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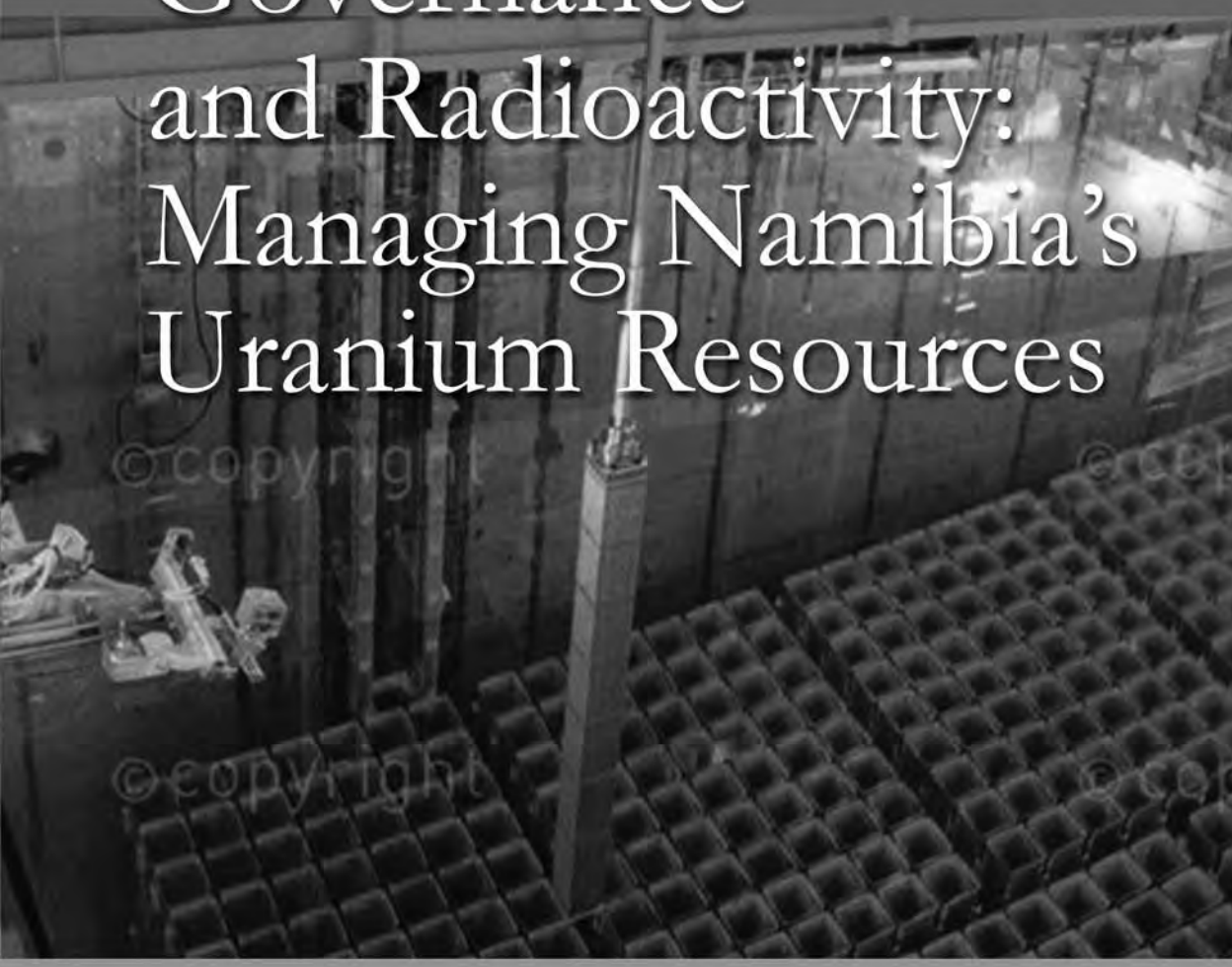
Governance and Radioactivity: Managing Namibia's Uranium Resources



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Extracting Africa's resources

Increased demands for resources around the world have attracted significant new investment in Africa's extractive industries, covering mining, oil and gas, timber and fishing. Some of the investment has arisen because of the attendant boom in commodity prices, while some has arisen from the necessity to secure resources for development.

Traditionally extractive industries in Africa have been extremely powerful in relation to fragile state structures. The diamonds traded in Sierra Leone and Liberia in exchange for arms fuelled civil wars (Global Witness, 2000:4). In the Democratic Republic of the Congo, persistent conflict led to the extractive industries being dominated by warlords, some of who gave mineral and logging concessions to the Zimbabwean and Namibian military establishments (see UN, 2002 esp. paras 22-64; BBC, 2001). We have been seeing sustained mass murder in Darfur due to conflict partly centred on the fate of the region's significant oil resources (Prunier 2007). The forced removal of the San from the Central Kalahari Game Reserve in Botswana is being blamed on De Beers in partnership with the Botswana government (Motlogelwa, 2007).

As a result of growing concerns about the relationship between conflict and mineral extraction, key players in the mining and metals industry instituted the Kimberley process (to combat the blood diamond trade), and the Mining, Minerals and Sustainable Development project (MMSD) aimed at including environmental considerations more centrally in the industry's operations. In 2002, the industry, with World Bank encouragement, set up the Extractive Industries Transparency Initiative, principally aimed at tracking revenues and opposing corruption. Emphasis on company reporting on sustainability standards has been raised by the UN Global Compact, the Global Reporting Initiative and demands emanating from brokers and bourses.

Some of Africa's minerals, particularly oil, iron and copper, are being exploited to meet the industrial requirements of a new wave of fast-growing emerging economies like China, Brazil and India whose seemingly insatiable needs have led to a series of extraction deals with African governments. Some of these deals have been questioned as being inequitable, and alarm bells have begun to ring.

The general picture in Africa remains one in which capital's interests seem unbridled. Despite the more nuanced outcomes of the World Bank Group's Extractive Industries Review, support was still forthcoming from the Bank for the Chad-Cameroon oil pipeline, despite its severe environmental consequences (Horta *et al.,* 2007). Africa's own initiatives include NEPAD (the New Partnership for African Development), whose Programme of Action is one which emphasises how Africa needs to become less of an investment risk by offering more efficient extraction processes, harmonisation of policies, promotion of local beneficiation, and improved skills training. In most jurisdictions, deregulation has increased due to the pressures of globalisation.

In eighteen years since independence, Namibia is still overwhelmingly reliant on foreign companies to extract its mineral resources. Apart from the training contributions of long-established mining companies such as De Beers (partners with the government in diamond company Namdeb) and Rio Tinto (which has operated the Rössing uranium mine since 1976 – see Rössing 2007:8), the more recently established companies have invested little in local skills, so in general their mineworkers have to learn on the job, and almost all managerial positions are occupied by foreign staff. This situation has intensified recently as Namibia undergoes a boom in uranium mining. Uranium is utilised for generating nuclear energy and weapons, as well as some medical applications.

In 2006, Namibia was the sixth largest country supplying uranium, producing nearly 8 million pounds (3 615 tonnes) of uranium oxide (www.uxc.com, retrieved 10 June 2008) out of a global total of 102.3 million pounds (46 412 tonnes). Namibia's share of world production – 7,8% in 2006 – is likely to rise with the opening of new mines.

Pressure is being exerted on the government to allow new mining, irrespective of its impacts on questions of biodiversity protection, water management, energy provi-

sion, and social welfare of the population. The flurry of applications for new prospecting licences for uranium has been so intense that the government was obliged to declare a moratorium on all new applications.

These pressures on countries like Namibia to demand best practice from the investors in the mining industry are not being exercised to their full. Despite having a fairly low ranking in the Transparency International Corruption Perception Index (57 in 2007, cf. Botswana 38, South Africa 43, Mauritius 53) (Transparency International, 2007), Namibia's political culture is one in which access to information is often impeded by government agencies. It will be shown how licences have been granted to foreign uranium mining companies in cases where the integrity of protected areas has been violated, the conduct of environmental impact assessments has been sub-standard, the provision of power and water to the mining areas is not guaranteed, and the level of participation by civil society in the social and environmental assessment process has been questionable.

This article aims to understand why, despite global pressures, governance of the uranium mining industry in Namibia has been so weak. In view of the the recent significant extension of uranium mining in Namibia, and the controversial nature of the nuclear industry, the argument is made for the urgent need to tighten regulation and governance more broadly.

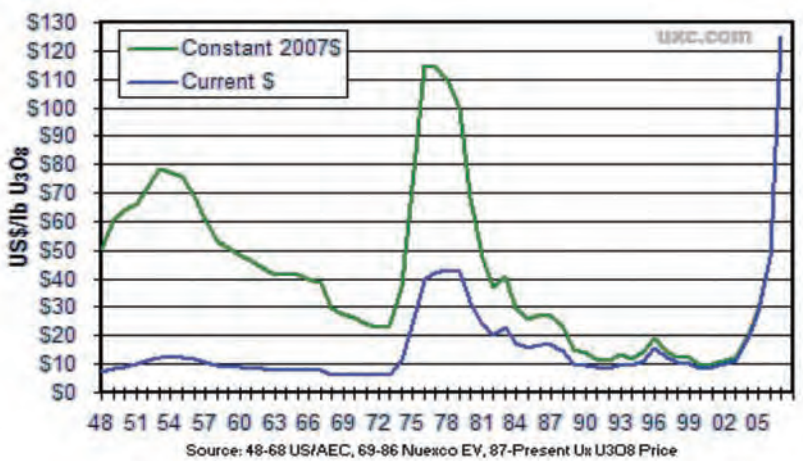
The global uranium economy

The renewed race for uranium in Africa is on. There is significant new development in South Africa. There are attempts to resuscitate former gold mines, in which uranium was traditionally a by-product. This has meant the reopening of old workings, as well as the recycling of tailings dumps. In addition, there is a spate of prospecting for as yet unmined deposits of uranium, particularly in the Karoo and Namaqualand. Similar prospecting activities have been reported in Zimbabwe, although the situation seems uncertain (Hartnack, 2005). A revival of the Katanga uranium deposits in the DRC is underway, and Niger is set to double its output of uranium with French and Chinese investment. In April 2007, the Malawian government gave permission for the Kayelekera uranium mine to be opened (Hajat, 2007; Van Wyk, 2008: 5-11). Prospecting has reached an advanced stage in Zambia (Schatz, 2007) and in Tanzania (Edwin, 2007). Apart from South Africa – which

boasts an expansion programme in the nuclear energy area of an estimated R1,3 trillion – most of Africa's uranium will be destined for consumption elsewhere.

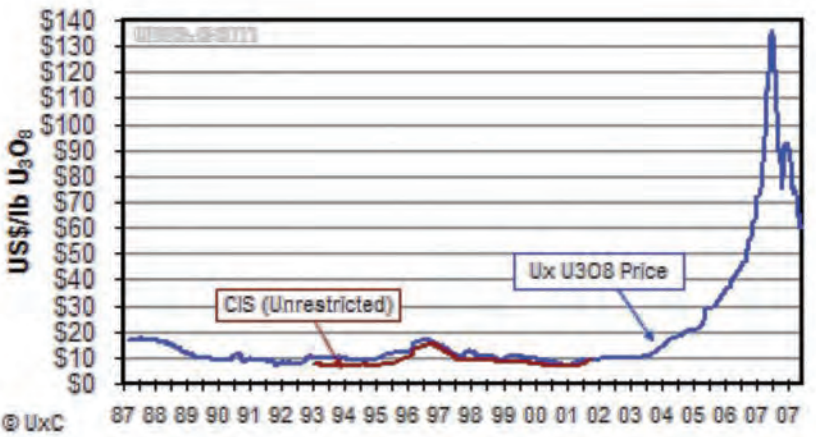
Why is there a renewed interest in the extraction of uranium? Firstly, one needs to look at the movement of the spot price. Since the beginning of the uranium trade in the 1940s, until the mid-1970s, the spot price of yellowcake (U_3O_8) hovered around US$10 per pound (454g). After a rise in the 1970s, coinciding with the oil crisis, the expansion of the number of reactors and the arms race, the price rose to over $40. However, with the growth of the anti-nuclear movement in the late 1970s, reactor orders began to slow down, ceasing almost entirely after the Chernobyl accident (1986) and the end of the Cold War (1991). The price returned to $10, as there was a surplus of uranium on the market due to growing disarmament and the release of former Soviet weapon-based uranium onto the market. From mid-2003, however, the market has revived and reached an astronomical apex at $135 in mid-2007.

Figure 1 **Constant 2007 US$ vs Current US$ Spot U_3O_8 Prices (1948-2007)**



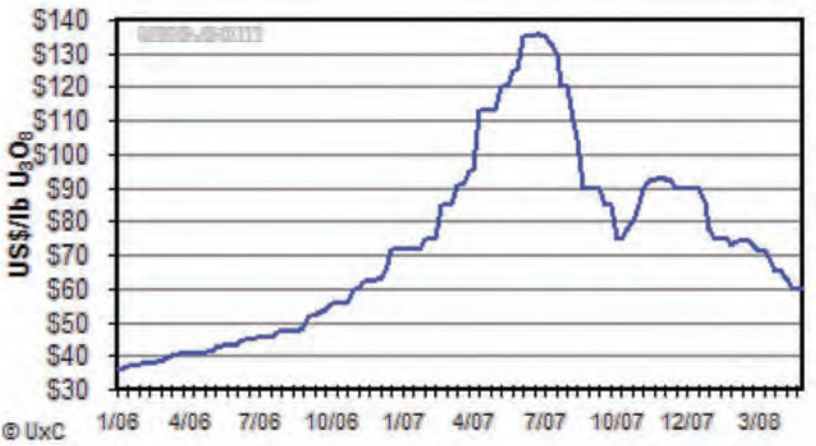
Source: www.uxc.com retrieved on 10 June 2008

Figure 2 **U_3O_8 vs. CIS Prices (1987-2007)**



Source: www.uxc.com retrieved on 10 June 2008

Figure 3 **U_3O_8 Prices (January 2006-June 2008)**



Source: www.uxc.com retrieved on 10 June 2008

Since then there has been a decline in the spot price. By early June 2008 it was down to $59/lb. The winners (amongst suppliers) are those who were in a position to sign longer contracts at higher spot prices. Many of the traditional uranium suppliers are tied into long-term contracts at prices that precede the 2003 upturn.

To what do we attribute the price rise? There seems to be a coincidence of a number of factors:

- the substitution effect of the rise in oil prices. As the petroleum price increases, so other energy prices are increased. The rise in the oil price is linked to perceptions of oil peak, the notion that global supply has or is about to reach its limit after which it is likely to taper off.
- the perception that, by the next decade, the next generation of nuclear reactors will be in place, raising demand for uranium. In fact, the current number of reactors is around 435. Some of these will be reaching the end of their lives over the next decade. There are about 26 new reactors under construction, around 6% of the present number.
- the tapering off of uranium supplies arising from the decommissioning of former Soviet and other weapons. This source glutted the market for some years, but as it diminishes, it is anticipated that the demand for newly mined uranium may increase
- the market currently feels that there will be a move into nuclear energy in response to concerns about carbon emissions and climate change. In reality, although reactors do not emit much carbon, the whole of the nuclear fuel chain emits considerably more carbon than most sources of renewable energy

The nuclear industry in general is attempting to 'talk up' its own importance. After being in the doldrums for decades, due to the global reaction to accidents at Three Mile Island and Chernobyl, the industry is now trying to capitalise on perceptions that nuclear energy could fill the energy gap caused by moves away from coal and by the diminished supply of petroleum. In general, however, the nuclear energy industry depends on heavy state subsidies and is not a competitive energy source in market terms (Diesendorf and Christoff, 2006). The industry is inevitably linked with intractable technical and security problems such as the disposal of high-level waste and the possibilities of the proliferation of nuclear weapons. The insurance industry is fully opposed to nuclear power, such that most insurance contracts will have stan-

dard clauses exempting the insurance companies from any risk of liability from releases of radioactivity. As such the risk is uninsurable and is therefore entirely borne by its consumers.

As a source of energy, nuclear is one of the more expensive options. It takes many years for a new plant to come into being. The industry is notorious for cost overruns and for not meeting construction deadlines.

Uranium is said to constitute 6 per cent of the cost of operating a reactor. This figure may need to be adjusted somewhat to reflect the current spot price. However, even if prices remain constant in the medium term, they are not likely to be the sole factor to cause reactor project cancellations. If too many new sources of uranium mature simultaneously, the spot price may claw back. As it does so, it may erode the profitability of the newer mines.

Namibia – the policy context

The Namibian constitution of 1990 states as follows:

> The State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at… maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of natural resources on a sustainable basis for the benefit of all Namibians both present and future; in particular the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory (Art 95 section L of the Constitution of Namibia, promulgated February 1990).

It would seem that the Constitution insists that the state protect the Namibian environment. Nevertheless, environmental legislation has been elusive. It took seventeen years after independence for the Environmental Management Bill, many years in preparation, to be submitted to the Namibian parliament in December 2007. Jan Glazewski, a professor of environmental law based at the University of Cape Town, had a strong role in developing Namibia's new environmental law. However, according to him, the draft law remained in a drawer at the MET, and took until 2007 to be legislated due to 'an absence of political will' (Interview, Prof Glazewski, 20 July 2007). Technically the Act still remains to be promulgated at the time of writing in September 2008, and is therefore not yet in effect. There is some hope, however, that its promulgation may occur before the end of 2008. Meanwhile, a number of the Acts of the apartheid South African parliament and ordinances of the colonial administration still apply in Namibia, even though within South Africa successor bodies have long since repealed or rewritten these laws.

The Ministry of Environment and Tourism (MET), has, meanwhile, established some policy guidelines. For example, in 1994 it introduced a policy on

Environmental Assessment. These assessments need to be undertaken by the developer of any mining or beneficiation projects. The mandate to oversee these practices emanates from legislation that has yet to be passed; as such, the policy in its strictest sense has no legislative base.

A further policy document is entitled 'Policy for Prospecting and Mining in Protected Areas and National Monuments (1999)'. Very few people have been in a position to access this document, which is not available on the MET website.

During the 1970s, licences were granted by the South African administration for the mining of uranium by Rio Tinto Zinc, in conjunction with some South African investment. In 1976 mining began at Rössing, some 100km east of Swakopmund. The mine eventually became the world's largest open-pit uranium mine, producing up to 4% of global demand for uranium. Contracts were concluded, *inter alia*, with Britain, France Japan, the Soviet Union, and the US. Trade routes were carefully safeguarded to bypass stevedore boycotts in solidarity against South African occupation of Namibia. British and Canadian solidarity activists monitored the conditions under which the uranium was produced, and published exposés of the health risks to workers and the environment (Dropkin and Clark, 1992), which had been glossed over by RTZ. Ownership patterns – reflecting a legacy of past South African collaboration with the Iranian Shah – currently remain as Rio Tinto Zinc 69%, Government of Namibia 3%, Government of Iran 15%, Industrial Development Corporation of South Africa 10%, 13 unnamed private shareholders 3% (Rössing, 2007: 2).

RTZ relied on corporate social responsibility practices to retain its 'social licence to operate' in Namibia. One of its key instruments was the Rössing Foundation, established to provide financial support to NGOs and community-based projects throughout Namibia. As the NGO sector became increasingly dependent on the Foundation's philanthropy, much of the public criticism of the company's poor health and environmental practices and the unregulated illegal trade in uranium abated. The Mineworkers' Union of Namibia (MUN) was too fragile, especially after the crushing of a major strike in 1978-9, to contest the dangerous working conditions at Rössing, although in clandestine meetings with the author in 1987, some workers revealed their awareness of significant malpractices (also see Rogers, 1980).

RÖSSING TIME LINE

Years	Events
1915	Namibia, then SW Africa, occupied by South African troops
1920	League of Nations grants mandate to South Africa to rule SWA
1928	Capt Peter Louw discovers radio-active rocks at Rössing
1963	International Court of Justice revokes South Africa's mandate
1965	Prospectors find signs of uranium, Rio Tinto takes an interest
1966-71	Exploration stage
1970-76	Price fixing uranium cartel operates (SA, Canada, UK, US)
1970	UK Technology Minister Tony Benn signs contract to purchase 7500 tons of uranium, thus providing finance for Rössing's development; contracts with Japan do likewise
1972-76	Construction and development stage
1974	UN Council for Namibia issues Decree no 1, outlawing the exploitation of Namibia's natural resources
1976	June: First uranium oxide produced
1978	Rössing Foundation created
1978-79	Strike by mineworkers
1980	Production of 4 800 million tonnes of uranium oxide
1990s	Uranium price falls and Rössing downsizes (1438 jobs shed)
2003	Announcement of closure in 2009
2006	Closure postponed to 2016
2007	Closure further postponed to 2021
2008	Rössing announces potential to stay open until 2030 and increases production from 4000 t/a to 4500 t/a

Sources: Moody (1992: 636ff; 654-684); Sandra Müller interview (Swakopmund, 8 May 2008); Rössing website (www.rossing-com.info retrieved 10 June 2008); APA (21 August 2007); *The Namibian* (29 August 2008); WISE website (www.wise-uranium.org/umoproe.html, retrieved 7 September 2008).

