Uranium in Namibia
Blessing or Curse?

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Namibia in a nutshell

- huge country with small population (2.2/ km$^2$)
- driest country in sub-Saharan
- has a wealth of mineral deposits
- poverty is widespread
- unemployment rate about 51%
What makes uranium mining in African countries so attractive?

John Borshoff, MD of Australia’s mining company Paladin Energy, brought it to the point:

“The Canadians and the Australians have become over-sophisticated in their environmental and social concerns over uranium mining. The future of uranium is in Africa.”
Attraction Namibia

- Lack of legislative framework
- Lack of monitoring through government
- Mining companies are self regulating
- Uranium deposits generally located close to surface (open-pit mining)
- Uranium ore of low grade allowing “safer” mining  
  \( \text{(Namibia \sim 0.1 - 0.07\%, Canada between 14.6 \& 0.7\%, Australia \sim 0.2\%)} \)
- High unemployment, cheap labour, uninformed workers
- Low taxes & royalties
U production in Namibia

- Namibia is no 4 on global market with 10% of uranium production, can become no 2 if all planned projects materialise.
- Current production ± 5,000 tons of $\text{U}_3\text{O}_8$/ annum envisaged 8,000 tons of $\text{U}_3\text{O}_8$/annum by 2015.
- Uranium represents 16.5% of Namibia’s exports.

- GRN has granted exploration licenses to 21 foreign companies at 65 sites, many located in the protected Namib Naukluft Park and the recently proclaimed Dorob Park.
  Both areas are pristine tourist destinations.
  Legally no heavy industrial development is allowed in these areas.
- The decision to grant a mining licence in protected areas is with the minister of Mines & Energy. He can also decide whether rehabilitation after closure is required or not.
Distribution of uranium occurrences in Namibia
Source: www.mme.gov.na
EPLs and MLs granted by MME
mining and exploration sites
U Mines (Roessing 1)

- Roessing Uranium operated by Rio Tinto, started in 1976
- Operates the largest open-pit mine globally

A bit of history:
- Namibia was governed by Apartheids regime South Africa till Independence in 1990 against a decree of the International Court of Law in the Hague
- According to an UN resolution, production of uranium in Namibia was illegal
- Importing and enriching uranium from Namibia was thus against the UN Charter
- However, China, USA and Europe imported uranium from Roessing
The government of Iran is a 15% share-holder of Roessing. The deal was done with the Shah of Persia to ensure the planned nuclear energy program.

A UN Security Council Resolution bans the sale of any material linked to nuclear technology in Iran.

According to Wikileaks, millions of US$ of dividends to Iran are blocked by the Bank of Namibia.

Apparently Rio Tinto wants to buy Iran’s shares but they are prohibited from transferring any funds to Iran.
The Roessing pit is 3 km long, 1.5 km wide and 390 m deep. It will not be refilled. Plans are to turn the pit into a museum after mine closure.
Due to low grade of ore Roessing needs to move 15 000 tons of rock to produce 1 ton of yellow cake. Billions of tons of waste rock are dumped a few 100 meters away from a river. The area is freely accessible for everyone. No warning signs are put up.
Some rocks are highly radioactive. This one exceeded the capacity of the measuring device.

Uranium is water soluble. Rainwater can wash uranium into the river and groundwater.
After 36 years of mining, Roessing’s tailing dam is huge and has a great visual impact. The danger of seepage poses a threat to uncounted generations ahead.
Langer Heinrich Uranium

- Langer Heinrich Uranium – 100% owned by Paladin Energy from Australia
- Commenced production in 2007
- Situated in the protected Namib Naukluft Park in the desert

- Because of bad quality of the EIA, Earthlife had parts of it examined by the Oeko-Institute in Germany

Findings where that:
- radiation doses were underestimated by the factor of 4
- workers exposure were not properly calculated
- proposed tailings management concept contained serious flaws

The experts concluded:
"... given these circumstances, a mining license should not have been granted"
GRN’s response to the review:

“It should be understood that in the quest for development, we have to sacrifice the environment”

- A review was also done by a local institution, the outcome was kept secret
- A mining license was granted by MME without consent of MET and before the EIA was made public
- EMP as a result of the EIA was not accessible to us
  (so much on public participation)

Shortly after production commenced, contamination of groundwater was reported
Protest against the LHU during ground breaking ceremony
Langer Heinrich during construction
This has once been an untouched area of touristic attraction
Today it’s the unique Moon-landscape, people from all over the world come enjoying this spectacular scenery. Tomorrow it’s taken over by the Etango uranium mine
More mines are in the making

**Trekkopje** owned by French nuclear giant AREVA – presently undertake trial mining on low profile due to low uranium price - plans start full production in 2013. Rumors have it that they want to sell.

Areva did built a desalination plant to satisfy own water demand and want to sell surplus.

Two more mining licences have been granted and more are expected.
Such could be the legacy of a deserted uranium mine.
Because of the recent ‘Uranium Rush’, a Strategic Environmental Assessment (SEA) was done

4-13 uranium mines could be operating by 2020

SEA much too late, too investor friendly and too little concerned about the health hazards

Uranium Institute was launched to implement “world’s best practices” financed by the mining companies

Director is Roessing’s former medical practitioner for > 30
Demands by the mines

The uranium rush requires many services to assure the necessary supplies for the mines:

- Water
- Power
- Chemicals
- Social facilities
- Approximately 5,000 families can be expected. This puts the already stressed housing, schooling, medical care, recreation and other facilities under enormous pressure.
Implications

Water

- Namibia is an arid country and experiences constant water shortage
- The most realistic scenario of a total of 7 mines would require about 50 mill m$^3$ of fresh water per annum
- The greatest fear is contamination of our scarce water resources

What effect will this have on the environment, local people & their livelihoods?

