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## IN THIS ISSUE

UNDERMINED AND WASTED: AUSTRALIA'S NUCLEAR LANDSCAPE

URANIUM IN THE WEST: GOING NOWHERE FAST

DEEP SEA MINING: PNG'S SENSITIVE MARINE ECOSYSTEMS

DILEMMAS OF DEVELOPMENT: MINING AT PORGERA, PAPUA NEW GUINEA

THE HIDDEN COSTS OF 'MINING DEVELOPMENT': A VIEW FROM THE RAI COAST OF PAPUA NEW GUINEA

## FROM THE EDITORS



Image: Jessie Boylan

March marks the 5th anniversary of the Fukushima nuclear disaster, a disaster that is still very much ongoing. As we are reminded of the tragedy by images and accounts of the devastation, new insights reveal that this disaster was a man-made one. Mark Willacy, an Australian journalist for the ABC, has reported that TEPCO, the plant's operator, had conducted a report into the effects of tsunami (as powerful as the 2011 one) crashing into the power plant. It knew that such a tsunami would cripple the reactor's core, however, they "hid this report and did nothing."

As well as the unfathomable truths regarding company and government practice in response to the Fukushima disaster, a new report from Physicians for Social Responsibility (PSR) and International Physicians for the Prevention of Nuclear War (IPPNW) states that "residents of the Fukushima area and the rest of Japan will experience more than 10,000 excess cancers as a result of radiation exposure from the triple-reactor meltdown that took place on March 11, 2011."

MPI commemorates this anniversary with two articles on the uranium industry. First, Dave Sweeny from the Australian Conservation Foundation presents a perspective on Australia's moral responsibility for the Fukushima nuclear disaster and the future of the uranium industry in Australia. Then the Conservation Council of WA's Mia Pepper provides us with an update on proposed uranium mines at Wiluna, Kintyre and Yeelirrie in Western Australia.

As friends and supporters of MPI would know we have a strong focus on Papua New Guinea and DSM. We continue this focus with an article by Neville Ellis who returns to the disturbing picture painted by Professor Leach about the impacts on the Reite Community of living near a mine. This time Neville explores the interrelatedness of human-land interactions and its subjugation at the hands of economic exploitation. MPI's director Charles Roche delves into issues of mining-led development by using Jerry Jacka's work in Porgera to further our understanding of PNG's complex land tenure systems, post industrial life and the failure of Corporate Social Responsibility (CSR). Simon Judd examines a new journal article on DSM, assessing the suitability of conservation strategies and survey techniques for protecting deep-sea biota.

Finally, we want to encourage contributions to our next Mining Monitor from our readers. If you have a story on mining or development justice using a narrative, pictures, drawings, poems or hard science then please contact us.

With respect,

Charles Roche and Jessie Boylan

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# UNDERMINED AND WASTED: AUSTRALIA'S NUCLEAR LANDSCAPE

*Dave Sweeney is a nuclear free campaigner for the Australian Conservation Foundation*

The story runs that everything the ancient Greek King Midas touched turned to gold. In the 1950's and 60's uranium was seen as a Midas mineral and, with around 35% of the world's uranium reserves, Australia became a significant player in the global nuclear trade.

At the time with much enthusiasm and exploration, the rushed development of the Rum Jungle mine in the Northern Territory led to numerous small operations, mainly through Kakadu's South Alligator Valley region. These often short-lived operations left long term management issues and continue to require publicly funded rehabilitation interventions today.

Since the 1980's the 'modern' Australian uranium sector has been dominated by two major mining operations – Ranger in Kakadu and Olympic Dam in northern South Australia. The sector has been constrained by political uncertainty, numerical restrictions on the number of permissible mines, a consistent lack of social license and strong Aboriginal and community resistance. Recent years have seen the political constraints reduce but the uranium sectors production rates and value have been severely hit by the dramatic decline in the commodity price following the Australian uranium fuelled Fukushima nuclear crisis.

From 2011 to 2013 uranium was produced in 21 countries with Kazakhstan, Canada and Australia as the largest producers, accounting for approximately 63% of world production. Australia now accounts for approximately 11% of global production, down from over 18% in 2002–2011.

In 2014 Australia's uranium production of 5,000 tonnes was the lowest for 16 years. The industry generates less than 0.2 per cent of national export revenue (\$622m or 0.19 per cent in 2013/14) and accounts for less than 0.02 per cent of jobs in Australia. According to IBISWorld's March 2015 market report 987 people are employed in Australia's uranium industry.

In short, the sector is high risk and low return and since Fukushima has been in steady decline.

Recent years have seen an operating uranium mine at Honeymoon in SA mothballed, BHP Billiton shelve a long planned \$A25 billion expansion plan at the massive Olympic Dam operation and Rio Tinto walk away from plans to develop an underground operation at Ranger. The clock is now ticking loud on this aging and under-performing project and the market and major mining players are voting with both their feet and finances on the wider uranium sector. However this reality is not reflected in the rhetoric and profile of broader nuclear issues in Australia. Around twelve months ago South Australian Premier Jay Weatherill announced a Royal Commission to explore opportunities to expand the nuclear industry in SA.

The move surprised many at the time both because of SA's leading role in renewable energy production and the Fukushima inspired industry retreat.

The Commission – headed by former state Governor Kevin Scarce – was tasked with examining development options over four broad areas: uranium mining, expanded uranium processing, domestic nuclear power and the storage and management of high level radioactive waste.

Early critics of the Commission's pro-industry terms of reference and heavily skewed pro-nuclear 'expert' panel argued that the process was a Trojan Horse for a renewed push for international radioactive waste disposal in Australia – a view vindicated in the Commission's tentative findings released in mid-February.

The Commission – unsurprisingly given the overwhelming market sentiment – has stated it is unconvinced about the chances for any uranium industry expansion and acknowledges nuclear power is not commercially viable in the foreseeable future.

However, like the product involved, the Commission was glowing about the opportunities that could come from hosting international high-level radioactive waste.

Proposals to store or dispose global radioactive waste in Australia are not new. High profile figures like former PM Bob Hawke routinely re-visit the issue and an international consortium called Pangea Resources made a serious push to develop an international facility in a remote part of West Australia in the 1990's.

The Commission correctly highlights that around the world radioactive waste management is a growing and unresolved management issue and environmental challenge. However, its enthusiasm exceeds its evidence when it comes to analysis of cost, complexity and the history of failed international waste storage or disposal programs. If managing nuclear waste was so straightforward or lucrative then it would have already been done.

Some countries, most notably Finland, are advancing deep geological burial sites but after seven decades of commercial nuclear power operations not one nation has a final disposal site for high level waste and the sector is strewn with failed projects, timeline delays and massive cost overruns.

Against this landscape it is hard to see Australia providing the silver bullet. Australia has limited nuclear industry experience and infrastructure and lacks the required regulatory framework. A range of state and federal laws expressly preclude such an activity and there is no bi-partisan political support in a deeply sceptical and contested Australian public sphere. In July 2015 the Labor party's national conference re-affirmed that it would remain strongly opposed to the importation and storage of nuclear waste that is sourced from overseas in Australia.

Australia's dismal track record in relation to managing our own modest stockpile of radioactive waste is also hardly cause for confidence in the Commission's global ambition.

For over two decades successive federal governments have tried, and failed, to convince or coerce remote Aboriginal communities in South Australia and the Northern Territory to accept a waste site. A revised national siting approach is currently facing strong community opposition in the six regions under active consideration. Three of these new sites are in South Australia and the Commission's enthusiasm to open the door for an international waste site may well see local communities ever more determined to oppose plans for a national one.

With the Commission's global waste aspirations now clear, the issue, especially in a federal election year, becomes one of politics, given the plan's profound national implications and the critical need for bi-partisan support.

Premier Weatherill has flagged increased engagement with the Commonwealth Government ahead of the Commission's final report on May 6. He has outlined that while the SA Government does not currently have a fixed view he is 'prepared to consider such a proposition' and will provide a full response to the state Parliament before the end of the year.

Unlike the global nuclear power sector, which is dying out due to growing costs, public opposition and the rise of renewables - nuclear waste is like zombie waste - it remains undead, and the issue keeps on returning.

Having failed to deliver on promises of uranium mining wealth, nuclear industry promoters are now talking up the prospect of 'stupendous' riches in hosting radioactive waste. From its beginning to the never end, the nuclear industrial chain is full of false promises and real problems and the Commission's waste talk demands serious scrutiny and critical attention.

This could start with asking two questions: are the options really so scarce that South Australia's and Australia's best economic chance requires hosting some of the world's worst waste? And, with its track record from mine-site to reactor would you trust the nuclear industry forever?

*Dave Sweeney is a nuclear free campaigner for the Australian Conservation Foundation.*



Images: Jessie Boylan



# URANIUM IN THE WEST: GOING NOWHERE FAST

Mia Pepper

I'm happy to start this article by saying there is not one single uranium mine operating in Western Australia (WA)! After eight years since the ban was lifted on uranium mining in WA - there is still no mine. Following 250+ uranium drilling programs across the state there have been just four mine proposals - one and a half with conditional environmental approval (distinctly different from a final approval) and two and half being assessed by the WA EPA as we speak. This is not a lot considering the uranium-hype, unstinting

Government support and \$300 million of public money to support the industry.

In recent months there has been a rush of activity from uranium miners lodging environment management plans for assessment. Companies are desperately seeking some level of approval for mine proposals ahead of the 2017 state election when we could see a state Labor Government and the reintroduction of a ban on uranium mining.

## WA URANIUM MINE BACKGROUNDER:

The Wiluna proposal has been the dysfunctional poster child of uranium mining in WA. The proposal is for six open pits across two lake systems - Lake Way and Lake Maitland - in the East Murchison/Northern Goldfields. The mines would produce 50 million tonnes of radioactive mine waste tailings, this waste would progressively fill two of the pits on the western edge of Lake Way. The area experiences periodic flooding from the tail-end of cyclones coming off the west coast that threatens the stability and containment of mine waste.

The company, Toro Energy, who are a small inexperienced company, were forced to expand their project after acknowledging that their original proposal was not profitable, that the uranium deposit was too small and the ore grade was too low. The environmental approval for half the project (the Lake Way and Centipede deposits) is subject to 45 conditions

that explicitly prohibits any construction or preparatory works until the 45 conditions are met. The WA EPA is currently assessing the other half of the proposal, the Millipede and Lake Maitland deposits. The proposal was met with 2,000 submissions opposing the project.

The Kintyre uranium proposal is in an area excised from the Karlamilyi National Park (WA's biggest national park), east of Newman in the Pilbara. The proposed mine is at a place called Waturarra and it lies between two branches of the Yantikutji creek, which supports a number of rare and endangered species and is part of the Martu native-title-determined area. Martu people have fought against uranium mining on their country since the 1980s. During the homelands movement the Parnngurr (Cotton Creek) community was re-established as a protest camp against uranium exploration in the region. Despite this long held opposition, the company, Cameco, has progressed the



Images: Wiluna - Mia Pepper



Images: Kintyre - Mia Pepper

mine proposal and now has environmental approval for the mine, though it is subject to 36 conditions - much like the conditions mentioned above these conditions also prohibit the company from doing any work on the ground without meeting those 36 conditions. Cameco has not progressed in meeting these conditions since they received conditional environmental approval in 2015.

Cameco is a Canadian company and the World's biggest uranium miner who also produce nuclear fuel. Where there are many uranium mines there are many problems and Cameco's projects have been the cause for many of these problems. From alleged tax avoidance in Canada and the US to pit collapse, numerous chemical spills, ongoing seepage, flooding, and radiation from mines found outside the mine area. Cameco are also behind plans to mine uranium at Yeelirrie, just near Wiluna.

Yeelirrie in the local Wongutha Language means 'place of death', a warning for future generations. The traditional owners have fought against mine proposals at Yeelirrie for over 40 years, these protests continue today with a month long protest walk every year through the areas under threat from mining. These walks are led by the local Walkatjurra Rangers. The proposal for Yeelirrie is to mine a 9km long stretch of shallow calcrete uranium, which has neighbouring pastoralists up in arms; they are concerned about the dust and water and worried this will affect their cattle and their health. Environmentalists are worried that this mine could make 15 species of subterranean fauna extinct. These 15 stygofauna and troglofauna species are endemic and have only ever been found in the impact area of the mine pit, it is also extremely likely this is the only place on earth these little ground dwelling critters live. Mining their only habitat could make them extinct.

The last of the four sites is **Mulga Rock**, which is north east of Kalgoorlie above the Queen Victoria Springs Nature Reserve. Mulga Rock is in a Priority Ecological Community, which supports a large diversity of desert mammals like the Mulgara, Dunnart, Marsupial Mole and various native mice. This proposal is for four major pits and a few smaller ones using 15 million litres of water a day. The company behind these plans is Vimy Resources, formerly Energy Minerals Australia, which is now run almost entirely by former Fortescue Metals Group and Munderoo Group's executives, one former Liberal MP and is one third owned by Twiggy Forest.

Companies like Cameco have deep pockets, time on their side and are not likely to give up. Toro and Vimy, the small local players, are pushing ahead with more desperation as these projects define their existence as companies. Without financial support at a time when the uranium price is in the doldrums they may not survive. The uranium price is currently sitting on US \$32/lb, down from last years high of US \$39/lb. Cameco, Vimy and Toro have all acknowledged that the uranium price needs to be at about US \$55/lb to break even and more like US \$65-\$70/lb to warrant new mines. Since 2013, the uranium price has steadily dropped and uranium production has declined, as have the number of people employed by the sector.

With a lack of bipartisan support for uranium mining in WA, a low and stagnant uranium price and strong community opposition to uranium mining, these projects are going nowhere fast. We should urge companies and government to reconsider their options as the future turns to renewables.

*To read more about the economics of the uranium sector have a look at the ACF report "Yellowcake Fever" from 2013, which is still very relevant today.*

Images: Yeelirrie - Mia Pepper



# DEEP SEA MINING PNG'S SENSITIVE MARINE ECOSYSTEMS

Dr Simon Judd

The integrity of marine ecosystems all over the world is threatened by human activities such as dumping of rubbish, disposal of chemical and radioactive waste, extraction of oil and gas, and fishing. Mining for sand and minerals in shallow waters has been conducted for decades, but the latest threat to ocean ecosystems comes from mining of the ocean seabed, otherwise known as deep sea mining (DSM) or seabed mining (SBM).

Following the publication of an article by Boschen et al. *Seafloor massive sulphide deposits support unique megafaunal assemblages: Implications for seabed mining and conservation* in the scientific journal *Marine Environmental Research*, this article examines some of the implications of DSM for the ecology of the seabed. In the light of imminent DSM, it asks what conservation actions are required to identify significant risks and protect the biodiversity of ocean seafloor ecosystems.

## THE FIRST DEEP SEA MINE?

The Solwara 1 project being undertaken by Nautilus Minerals in Papua New Guinea (PNG) is the world's most developed commercial DSM project. It is located in the Bismarck Sea 30 km offshore of New Britain Island at a depth of 1,600 metres. A mining lease was granted in January 2011 for a gold and copper project. After much delay, the project is scheduled to begin in 2018. If successful, Solwara 1 is likely to be the first of many DSM projects within the Pacific Islands Region.

There are three main types of deep sea mineral deposits of commercial interest to industry and governments. In the case of Solwara 1, a Seafloor Massive Sulphide (SMS) deposit is to be exploited. SMS deposits are in deep sea (1,500 m – 5,000 m) hydrothermal vents along volcanically active areas of the ocean floor and typically contain commercially-attractive concentrations of copper, gold, silver, zinc, as well as other trace metals.

## WHAT ARE SEAFLOOR MASSIVE SULPHIDES?

SMS deposits form through hydrothermal activity. When hot acidic water filters up through the seabed, it cools and releases dissolved minerals that can accumulate to form chimney and mound structures on the seafloor. These chimneys' structures can be either active or inactive, each type hosting a remarkably different group of plants, corals and animals. The ecology of seafloor systems is unlike any other marine or aquatic habitats. They are usually well below the level at which sunlight penetrates the ocean and consequently the organisms found there rely on chemosynthesis rather than photosynthesis. These deep and often remote systems make them one of the rarest and least understood habitats on Earth.

There are about 165 recorded SMS deposits worldwide. Commercial interest is centred in international waters of the Indian Ocean, on the Mid-Atlantic Ridge and in waters of Papua New Guinea (PNG), Vanuatu, Palau, Niue, Fiji, Micronesia, Solomon Islands, Tonga, and New Zealand. New Zealand is particularly relevant

here because Boschen's study compared the physical properties and biological assemblages (communities) of two supposedly similar SMS seafloor sites of the north-east coast of New Zealand.

## SMS CONSERVATION STRATEGIES

The main conservation strategy to counter threats to the marine environment has been to create marine protected areas or conservation reserves. This parallels the land-based approach in which a representative area of an ecosystem is designated for conservation. In theory, this area is considered to be both comprehensive and adequate; including all the species, communities and ecological processes of the ecosystem and being sufficiently large enough to persist into the future. These concepts have been applied to the marine environment despite the fact that the nature of physical or ecological boundaries and processes are markedly different in the marine environments. Unfortunately, globally marine protected areas account for a mere 3% of marine habitats and have largely been established in coastal areas to preserve species and habitats at risk from fishing. Given the general decline in ocean ecosystems and the lack of protection for the deep sea areas, DSM is a clear threat to marine biodiversity.

In an effort to mitigate against the destructive impacts of DSM on SMS ecosystems, a further distillation of the protected area methodology is used. Where DSM mining is proposed in an area of the seabed, a similar area is proposed as a conservation or reference area. The reference area is excluded from mining to ensure that a representative and stable seabed biological community is retained so that changes can be measured and assessed. Reference zones are intended to be physically and biologically identical to the area being mined and can be source areas for species to recolonise mined areas after mining.

## BOSCHEN'S STUDY - A TALE OF TWO SITES

SMS deposits provide a variety of seafloor habitats. These include hydrothermally active areas, often with chimney and vent structures, inactive areas with relict structures and non hydrothermal areas with a hard bedrock structure such as lava flows. Studies have suggested that each of these habitats supports a different type of biological community with high degrees of regional endemism. SMS mining has a number of direct initial impacts including; the removal of the majority of the fauna, altered hydrothermal activity, habitat modification and subjecting surrounding habitats to the effects of suspended sediments.

SMS deposits are not particularly stable environments and biological communities in hydrothermally active areas are subject to natural perturbations caused by changes hydrothermal activity. Active vent environments typically have a small number of specialised species which cannot exist away from such environments. Growth rates may be rapid enabling them to disperse and colonise new areas quickly in unstable environments, but species and their lifecycles are poorly understood. The fauna found in inactive vent habitats is remarkably different and is mostly sessile with many slow-growing suspension feeders.

Boschen's study looked at a potential SMS mine and reference site off the north-east coast of New Zealand. One of the sites was a known SMS deposit of commercial interest (Proteus 1) and the other a reference site 200 m away. The reference site was selected because of its similar size and perceived similar characteristics to Proteus 1. The study used remotely collected photographic and video data from between 1 and 6 m above the seabed. Biological and geomorphological data were analysed order to characterize the biological communities found at both the sites and to determine



# DILEMMAS OF DEVELOPMENT: MINING AT PORGERA, PAPUA NEW GUINEA

Charles Roche



Images: Jerry Jacka

Even before the perfect storm of expansionary government spending and record low commodity prices threatened Papua New Guinea's resource dependent economy, questions were being asked about the impact of mining-led development. Inspired by Jerry Jacka's recent publication *Uneven development in the Papua New Guinea highlands: Mining, corporate social responsibility, and the "life market"* (2015c), this article reflects on mining-led development in the country known as the 'Land of the Unexpected'. Dr Jacka has spent over fifteen years researching and writing about the impacts at Pongera with a focus on non-landowners. While not a staunch public advocate like Kirsch (2002) is for the Yonggom, Jacka is nonetheless clear about development outcomes. **"Pongera is a massive development failure both socially and environmentally. While proceeds from mining development translate into forms of material improvement in the area, the cost of mining in human lives and the degradation of biodiversity far outweighs the benefits of development"** (Jacka, 2015a, p. 231).

## MINING AND DEVELOPMENT IN PAPUA NEW GUINEA

Sadly, this story is not unique to Pongera. Elsewhere in Papua New Guinea (PNG), evidence of negative impacts at other minesites is challenging a national economic model reliant on extraction. Jacka's evidence from Pongera - of environmental destruction and cultural

fragmentation and post-industrial lives that retain few of the benefits of mining development - adds further to the national debate

Despite a poor track record, or perhaps in ignorance of it, local communities continue to look to industrial mining as one of the few means of development in PNG, seeking to overcome the poverty of opportunity and the harsher aspects that accompany a subsistence lifestyle. This, however, is an entirely reasonable, rational choice; but it is a choice undermined by obscure asymmetries of power, knowledge and influence that prioritise company and national interests ahead of community outcomes. The effects of this choice contributes to sub-optimum outcomes for communities, like the non-landowners of Pongera, who are struggling to adapt to life alongside a mine, or after a brief engagement in the global economy.

The premise of this article is not that 'mining is bad', per se, it's that industrial mining is difficult to do well. I ask proponents of mining-led growth, just where are the sites that have delivered lasting development outcomes? For many years Misima was described as such a site, but more than ten years after closure many social problems remain. Some of these problems are shared with Pongera, such as the uneven distribution of benefits and the disproportionate impacts on women

**"Pongera is a massive development failure both socially and environmentally. While proceeds from mining development translate into forms of material improvement in the area, the cost of mining in human lives and the degradation of biodiversity far outweighs the benefits of development"**.

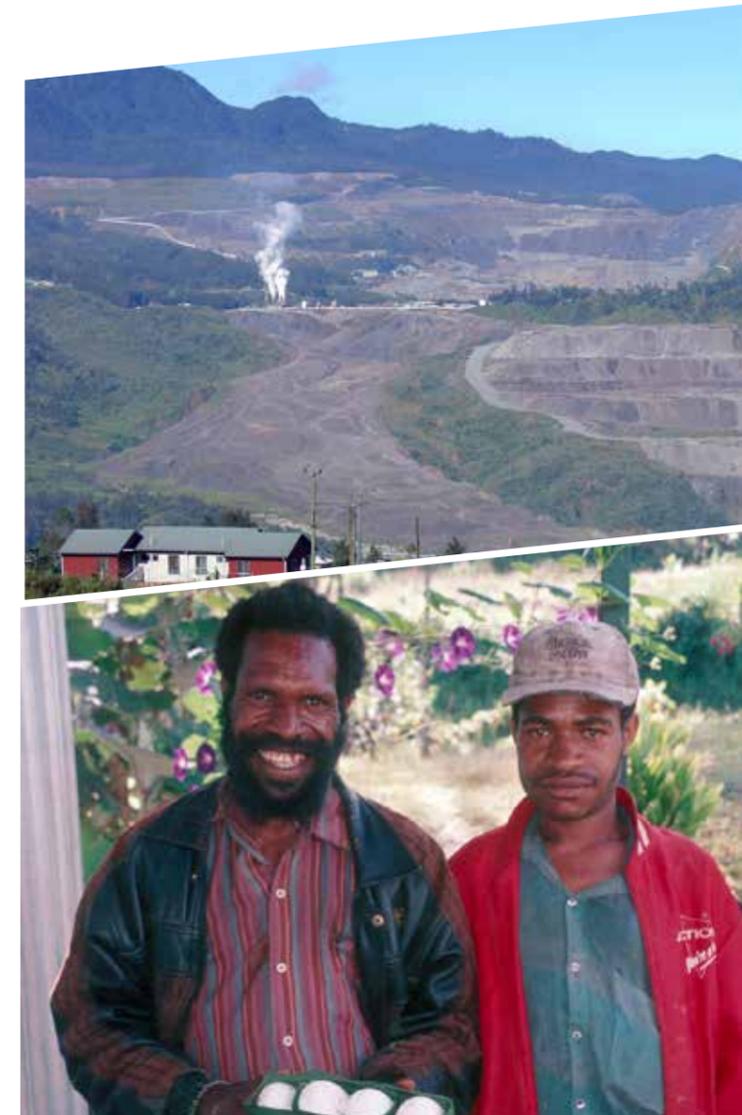
(Byford, 2005). Now, perhaps the best example of industrial mining in PNG is on Lihir Island, where the Lihir landowner-run and owned Anuita Group and the malaria eradication program are two indicators of success. Although, as discussed by Pacheco Cueva (2016), there are many social impacts from the changes brought about by mining, not the least being increased population and the withdrawal of the state (see review article in November 2015 Mining Monitor).

## LAND TENURE AND MINING

Land tenure is critical to PNG's current mining system; it determines who is consulted and compensated. Pongera provides a good example of how the system is unable to accommodate other ways of seeing the land. Jacka describes a traditional multilayered communal property tenure system, where some own the skin (*umbuaini*) of the land, and others the bones (*kulini*). Skin owners are called *anduane* and can bequeath the land to their children to use, though the true owner of the *kulini* remains the collective. Land can also be lent, though there are clear restrictions on the use of trees - which have their own tenure system, such as permitting access to trees owned by others, but growing on your land. This complexity separates the topsoil, plants and structures of the land from what lies beneath, a separation that is vital to daily kinship and reciprocity interactions and for understanding land-human interactions across time and space. This is also a complexity present in western property systems, though often the owner of the minerals beneath the skin is the state, not the community, making it more of a legal construction than a driving force of daily interactions (Jacka, 2015b).

This is not the end of land-ownership complexity, with traditional social practices encouraging couples to affiliate with grandparents' clans, leading to the practice of coming and going (*pu ipu*) between communities, with couples having multiple residences and gardens linking them to more than one tribal land. Complications can then ensue with the sharing of bridewealth payments, receipt or compensation for wrongs and the proceeds from mining. Adding further to the complexity of clan or tribal groupings is the active process of recruitment, a process that

deliberately seeks kin and even non-kin people for their lands. Jacka describes this system of high mobility and recruitment as working well, **"...promoting group resilience against frequent social and ecological upheavals"** (Jacka, 2015c, p. 61). This complex tenure system was radically altered, not so much by the act of mining itself, but by an economic rationale and Western imposition that could not see or value other ways of being.



**CSR AND POST-INDUSTRIAL LIFE**

CSR bears harsh criticism from Jacka, who describes CSR programs that ‘fetishize’ resource extraction projects, diverting people’s attention from negative impacts to positive projects and are often short-lived and ineffectual. *“In the Porgera case, various CSR programs undertaken by the mine often fail shortly after their inception due to funding drying up or through failure to follow through on commitments to the community”* (Jacka, 2015c, p. 59).

In his essay, Jacka examines a CSR coffee project, which tumultuously ended in 2006 when warring tribes destroyed each others trees. By linking the eventual destruction of the coffee trees to retributions for a death in 1999, Jacka describes how a series of payback events eventually led to the destruction of the Maliapaka Coffee Plantation, followed by a large-scale conflict that engulfed all the coffee-growing stakeholders. The example proves how even well-intentioned development projects can both exacerbate as well as be vulnerable to community tensions and how a project designed to mitigate economic inequalities can generate new ones.

The strength of Jacka’s understanding of what he called the “deleterious effects of mining and CSR,” can be felt in his often evocative description of post-industrial life. Jacka eloquently describes bearing

witness to the abjection of local communities who are waiting expectantly for development guarantees that will be sure to improve their lives, however, feel abandoned by the imminent projects that never quite live up to the promise. This is a sad but familiar tale, however, perhaps more surprising, is the difficulty of industrial life; where long hours, constant demands for money from relatives and the perils of getting to work see embittered mine workers quitting. This abjection, made worse by earlier optimism, leads to a situation where *“...the promises of development that have come and gone in the matter of a decade and a half or so arouse strong feelings of resentment at their predicaments which often find outlet in intergroup and everyday forms of violence”* (p60).

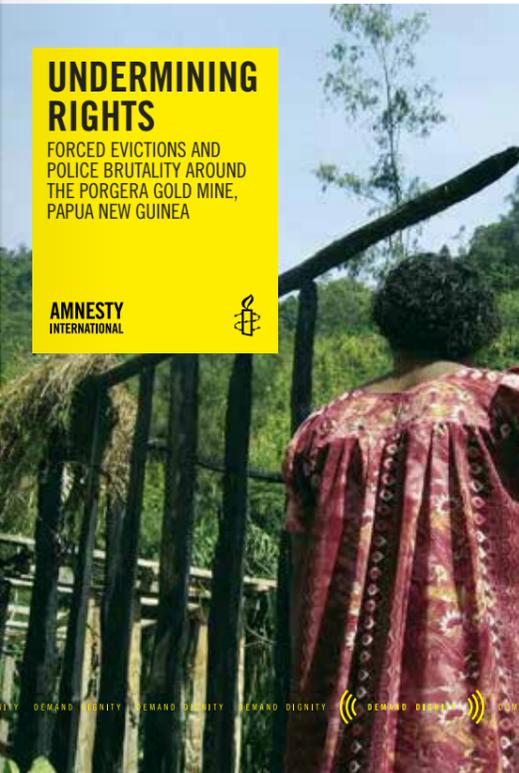
This is not an argument that the CSR projects generate violence, rather that CSR, like mining, is hard to do well. While I myself have argued for many years that CSR projects cannot work when they are used just as a tool for managing community relations, it was still confronting to see CSR’s deficiencies laid bare. Jacka writes of how *“...half-hearted attempts at CSR undertaken to ensure business operations continue uninterrupted are likely to exacerbate underlying inequalities already present in affected communities”* (p.67).

The sheer hopelessness of the false promises inherent with mining-led development seems more

like a slowly unfolding Greek tragedy, rather than a dilemma. This is a kind of tragedy where violence and theft become occupations, begetting more violence and the circle of payback killings continue. This tragedy has ensured that a state of emergency has become necessary to protect the mine from the people which forces one to question who benefits from mining-led development and CSR project outcomes. By the end of Jacka’s article it’s hard not to agree with his description from *Alchemy in the rainforest*: that Porgera is a massive development failure.

Postscript: While Jacka’s article finishes in 2006, we now know of the continuing violence, especially against women, with reports by Amnesty, Human Rights Watch International, Mining Watch Canada and the Columbia and Harvard Law School in recent years.

Reports: Amnesty



**RIGHTING WRONGS?**

BARRICK GOLD'S REMEDY MECHANISM FOR SEXUAL VIOLENCE IN PAPUA NEW GUINEA  
Key Concerns and Lessons Learned



By  
Columbia Law School Human Rights Clinic  
& Harvard Law School International Human Rights Clinic

Images: Jerry Jacka



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Images: James Leach

# THE HIDDEN COSTS OF ‘MINING DEVELOPMENT’: A VIEW FROM THE RAI COAST OF PAPUA NEW GUINEA

**Neville Ellis**

This article explores how a large-scale mining development located upon the Rai Coast of Papua New Guinea is transforming how a local community value their land. Throughout history, different cultures have ascribed different meanings and values to their local environments. These values are important, as they shape personal and collective behaviours – behaviours that largely determine the long-term sustainability of communities and societies (Diamond, 2005). It is a grim fact of the modern condition, however, that there remains little opportunity for

people to express the value of land beyond simple economic measures. Indeed, much has been written about the universalising qualities of neoliberal globalisation and how it affects peoples’ attitudes and values towards land (e.g. Plumwood, 2002; Shiva, 1993). To be ‘rational’ human beings in the neoliberal age is to conform to the logic of the market. To do so, we are required to think of land as ‘property’ and to view ‘value’ purely within economic terms. In the process, the intangible value of land – as a place of home, identity, spirit and culture – is silenced, or lost.

Over the last twenty years, neoliberal-styled globalisation has spread to all corners of the Earth. Even in the most remote places, conflicts between industrialised and traditional modes of valuing land now exist. This is evident in research conducted by Professor James Leach: Directeur de Recherche at the Centre for Research and Documentation on Oceania (CREDO) and ARC Fellow with the University of Western Australia. Over the course of two papers (2011, 2014) Leach examines how a modern mining venture is impacting relationships between people and land in Reite, a small community located on the Rai Coast of Papua New Guinea (PNG).

Like many communities throughout PNG, the Reite are mostly subsistence farmers who depend upon locally sourced tubers and vegetables, hunting, and some small-scale cash crops. In a very direct sense, the Reite are dependent upon the land for their nourishment, shelter, livelihoods and wellbeing. The most striking feature of Leach’s writing, however, is his ability to portray the centrality of land for the Reite’s way of life. The Reite’s relationship to land, and to each other, is one of mutual interdependence and reciprocity. It is a way of life in which the boundaries between self, other

and land blur. As Leach observes: *“The Reite social world is one in which land and people are explicitly and consciously interwoven in the processes of social formation, production, and reproduction [...] Kinship is rooted in particular places; land underwrites the social relationships it nurtures”* (2011, p. 310). Put simply, the Reite are *“land made mobile”* (Leach, 2011, p. 312).

The importance of taro in Reite culture demonstrates the interrelatedness that exists between land, family and self. Taro is a staple food source gardened in the forests surrounding the community. In addition to nourishing bodies, Leach observes: *“taro gardening provides form and structure to people’s activities, to their interactions, and to the landscape in which it has played a part”* (2015, p. 59). Young people gain knowledge of the taro and of its gardening as part of their initiation into the Reite community. Once completed, the young person becomes a full member of a social structure whose origins, present and future is bound to taro and to the land from which it is grown. Here, the notion that the self can exist independently of land cannot occur, for the Reite see themselves as people whose existence is contingent upon, and emergent from, the taro deity. The land is

thus animated, nurtured and valued by the Reite as the basis and source of all things.

The sense of interconnectedness and reciprocity the Reite feel towards the land is, perhaps, difficult to apprehend for those of us who have been taught to view land as mere “property”. It is testament to the strength of Leach’s writing, however, that we are invited to see the land as the Reite do. And it is from this position of empathy for the Reite’s worldview that Leach’s work gives us insight into the paradoxes that exist for the Reite in their relationships with mining specifically, and neoliberal ways of valuing land more generally.

Located 20 kilometres from the Reite community is Ramu Nickel’s Basamuk processing plant. The facility has been a source of great consternation for the Reite people since construction began in 2006. Much of the community concern relates to potential impacts on the regions’ flora, fauna and fisheries, as well to the livelihoods of those located near and around the processing plant. Of particular concern to the wider Rai Coast community was Ramu’s proposal to dispose of mine tailings using a method known as ‘Deep Sea Tailings Disposal’ – a controversial practice banned in many countries, including the United States and Australia – and the lack of environmental oversight provided by PNG’s pro-development government.

Stories about local communities fighting mining

developments and complicit governments are all too common (think Ok Tedi, Panguna, Porgera, Misima and Tolukuma to name a few). Where Leach’s research departs from the usual analysis of community-development conflict, however, is to examine how proximity to the Basamuk processing plant is changing the Reite’s relationships to land, degrading the Reite’s way of life, and undermining the health of their local environments. This is a transformation that is familiar and symptomatic of broader development changes in PNG. To understand this process, it is first necessary to provide some context.

Since gaining independence in 1975, PNG has protected the rights of its citizens to uphold traditional land practices through the mechanism of ‘customary tenure’. Customary land tenure has its basis in customary law, the content of which is reflective of the societal customs, values and beliefs of those to whom it applies. In the case of the Reite and other landowners throughout PNG, customary land tenure has allowed these people to maintain control over their lands and to participate in forms of land management consistent with their cultural beliefs. According to Leach, however, customary landowner rights have been eroded throughout PNG over recent years by ‘neo-liberal’ economic advisers based in Australia who argue that the economic value ‘locked away’ in customary land should be realised and re-invested in Western-styled ‘development’ (2015, p. 55). In part due to these pressures, the PNG Government passed



Images: James Leach



new legislation in 2009 that allows ‘Incorporated Land Groups’ to lease land under customary tenure for the purposes of deriving compensation from mining activities that use or destroy land (Independent State of Papua New Guinea, 2009 as cited in Leach, 2015). Although the leasing of customary land via Incorporated Land Groups is an entirely voluntary process, Leach argues that these amendments to customary title arrangements play on the Reite’s fears of losing autonomy over their land. As the Reite see it, either they will lose their land to extractors, or they will miss out on the perceived benefits of mining development (e.g. money, education, employment opportunities) if they fail to join an Incorporated Land Group. This has resulted in many people paying significant amounts

of money to join land groups in the attempt to protect their claim to the economic benefits that are assumed to come with mining development. Not only has this process caused much social division as individuals fight each other’s claims over land, the situation is also accelerating a transition from traditional modes of relating to land to one based upon private property rights and economic exploitation.

Partly as a result of this milieu of legislative and social change, traditional ways of according value to land have come under immense pressure. According to Leach, many people in the Reite community consider themselves to be living in the ‘*time of money*’ as opposed to the ‘*time of taro and yam*.’ Broadly defined,

this speaks to the Reite's perception of themselves as people who now accord more importance to 'money' than to traditional and customary values. As a consequence, people are increasingly realising the economic value of their land by transitioning from subsistence horticulture to a 'market-orientated' agriculture. In the case of the Reite, the transformation is exacerbated by the existence of Ramu NiCo's Basamuk processing plant. Desperate to participate in the money economy but having no direct access to the benefits of the mine (the mine neither employs nor pays compensation to the Reite), community members have taken to growing cash crops to sell to the catering companies that service the mine workers. In this sense, not only does the processing plant act as a powerful symbol of the perceived virtues of Western-styled development, it also creates the markets that incentivise the growth of market-agriculture.

It is an intriguing aspect of Leach's analysis that the Reite's shift from traditional land-use relationships to a market-based agriculture is motivated not so much by economic necessity, but by the imaged power of money to deliver a future of wealth and ease. Indeed, as Leach's analysis clearly demonstrates, Reite farmers receive such poor prices for their cash crops that market-based agriculture exists only to the extent that it is supported by subsistence farming. In the pursuit

of cash-cropping, however, not only is the area left for traditional taro gardening and hunting diminishing, in many instances the land itself has become degraded as individuals seek to maximise their economic return. When challenged about their over-exploitative behaviour, Leach notes many individuals reply with a stock answer: *"now is the time of money, and the land is their land to do with as they wish"* (p. 58). It is therefore a terrible irony that the more the Reite pursue market-based agriculture and the more they destroy the land required for subsistence farming, the more likely the Reite will be left without a viable version for either mode of food production. And in the process, the Reite people are caught in a paradox in which the fear of losing their land motivates them to participate in a process that further alienates from the land they fear to lose, the cultural and familial bonds they wish to retain, and the wealth they so desire.

We can hardly blame the Reite for wanting to better their situation. As a people who lack access to even the most basic conveniences of modern living the pursuit of wealth via market agriculture is understandable. However, like so many marginalised people unwittingly or unwillingly brought into the fold of the global money economy, the Reite are subject to the full force of its unequal machinations.

The themes raised in Leach's research have broader implications for global society in the 21st century. An increasing number of scholars have argued that there is something very wrong with how dominant modes of economic thought value land, people and places. Not only does the dominate mode of economic thought tend to disappear alternative modes of land valuation (Shiva, 1993), it also encourages a particular way of perceiving land that allows people to justify its exploitation (Berry, 1995). In the process, cultural and ecological diversity becomes diminished as communities reimagine themselves as market actors rather than members of an ecological community. It is this cultural transition, perhaps more so than any other factor, which underpins the non-sustainability of our global society. In this sense, if the Reite way of life were to fade away - subsumed into the folds of the globalised money economy - we should all mourn its passing, for gone will be another unique expression of the human mind that could teach us how to live in harmony with the world neoliberalism is so desperate to sacrifice in the name of 'rational' economic development.



Images: James Leach



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**MPI IS PLEASED TO SUPPORT THE WANGAN AND JAGALINGOU TRADITIONAL OWNERS COUNCIL, SEE THEIR OPEN LETTER BELOW.**

Dear friends,

When we launched our campaign to stop Adani's Carmichael mine from destroying our country, we knew it wouldn't be easy. Since we first said "no" to the Carmichael mine back in October 2014, Adani have searched for every way they can to undermine our decision.

No longer will Adani and Governments and their backers in the media get to dictate the terms of engagement. We decide for ourselves what we want to do and what we want for our future generations.

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We will continue to fight. We are protecting Wangan and Jagalingou country from irreversible destruction, from complete devastation. We will maintain our stand against the Adani Carmichael mine. Because when we say no, we mean no.

For more information, to volunteer, support and/or donate see [wanganjagalingou.com.au](http://wanganjagalingou.com.au)



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