Despite numerous SWAPO pronouncements against the illegal extraction of uranium by RTZ prior to independence, the post-1990 government took no action to curb or penalise the transnational corporation, whose operations simply continued. By 2003, RTZ had decided to scale back on production and made plans to close the mine by 2009. However, the unexpected boom in the spot price has extended the life of the mine to at least 2016 (Interview with Sandra Müller, Environmental Scientist, Rössing Uranium, Swakopmund, 8 May 2008).

The Namib-Naukluft National Park

The Namib-Naukluft Park is located to the south of an imaginary line drawn between Walvis Bay and Windhoek, and north of one between Lüderitz and Keetmanshoop. It contains some of the most important desert-based biological resources in the sub-con-

Map 1: **Namibia's protected areas**

Source: Tarr (ed.) 1996: 21.

tinent, since the Namib is one of the world's oldest deserts, possessing the world's highest sand dunes at Sossusvlei. The park has a surface area of just under 50 000 hectares, making it Namibia's largest protected area. The original proclamation of the Namib Park was in 1907, with the Naukluft Mountains and some of Diamond Area 2 being added in 1979. In 1986 the rest of Diamond Area 2 was included.

Map 2: **Northernmost part of Namib-Naukluft Park**

Source: NASA satellite photograph

In the northern area of the park there is a confluence of three desert ecosystems: the dune fields, the gravel plains and the Kuiseb riverbed where they meet. The riverbed, dry for most of the year, experiences perennial flooding, hence the sand from the dunes is washed into the sea, rather than being able to cross the river.

The white block in Map 2 indicates the uranium mining site, south of the Langer Heinrich Mountains and approximately 85 km southwest of Swakopmund.

The mining site falls within the Namib-Naukluft Park, which on paper enjoys the highest form of protection. The park is administered by the Ministry of Environment and Tourism (MET), responsible for the maintenance of roads, and campsites for tourists. Most visitors require permits indicating their activities within the park. The campsites nearest to the mine are at Tinkas, where there is a hiking trail, and Bloedkoppie, where there are some tourism facilities. The local Topnaar community, resident in the Kuiseb basin, descendents of Nama-speaking people (see

Vigne 2000), have been entrusted by the MET with the development of campsites in three other places located to the south of the mining area. Part of the attraction of the area is the scenic beauty and presence of numerous desert species of flora and fauna. The remoteness of the area and the desolate landscapes contribute to a very unique sense of place. The hiking trails are extremely challenging (Verwey 2007: 66ff.). Clearly the mining of uranium in the immediate area is likely to have a negative impact on the tourism efforts of the Topnaar.

Paladin Resources Ltd

With the price of uranium climbing rapidly from mid-2003 to 2007, those companies that caught the crest of the wave stand to do very well out of the business. Paladin is a small Perth-based mining company, quoted on both the Australian and Toronto Stock Exchanges. It needed very little capital to enter the business, and the boom in uranium has elevated its share price considerably. It took advantage at the end of the 1990s of low prices then to buy into uranium concessions in Namibia, Malawi and at two sites in Australia.

The Langer Heinrich uranium deposits in Namibia had been known about since 1968, when the South African Geological Survey undertook aerial radiometric surveys of the central Namib Desert. The survey resulted in a concession being put out to tender. This was won by a concession headed by the South African mining company Gencor. Gencor verified the aerial evidence by undertaking terrestrial radiometric surveys, and by 1976 did systematic test drilling in the area. The company commissioned a test pit and undertook screening of the ores. After considerable test results, it concluded that the uranium resource amounted to 34 500 tonnes of U_3O_8. However, the declining price of uranium, particularly after Chernobyl, ruled out the possibility of any profitable exploiting of the resource. Gencor left the project in 1987.

Ten years later an Australian company, Acclaim, acquired the project and confirmed that the Gencor data showed the presence of a considerable source of uranium at Langer Heinrich. The deposit was re-estimated at 37 500 tonnes, with profitability being possible above a price of US$14/lb. However prices remained too low to satisfy the company, and in August 2002 it sold the project to Paladin.

Paladin reputedly paid A$15 000 for the concession at a time when the company only possessed A$50 000 in its coffers, and when its shares were trading at one cent (*The Age*, 27 December 2006).

The Langer Heinrich deposit is very close to the surface and therefore relatively easy to mine. It occupies a length of 15km and a width between 50-1100 metres. From this deposit the expected yield of uranium oxide is 1.1 million tonnes each year for a period of at least ten years.

By January 2003 it had developed a proposal for a bankable feasibility study (BFS), which was undertaken by a Johannesburg-based engineering firm GRD Manproc from February to November 2004. Much of the work for the BFS was broadly consistent with the prior conclusions of the Gencor and Acclaim research.

Namibian mining legislation obliged Paladin to conduct an environmental assessment (EA). The assessment process had to follow guidelines produced as a policy document by the MET. The contents and process of the EA will be dealt with below. However, for the moment, it is important to note that the EA report, despite significant flaws, was accepted with indecent haste by the government, who then granted Paladin permission to construct the mine.

A further prospecting licence was granted in November 2006 to Paladin to explore an area of 30km^2 adjacent to the western boundary of the original concession. First production was scheduled to commence in September 2006, but the mine was only opened formally on 15 March 2007. The ceremony was attended by Namibian state President Hifikepunye Pohamba, the Australian High Commissioner Philip Green and other dignitaries. Pohamba stressed the Namibian government's strong support for foreign investment. Soon after the ceremony the first shipment of 10 tonnes of U_3O_8 went to US firm Converdyne, which converts uranium oxide to uranium hexafluoride for enrichment purposes.

Over the past three years Paladin share prices have soared by 6514%. This has made them the second-best performer among the 1879 stocks quoted in Morgan Stanley Capital International's World Index. (O'Brien, 2007).

However not all has gone smoothly for Paladin. Extending of its production has been problematic, due especially to equipment failure in heat exchange issues. This has resulted in a reduction of production from an anticipated 400 000 lb to 270 000 lb in June 2007 (*World Nuclear News*, 13 June 2007).

In Malawi, Paladin faced court action by a coalition of NGOs, which aimed at challenging irregularities in the conduct of Paladin's environmental assessment of the Kayelekera uranium mine. The intervention of a civil society coalition forced concessions out of Paladin which will now provide a number of social provisions to affected communities in the Karonga district. However these concessions split civil society, one section of which was opposed to the mine in principle, for environmental reasons, while the other was more open to the mining going ahead under tighter environmental and social conditions (Presentation by Rafiq Hajat to meeting on SADC natural resources, Ekurhuleni, South Africa, 17 March 2008).

Awash with cash, Paladin has also attempted and failed to become sole owner of Australian uranium mining company Summit. French state nuclear corporation Areva stepped in to acquire over 10% of Summit, thus preventing Paladin's hostile take over. It is still uncertain in Australia as to whether the current policy of no new uranium mines will be overturned. In turn Paladin may be facing a takeover bid by Comeco, Canada's largest uranium mining company, whose Cigar Lake uranium project in northern Saskatchewan has been seriously delayed due to flooding, and which is therefore seeking new assets (Christopher Donville and Gavin Evans, 'Paladin and ERA shares fall on uranium price concerns', *Bloomberg.com*, 27 June 2007). Investor hype over Paladin has been challenged by UBS brokerage, which stated in a client note, "While we think the outlook for both uranium prices and the company itself remains strong, we are taking a more cautious view until we see demonstration of production out of Langer Heinrich." ('Paladin Resources shares soar above $8', *The Age*, 27 December 2006).

Environmental assessment

In compliance with Namibia's Minerals Act (no 33 of 1992), Paladin contracted the Johannesburg-based firm Softchem to conduct a formal environmental assessment of its project to mine uranium at Langer Heinrich.

Normally, an environmental assessment (EA) should follow a specific set of procedures, and be aligned with principles such as integrated environmental management. Over the past two decades, these procedures and principles have become more standardised and professionalized. Management of the process is left to independent consultants, paid for by the developer. The procedures usually follow a staged approach of scoping, followed by the conduct of more detailed studies, leading up to the compiling of a draft EA report by consultants. Following a round of public input, the consultants then produce the final EA report. It is usual for the report to adopt a methodology of comparing the project to its alternatives, often including a 'no go' option. At each stage the managers of the process meet with and respond in detail to the concerns of interested and affected parties. The amended report – and any remaining public concerns – are ultimately submitted to government with a view to hearing all sides and producing a formal record of decision. Some EA procedures may also include a review process, conducted by an independent panel or organisation.

In the case of the Langer Heinrich EA report, issued in April 2005, there were numerous procedural and technical shortcomings.

These shortcomings were noted in a number of documents:

- the Southern African Institute for Environmental Assessment, based in Windhoek, is a reputable independent organisation, and was commissioned to do the external review of the EA report. In its review dated July 2005, it concluded that the report was deemed to be in the category of 'inadequate', due to major omissions in information provided. A key concern was the failure of the report to conduct specialist studies on the sourcing of water for the project, since the project would become one of the largest consumers of fresh water in the country. Instead the report simply accepted the view of the utility Namwater that they would have no difficulty in supplying sufficient water.
- An environmental organisation, Earthlife Namibia, raised resources to commission a review of the EA report by the German-based Öko-Institut. The review concluded that the EA underestimated radiation doses to the public and the workforce; that there was inadequate consideration of the water resources necessary to operate the mine; that there was inadequate treatment of the environmental impacts of tailings disposal; and that there were serious flaws in the assessment of impacts on groundwater.

- Geologist Dr Stefan Cramer, resident representative of the Heinrich Boell Stiftung in Southern Africa at the time, produced a critique of the report, which raised many technical questions about the environmental impact of the project including the failure to model dust levels, and the failure to consider the impact on tourism.

None of these objections were considered in the record of decision, which was issued in early August 2005. Some commentators noted that the External Review document was buried by the MET, which kept it out of the public domain. The MET was considered to have made its final decision in indecent haste and without any systematic consideration of the objections made in the external review.

Government response to the Öko-Institut's report was to denounce Earthlife Namibia for having commissioned it. Government also issued objections to the fact that the independent review team consisted of foreigners. This chauvinism was misplaced, in view of the fact that not only were the developers, Paladin, foreigners, but so were the consultants whom they hired to draft the EA report.

In procedural terms there were other difficulties: the EA report failed entirely to consider alternatives to the uranium mining project. The only alternatives considered were the routes which their electricity pylons and water pipes would follow. Little attempt was made to consider alternative land uses, such as tourism. Since the project was only likely to generate around 130 medium-term jobs, the opportunity cost for sustainable tourism in the area should have been examined. In the case of mining, most of the profits will be repatriated to Australia; whereas with tourism, a greater part of the revenue would remain in Namibia.

Given the history of the uranium mining industry in Namibia compromising worker health, it is severely disquieting that the EA avoided providing a full assessment of the doses of radioactivity to which workers are likely to be exposed throughout the entire period of their working lives on the mine. The Öko-Institut document argues that the EA seriously underestimated the doses which would be emitted at the mine.

While the external review approved of the level of public participation, the EA report only refers to the conduct of three public meetings, with an average atten-

dance of 31. In each case about half those attending represented the developers and the consultants. During the process only eight individuals were registered as interested and affected parties, three of whom were employed at the Rössing mine, and only two of whom were representatives of civil society organisations. This is patently inadequate. At the Swakopmund meeting, public attendance reflected more of an interest in potential employment than in environmental concerns (Willem Odendaal, pers. comm.).

Throughout the EA process, there was almost a complete absence of public debate about mining in a national park. No one from the national parks or wildlife agencies participated in the EA, nor were they consulted about the principle of mining in a protected area. The EA report noted the earlier activities of Gencor and Acclaim in the park, but never questioned the right to mine in the park. There was no attempt to bring attention to the 1999 policy document of the MET on Mining and Prospecting in Protected Areas. This policy should have been raised in the EA report and made transparent in order to demonstrate the necessary special precautions a mining development would have to take to preserve the integrity of a national park. There were no objections or comments offered by the wildlife authorities and the nature conservation movement.

Silence flies in the face of constitutional commitments to safeguard the country's biodiversity resources.

Indeed the most telling comment during the process came from the former Trade and Industry permanent secretary Mr Andrew Ndishishi. In 2005 he responded to Earthlife Namibia's concerns over Langer Heinrich by insisting that in cases of conflict between the environment and mining development, "it is the environment which will have to be sacrificed."

Namibia seems to have moved away from the position taken by former President Sam Nujoma ten years earlier, when he stated that:

> When I returned to Namibia after spending many years in exile, I was shocked and sad to see the extent of environmental damage in our beautiful country. … Having grown up in rural Namibia, I was instilled from a young

> age with a love for nature, and the changes around us prompted me and my government to place environmental protection high on our priority list for action. … We cannot afford to choose easy options for short-term gain if this will reduce future options in the long term (Tarr 1996:5).

In Namibia it is difficult for civil society to speak out without fear. This applies even more to public servants. Somewhere it has been decided that there will be no restrictions on foreign investment, no current legislation to regulate environmental pollution, no adherence to granting national parks the highest forms of environmental protection, and no toleration of a critical civil society.

Despite the silence, Earthlife Namibia courageously arranged public meetings in both Windhoek and Swakopmund in which the question of the government's decision to allow uranium mining inside a national park was placed squarely in the public domain (Fig 2005b). At both meetings the attendance far exceeded that at the EA public participation meetings. People in the audience took advantage of the opportunity to express what they had not been given a chance to raise during the EA process. Legal and human rights organisations added their concerns to those of the environmental lobby. The meetings were also enriched by the presence of a human rights worker from Malawi, concerned with Paladin's practices in attempting to mine uranium in the northernmost part of the country. The media showed some interest, and Earthlife Namibia was able to arrange follow up meetings in Swakopmund, the area most affected by the mining.

It was clear from the questions raised in public at the meetings and in private questions posed after they were over, that there were considerable misgivings about the project from many scientists, conservationists, engineers and others. However they felt constrained to speak out publicly.

In Namibia, dissent on policy issues is seen as tantamount to challenging national interest. Having consolidated power since independence, a small leadership group within the ruling party, SWAPO (South-West African People's Organisation), defines this interest, regarding criticism as unpatriotic (Melber 2003:19). The party's political culture derives more from its authoritarian roots as a liberation movement faced

with apartheid occupation, than from Namibia's modern constitution devoted to democracy and human rights (Lamb 2007:172). This culture of intolerance persists partly because opposition parties are weak and critical voices have feared jeopardising their access to resources controlled by the state (see, for example, *The Namibian*, "SWAPO advocates political cleansing", 14 August 2008).

Prospects for the future – mines and nuclear reactors

Since Paladin received permission to mine uranium inside the Namib-Naukluft Park, three more companies based in Western Australia have begun to prospect within the boundaries of the protected area:

- **Husab.** Extract Resources is busy trying to commercialise the Ida Dome area within its Husab property. On 19 October 2007, it announced the success of its preliminary scoping study, yet insufficient exploration has taken place to ensure the presence of a mineral resource.
- **Goanikontes.** Bannerman Resources was incorporated in 2005. In September 2007 it tabled the results of a detailed scoping study into the economic viability of its Namibian operation, confirming a viable operation with strong cash margins from the start date of 2010. The site is located inside the Namib-Naukluft National Park.
- **Tubas.** Reptile Uranium Namibia (Pty) Ltd is exploring this site along with the adjacent sites of Tumas, Ripnes and Aussinanis. The company is fully owned by Deep Yellow, of which Paladin (the operators of Langer Heinrich) is an 11% shareholder. Tubas was formerly owned by Anglo American. The site is located inside the Namib-Naukluft National Park.

In addition, two sites north of the park are being exploited, Trekkopje and Valencia. In the case of **Trekkopje**, national utility Namwater admitted in April 2007 that it cannot supply sufficient quantities of water for the mining project. Canadian owners UraMin Inc. were therefore obliged to build a 15 million cubic metre per year desalination plant near Wlotzasbaken on the coast (*Allgemeine Zeitung*, 5 April 2007). More recently the company has been bought by the French state nuclear utility, Areva, and has offered 35% of its output to Chinese buyers.

Valencia, run by Forsys, a Canadian company, intends to mine 90 million tonnes over eleven years, starting in 2008-9 (*The Namibian*, 27 April 2007). On 1 November 2007, the Korea Electric Power Company entered into discussions with Forsys about future joint ventures, including Valencia. The company received permission in February 2008 to abstract water from boreholes in the subterranean Khan River and an ancient aquifer known as the "palaeo channel". Immediately, the owners of a tourism operation located 5km from the Valencia site, Namib Plains cc, challenged this permission in court, arguing that their operations would be impacted upon negatively should most local water be abstracted by the mine. It transpired that permission had been granted to abstract a million litres a day without any conduct of empirical studies on the amount of water available in the Khan river and the "palaeo channel" (Menges, 2008). Namib Plains argued that they had not been consulted when the permits were granted. The court dismissed the case and ordered the tourism operators to pay costs, concluding that the permits were not necessary since there was no proof that the area was declared as a subterranean water control area. This decision was subsequently submitted to an appeal process (Interview, Norman Tjombe, Director, Legal Assistance Centre, Windhoek, 7 May 2008). In the interim, the government has accepted the Environmental Impact Assessment report and the management plan for the mine (*Namibian Economist*, 8 June 2008) without putting forward any evidence about how abstraction of water from "one of the driest areas on the planet" would affect the Kahn/palaeo ecosystem. The mine is also applying for new permits and the government is ignoring administrative justice by failing to consult widely with affected parties.

Whereas the Valencia case "could have been a groundbreaking case for the environment - testing the constitutional environmental law clause (Art 95(l)), constitutional administrative justice clause (Art 18) and the natural justice clauses, such as the *audi alteram partem* (hear both sides) and *locus standi* (legal standing to bring a case to court," Odendaal notes that this sadly never materialized (pers. comm.). He attributes this largely to the fact that Namibia's environmental legislation remains weak and outdated: water legislation still reflects the old and inefficient South African law of 1956, an era when little consideration was given to environmental aspects of water management. At the time when the Valencia case was heard in court, the Environmental Management Act was still not in place. In the absence of the Act, principles such as the internationally established precautionary principle

(as well as a number of other international legal commitments) could not legally be enforced on the mining company.

Russian and Japanese firms have also expressed interested in investing in Namibian uranium mining projects (WISE, 2007:1). Over twenty prospecting licences have been issued. The Ministry of Mines and Energy have been receiving so many applications for further prospecting that it cannot process any new ones. In April 2007, Minister Erkkie Nghimtina announced a moratorium on further applications (*Allgemeine Zeitung*, 25 April 2007). This measure was taken purely for administrative reasons, and not for socio-environmental considerations. Said Permanent Secretary Joseph Iita, "It's a matter of regulating the issue of licences. Everyone is running to Namibia for uranium, and we don't want every Jack and Jill mining uranium" (*The Namibian*, 14 February 2007).

Despite being blessed with extensive potential for solar and wind power, Namibia is investigating the possibility of using nuclear power as an energy source. Ironically the country relies for a considerable part of its electricity on imports from the South African grid, 5 per cent of which is derived from nuclear energy (Fig 2005a). When outages are experienced as a result of problems at the Koeberg nuclear power station outside Cape Town, exports are limited to Namibia, giving the perception that the country already relies on nuclear energy. Early in 2006, the Namibian government announced – at a workshop on renewable energy – that it was considering its own nuclear power supply (Dentlinger 2006).

In pursuing this option, the Namibian government is engaged in talks with both Russia and South Africa. Prime Minister Nahas Angula has been engaged in talks with Russian nuclear energy officials regarding the potential use of Russian nuclear energy technology. Namibia is concerned about the energy deficit resulting from cutbacks of electricity imports from South Africa. However the projected energy deficit is 300 megawatts, far less than the output of a conventional nuclear reactor. Two Russian companies, Renova and state-run export bank Vneshtorgbank, possess licences for uranium extraction in Namibia as a joint venture. On a recent visit to Namibia, former Russian prime minister and head of state nuclear enterprise Rosatom, Sergei Kiriyenko, offered to build a floating nuclear power station off the Namibian coast (*The Namibian*, 26 February 2007).

Map 3 **Additional uranium prospecting and mining sites inside or adjacent to the Namib-Naukluft National Park**

Source: www.extractresources.com/Projects/tabid/603/Default.aspx retrieved on 6 November 2007

In October 2007, President Hifikepunye Pohamba officially visited South Africa, holding bilateral economic talks, which included an exploration of energy alternatives such as 'joint nuclear technologies'. In a statement released after the meeting, South African trade and industry minister Mandisi Mpahlwa said:

> (We are grappling with the challenge of energy security and there is stronger movement towards sources of cleaner (*sic*) energy. Nuclear energy is an issue that has emerged … on the agenda of the world at the moment, viz. to look at nuclear energy as part of the mix when considering sources of energy (South Africa, 2007).

