

GABON: UNREGULATED MINING ENDANGERS LIVES

During decades of uranium mining in the jungle of Gabon, French government-owned enterprise Cogéma neglected environmental protection and exposed mine workers to high doses of radiation. Following the closure of the uranium mines, the horrific legacy of nuclear colonialism has slowly begun to surface.

(616.5642) Res Gehriger - Porcupine, gazelle and antelope are listed on the menu of the pub in the center of the village but, once again, there are no guests. Since Comuf (Compagnie des Mines d'Uranium de Franceville) halted its uranium mining operations in Mounana, unemployment in the village has been rife. The near-bankrupt logging company offers the last hope of work - all those who were able to, have left town.

For forty years, France mined for uranium in Gabon. Once extracted, the uranium was used in the production of French nuclear weapons, and at nuclear power plants for electricity production in France and much of Europe.

One former mine worker, Christian Oyoumi, half-joked that it was thanks to Gabon's miners that France's high-speed TGV trains could operate. Today, however, the uranium deposits are exhausted, and Mounana is no longer of value to Cogéma.

Gabon was a French colony when prospectors from the French nuclear energy commissariat (which later became the Compagnie Générale des Matières Nucléaires or Cogéma) discovered uranium in the remote region in 1956. France immediately opened Comuf in Mounana in order to

exploit the vast mineral resources and the State of Gabon was given a minority share in the company

By 1961, the first uranium concentrates from Mounana had arrived in France for enrichment and from there, the Force de Frappe (strike force) was born. Military strategists have noted that Gabon was at the time indispensable to the build-up of France's nuclear weapons arsenal.

France's engagement made Gabon one of the world's ten largest uranium producers and until the 1980s, Mounana's jungle village had become a town of approximately 10,000 inhabitants - 1500 of whom were employed by Comuf.

Comuf erected schools, churches, sports grounds, as well as a hospital, town hall, police station, bus terminal, and a covered market. A visit to the hospital was free for all residents and included medication as well. Bernard Keiffer, chairman of Mounana's Cogéma branch for the past four years, complains that this was one of the many unreported positive contributions made to the village by the French company. Keiffer has lived in Gabon for 20 years and is overseeing the liquidation of the enterprise as his final task.

Nowadays, Mounana is no longer indispensable to France. Uranium prices had already begun to slide before the collapse of the Soviet Union and then rich uranium deposits were discovered at Cogéma's Canadian mines. Even with low payroll costs, mining in Gabon was no longer a lucrative prospect for Cogéma and in 1999, its Gabon branch ceased to operate after having produced 28,000 metric tons of uranium.

Workers at risk

Thousands of uranium mining workers worldwide have contracted lung cancer from exposure to excessive concentrations of radon gas (a decay product of uranium) in the mines' air. A labyrinth of tunnels stretched out for a total length of over 30 kilometers and depth of 400 meters under Mounana.

Most of the miners who inhaled the ore dust are already dead, according to Gilbert Ngana. Ngana worked in the mines for more than twenty years, most of the time without a respiratory mask and now complains of difficulty breathing. Dust masks were introduced far too late for Ngana and many of his former co-workers.

In Europe, mining workers must be informed about the doses of radiation they are being exposed to, according to

an Euratom directive. There was no such protection for those mining at Mounana. Cogéma's subsidiary, Algade evaluated the personal dose meters of Gabonese miners in France.

"At no time did any of our employees receive a radiation dose above the limits", assured Comuf chairman Keiffer. And although he did go on to concede that there are no regulations in Gabon, he did claim that internationally accepted standards had been used as terms of reference.

The most stringent radiation dose limits for nuclear workers are found in the US, 5 Millisieverts per year. The Gabonese miners received many times this amount. In 1996, Member of Parliament Claude Birraux of the conservative UMP party wrote a report on the involvement of the state-owned company Cogéma in Gabon, on behalf of the French parliament. According to his report, the workers at Mounana were exposed to an average annual dose of nearly 30 Millisieverts.

The International Commission on Radiological Protection (ICRP) had, in 1990, recommended that the nuclear industry limit the maximum radiation dose to 20 Millisieverts per year. The old 50 Millisievert standard could no longer be maintained based on long-term studies from Hiroshima.

Denials and Facts

Comuf chairman Bernard Keiffer maintains that conditions at Mounana did not cause *any* illnesses among the workforce and that the hospital could support this assertion. This same hospital had been operated as a department of the mining company, and the doctors its employees. "There is not a single case of an occupationally caused disease related to the uranium mining declared in our archives", said hospital superintendent Angélique Kombila.

Not a single work related illness after nearly forty years of uranium mining – an incredibly fortuitous outcome or did somebody cook the books? No independent studies on the health of the miners or the residents of

Mounana have ever been made and the miners' medical files are no longer continued by the hospital.

With the closure of the mines, Comuf also ceased the occupational medical health checks for its workers and since Comuf transferred the hospital to the state four years ago, former miners are now forced to pay for each visit themselves. Many cannot afford this and therefore, cannot seek medical assistance.

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François Mindou has been coughing up blood and claims to have sustained internal injuries. His troubles begun while working in the uranium mill. Shadows are visible on the X-rays of his lungs but medical treatment is costly and thus impossible to obtain.

Benoît Bobata had operated the mine elevator and now complains of feeling permanently tired, is frequently sick and has lost a lot of weight. