia for permitting publication of part of its forward planning for closure.

References


Miliirrpum v Nabalco Pty Ltd, (1971) 17 FLR 141