While it is too early to predict the outcome of these talks, one consideration, which may be facing Namibia, is the opportunity to import in the future a Pebble Bed Modular Reactor (PBMR) from South Africa. This is a small high-temperature reactor which is still in the development stage, having an output of 165 MWe (Fig, 2005a:81ff). Two of these might meet the projected Namibian electricity deficit.

Of course, going nuclear would not be in Namibia's best interests. Given other more viable options, the nuclear path would entail massive expenditure, filling the deficit of highly-skilled operators, the need to set up a fully-fledged regulatory apparatus, the need for a nuclear waste management system, and the costs of decommissioning in the future. Not including the risk, the costs of such an enterprise would include relying on expensive outside expertise and burden the Namibian treasury and taxpayers for many years to come.

This is likely to occur in a policy environment of authoritarianism, secrecy and intolerance (Melber, 2003b), and of a vacuum in terms of any environmental legislation or nuclear policy. The Constitution also talks explicitly of not importing nuclear waste into the country. Article 95 (l) states: "in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory." Clearly the intention of the Constitution was to guard against the country becoming a dumping ground for foreign waste. While the government might argue that the wastes generated in the interests of local energy production are not affected by this provision, it could be counter-argued that the generation and disposal of local radioactive wastes is equally undesirable.

The impunity, with which Namibia is therefore encouraging mining of uranium, including inside its national parks, is something which future generations of Namibians will live to regret. Short-term profit-taking by a spate of over 28 international companies (some highly speculative) is certainly not the model for Africa's extractive industries. What is needed is a regional code of conduct which evaluates the sustainability, ethics and responsibility of external investment in the extractive sectors. This needs to go far beyond the provisions of the existing SADC Mining Protocol, whose vague Article 8 on environmental protection invokes member states *inter alia* to "promote sustainable development by ensuing that a balance between mineral development and environmental protection is attained" (SADC, 1997). It is time for SADC to update and refine these provisions, and for Namibia to develop the capacity and political will to implement its environmental legislation according to internationally accepted principles.

By sanctioning the extended mining of uranium without regulatory controls, Namibia has unleashed a Pandora's box. In a belated effort to reclaim ground, the government's Ministry of Mines and Energy has entered into a process of drafting legislation to regulate uranium mining and other future nuclear developments. In doing so, it is happy to engage with the Chamber of Mines (mine owners), the International Atomic Energy Agency and the World Nuclear Association, but not with representatives of Namibian civil society. Meanwhile the environmental legislation languishes in limbo, EIAs continue to be conducted without due process, hardly considering social questions and impacts. The prevailing notion in government is that mining = development = progress and therefore little should be placed in the way of mining (Interview with Erasmus Shivolo, Director of Mines, Ministry of Mines and Energy, Windhoek, 7 May 2008).

As long as there is sub-standard governance in the rapidly expanding mining industry of Namibia, including the technical and political skills to regulate, chances are that there will be numerous negative consequences for Namibian society. In an increasingly fragmented and fragile world, can Namibia afford to take short cuts for short-term gain? Surely it should rather be investing in forms of resource management that serve the people's long-term interests.

Conclusion

Does the discovery and exploitation of Namibia's uranium fit the picture of the "resource curse" (see Humphreys, *et al.*, 2007)? The curse refers to the failure of resource-rich countries to benefit from their natural wealth.

The bulk of the profit-taking will remain in foreign hands, specifically those large corporations like Rio Tinto and Areva on the one hand, and the much less substantial like Forsys, Paladin and Reptile on the other. While the Namibian government will earn some licence fees, royalties and taxes, the existence of the mines and the intention to "beneficiate" the mineral by introducing nuclear power generation, will make enormous claims on these rents to cover the costs of setting up a competent regulatory apparatus and other infrastructure. The extension of Rössing's activities may prove more short-lived than expected, particularly if the uranium price continues to drop. The shrunken reach of the Rössing Foundation is noticeable, indicating the company's smaller contribution to the nation's social development. The mining of uranium will place huge extra strain on Namibia's water and power shortages, causing the construction of expensive desalination plants and power stations. The potentially dangerous legacy of management of radioactive substances in the workplace, and the disposal of radioactive waste, leaves a series of enduring risks, costs and technical challenges for a developing country like Namibia. We have also noted the long-term consequences for biodiversity conservation and tourism of allowing uranium mining in historically protected areas.

Who in Namibia will benefit from the rents? All these pass to government. It will be the function of government to record and reveal how they are spent, if we are to get any sense of the development dividend. In recent meetings in Windhoek, the government and the Chamber of Mines undertook to produce a public document endorsing the principles which were adopted by the Extractive Industries' Transparency Initiative, along with laying out the procedures for members of the

public to access information on licensing, ownership of mines, and revenue flows (meeting between Southern Africa Resource Watch, Legal Assistance Centre and the Director of Mines at the Ministry of Mines and Energy, and the head of the Chamber of Mines, Windhoek, 7 May 2008). It remains to be seen whether government and the Chamber will honour this undertaking.

However, as we have seen in the case of the Langer Heinrich example, the concession was obtained at minimal cost. Given the shortage of skills in uranium mining, Namibia will also have to consider setting up the infrastructure for the training of competent artisans, who currently get on-the-job training. Failing to do so may result in the acute need to import of skilled and semi-skilled labour, with local people foregoing key employment opportunities.

Finally, the industry provides a series of challenges to mineral governance, which, in Namibia, has never been strong. However, the risk implications of radioactive materials mean that Namibia will be obliged to professionalise its public service, in order, in particular, to regulate the safe extraction, movement and use of the uranium. This, perhaps, will pose one of the largest challenges to the state. Civil society will have to contend with extended secrecy and security measures which the state will adopt as part of its management strategy.

Mindful of the questions raised above, Namibia may end up with some regrets that it acted so hastily in regarding uranium mining as a fillip to development, rather than as a potential and long-term curse.

References

The Age (Melbourne). 2007. "Paladin Resources shares soar above $8". 27 December.

Allgemeine Zeitung (Windhoek). 2006. "Entsalzung Diskutiert: 15 Mio. Kubikmeter Wasser pro Jahr fuer Trekkopje Uranmin". 4 April.

Allgemeine Zeitung (Windhoek). 2007. "Minister bestätigt Uran-Moratorium". 25 April.

British Broadcasting Corporation (BBC). 2001. "Namibia reveals Congo diamond role", news report, 24 February, 11h02 GMT, archived at http://news.bbc.co.uk/2/hi/africa/1187528.stm (retrieved 7 September 2008).

Buur, Lars, Steffen Jensen and Finn Stepputat (eds). 2007. *The Security-Development Nexus: Expressions of Sovereignty and Securitization in Southern Africa*. Uppsala: Nordiska Afrikainstitutet and Cape Town: HSRC Press.

Dentlinger, Lindsay. 2006. "Namibia Considers Nuclear Power Option", *The Namibian*, 31 January.

Diesendorf, Mark and Peter Christoff. 2006. *Economics of Nuclear Power*. Available at www.energyscience.org.au/FS01%20Economics.pdf (retrieved 7 September 2008).

Dropkin, Greg and David Clark. 1992. *Past Exposure: Revealing Health and Environmental Risks of Rössing Uranium*. London: Namibia Support Committee.