- decreased water availability & increased water tariffs
- render any remaining water unusable and unsafe for coming generations
- negatively affect the natural environment in a desert area
- change the eco-system & the flow of the river beds
- wash away the top soil
- attract wild animals normally not common in that area and encourage pouching
Actual & projected water consumption for the coastal area in millions of m³ for only 1 more mine. Since Trekkopje is not fully operational, this will only apply from 2013 onwards.
Implications
Power

- Demand of power supply by the mines will be between 150 & 200 MW,
- Present total national demand is about 400 MW
- Local production under best circumstances is 380 MW
- Plans for a coal-fired power station are underway
- Coal to be imported from South Africa & Indonesia at great costs & energy
- GRN considers constructing a nuclear power plant with the help of Russia and/or China
- Namibia has about 350 days of sunshine and favourable wind conditions at the coast and has best potential for renewable energy
Dust plumes are blown from the central Namib out to the sea for hundreds of kms with frequent eastern berg winds carrying radioactive and toxic substances.

- What is the accumulated impact on the health of the coastal residents and the environment?

- Will the food-chain of the terrestrial and the marine life be negatively effected?

Only proper research can answer these questions.
Vegetable is grown near the Swakopriver, partly irrigated with borehole water and sold to the public.

**Is it safe to eat?** We don’t know.
Implications
Transport

- Yellow Cake produced in Namibia gets transported by truck to the national port of Walvis Bay for export
- Yellow cake produced in Malawi (soon also in Zambia) gets transported by road all the way through Zambia, Botswana and Namibia to the port of Walvis Bay

Accidents,
Spillage,
Sabotage,
Terrorism ....
Voices of uranium workers

LaRRI conducted a study on the nature of uranium mining and its social and economic implications. Emphasis was put on the voices of the mine workers. **Major findings were:**

- The workers were not adequately informed about the dangers associated with uranium mining.
- Many workers were exposed to dust and inhaled radon gas on a daily basis.
- Some workers have contracted respiratory diseases such as TB and lung cancer and many workers have developed chest problems.

LaRRI concluded that despite its contribution to GDP, mining has short-term benefits and long-term consequences.

Namibia needs a clear strategy to evaluate the sustainability, ethics and responsibility of external investment in the extractive sector. With the support of civil society and the community, the government could develop the capacity to design such strategies.
The situation of the workers

When the workers are declared unfit for work they are either on separation or on disability

- separation: they have no claims at all
- disability: they receive 75% of their former salary
- in both cases they are discharged from the medical aid scheme at a time when they need it most

Mining management insist there is no link between working conditions and health problems.

Many dismissed workers and their families move back to their former home towns; they are never part of any health statistic.
Johannes started working for Roessing in 1976, at a time when NO safety measures were in place. Personal protective clothes were available but not enforced to wear. The workers were not informed about the danger of exposure and therefore did not use the protective clothing.

His health problems started in 1980 and from that time onwards he frequently visited the medical center at the Roessing mine. His medical history indicates his long and agonizing suffering, the many tests and treatments he underwent and the frequent submissions to hospitals.
Tests showed elevated levels of radiation

- At times he had critical levels of uranium in his urine, his film badge showed too high levels of irradiation, he was declared medically unfit for work in 2000 since than he is on medical disability (75%)
- He wants to know whether his health problem is linked to his former work and wrote letters to Roessing to get clarification. He is very frustrated because his requests are plainly ignored. Now he fears that his payment might be stopped if he keeps on asking.
What is needed?

Environmentally:
- local expertise to conduct proper EIAs & EMPs and unbiased experts to review the documents
- constant expert monitoring
- proper restoration plans must in place before exploration & mining activities start (presently little understanding, no local expertise)
- more transparency & reliable information
- better informed civil society (the general public is totally ignorant on the nuclear topic)

Socially:
- best possible protection and medical treatment for workers
- proper medical monitoring to prevent further diseases
- compensation for mine worker & their families affected by occupational exposure
- training for workers preparing them for income generation after mining stopped
What has Earthlife done so far?

- Ongoing information and awareness creation
- Booklet on uranium mining
- Uranium conference 2008
- Presentations on parliamentary level
- “Dialogue” with GRN which is mainly one-sided
- Film Festival on Uranium

- Member of AUA
- Uranium information tour through Germany
- As part of AUA winner of 2010 Nuclear-free Future Resistance Award
- Participated in several conferences worldwide
- Partner of EJOLT, research by CRIIRAD
Many open questions remain

Can we be sure that the exported uranium is not used for proliferation?
Will Iran demand uranium from Namibia being a 15% shareholder of Roessing Uranium?
Will one day the nuclear waste come back to be stored in Namibia?
What happens after the mines are decommissioned?
Is it legal to mine in protected National Parks?
Do “normal” Namibians really benefit from uranium mining?
Is there a reduction in poverty because of uranium mining?

Is there a future for nuclear power?
This great rock formation reminded me of the uranium price. There was a peak in 2007 and then the price dropped, after the Fukushima accident even more.
Thank you