Dudley, Nigel, Jack Hurd and Alexander Belokurov. 2005. *Towards an Effective Protected Area Network in Africa*. Gland: Worldwide Fund for Nature.

Edwin, Wilfred. 2007. "Tanzania: New Hope for Uranium Wealth in Dar", *The East African* (Nairobi), 31 July.

Fig, David. 2005a. *Uranium Road: Questioning South Africa's Nuclear Direction*. Johannesburg: Jacana.

Fig, David. 2005b. "Why Has Uranium Mining Been Allowed inside a National Park?", Address to public meetings of Earthlife Namibia in Windhoek and Swakopmund, 17-18 November.

Friend, J F C. 2005. *Langer Heinrich Uranium Mine: Environmental Assessment Report*. North Riding (Johannesburg): Softchem. April.

Global Witness. 2000. *Conflict Diamonds*. London: Global Witness.

Hajat, Rafiq. 2007. *Malawi and its Minerals* (Resource Insight 2). Johannesburg: Southern Africa Resource Watch.

Horta, Korinna; Samuel Nguiffo & Delphine Djiraibe. 2007. *The Chad-Cameroon Oil & Pipeline Project: A Project Non-Completion Report*. Washington DC: Environmental Defense.

Humphreys, Macartan, Jeffery D Sachs, and Joseph E Steiglitz (eds). 2007. *Escaping the resource curse*. New York: Columbia University Press.

Hartnack, Michael. 2005. "Zimbabwe to Process Newly Found Uranium Deposits", *Mail & Guardian* (Johannesburg), 21 November.

Lamb, Guy. 2007. 'Militarising Politics and Development: The Case of Post-Independence Namibia', pp. 152-173 in Buur *et al.*

Melber, Henning (ed.). 2003a. *Re-Examining Liberation in Namibia: Political Culture since Independence*. Uppsala: Nordiska Afrikainstitutet.

Melber, Henning. 2003b. 'Limits to Liberation: An Introduction to Namibia's Postcolonial Political Culture', pp. 9-24 in Melber (ed.).

Mendelsohn, John. 2006. *Farming Systems in Namibia*. Windhoek: Research and Information Services of Namibia for the Namibia National Farmers' Union.

Menges, Werner. 2008. "Law Tested in Water v Mining Case", *The Namibian,* Windhoek. 11 April.

Moody, Roger. 1992. *The Gulliver File: Mines, People and Land: A Global Battleground*. London: Minewatch.

Motlogelwa, Tshireletso. 2007 "The Central Kalahari Game Reserve 'hot potato' gets corporate tongues wagging", *Mmegi* (Gaborone), 24 (98): Friday 29 June.

Mwakasungura, Undule. 2005. "Brief Presentation of the Kayelekera Uranium Project in Karonga, Malawi." Address to Earthlife Africa Congress, Windhoek, 11-14 November 2005. Lilongwe: Centre for Human Rights and Rehabilitation.

The Namibian (Windhoek). 2007a. "Government calls a halt to uranium licences", 14 February.

The Namibian. 2007b. "Valencia Mine has 11-Year Lifespan", 27 April.

The Namibian, 2008a. "SWAPO advocates political cleansing", 14 August.

The Namibian. 2008b. "Rio Tinto may further extend Rössing mine life to 2030", 28 August.

O'Brien, Emma. 2007. 'Australia energy stocks fall', *Bloomberg.com*, 17 July.

Odendaal, Willem. 2007. *A Socio-Economic and Environmental Perspective on the Impact of Uranium Mining in Namibia*. Cape Town: Institute for Security Studies.

Paladin Resources Ltd. 2005. *Quarterly Report for Period Ending 31 December 2004*. Perth: Paladin Resources Ltd.

Prunier, Gérard. 2007. "Sudan: Genocide in Darfur". *Le Monde Diplomatique*, March.

Rogers, Barbara. 1980. "Notes on Labour Conditions at the Rössing Mine", *South African Labour Bulletin* 4 (1-4) (Special issue on Namibia).

Rössing Uranium Limited. 2007. *Geared for Growth: Social, Economic and Environmental Report to Stakeholders 2007*. Swakopmund: Rössing Uranium Ltd.

Schatz, Joseph J. 2007. "Uranium rush gets under way in Zambia", *International Herald Tribune*, 27 December.

Schmidt, Gerhard and Peter Diehl. 2005. *Evaluation of Selected Aspects of the Environmental Assessment Report for the Langer Heinrich Uranium Mining Project in Namibia*. Darmstadt: Öko-Institut. 29 August.

Seely, Mary. 2004. *The Namib: Natural History of an Ancient Desert*, 3rd ed., Windhoek: Desert Research Foundation of Namibia.

South Africa, Department of Foreign Affairs. 2007. *Notes following South Africa-Namibia Heads of State Economic Bilateral Meeting, Presidential Guesthouse, Union Buildings, Thursday 11 October: Remarks by Minister Mandisi Mpahlwa*. At www.dfa.gov.za/docs/speeches/2007/mpahlwa012.htm retrieved on 1 November 2007.

Southern African Development Community (SADC). 1997. *Protocol on Mining*. Gaborone: SADC.

Southern African Institute for Environmental Assessment (SAIEA). 2005.

External Review of the Assessment Report for the Proposed Langer Heinrich Uranium Mine. Ausspannplatz: SAIEA.

Tarr, Peter (ed.). 1996. *Namibia Environment, vol. 1*. Windhoek: Ministry of Environment and Tourism, Namibia.

Transparency International. 2007. *Corruption Perception Index*. Available at www.transparency.org (retrieved 7 September 2008).

United Nations. 2002. *Final Report of the Panel of Experts on the Illegal Exploitation of Natural Resources and Other Forms of Wealth of the Democratic Republic of the Congo*. Document S/2002/1146. New York: United Nations.

Van Wyk, David *et al.* 2008. *Corporate Social Responsibility and the Mining Sector in Southern Africa: A Focus on Mining in Malawi, South Africa and Zambia* (The Policy Gap series). Johannesburg: Bench Marks Foundation.

Verwey, Dawie. 2007. 'Namibia's Naukluft: Not for the Meek'. *Go! Magazine* (Cape Town) 8 (February): 66-78.

Vigne, Randolph. 2000. "The Hard Road to Colonization: The Topnaar (Aonin) of Namibia, 1670-1878", *Journal of Colonialism and Colonial History* 1 (2), Winter.

WISE Uranium Project. 2007. "New Uranium Mining Projects – Namibia", at www.wise-uranium.org/upna.html updated on 2 November 2007 and retrieved on 6 November 2007.

World Nuclear News. 2007. "Paladin ramp up at Langer Heinrich", 13 June.

Interviews

Sandra Müller, Environmental Officer, Rössing Uranium Ltd, Swakopmund office, 8 May 2008

Willem Odendaal, Co-ordinator, Land Environment and Development Project, Legal Assistance Centre, Swakopmund, 7 May 2008

Erasmus I Shivolo, Director of Mines, Ministry of Mines and Energy, Windhoek, 7 May 2008

Norman Tjombe, Director, Legal Assistance Centre, Windhoek, 7 May 2008

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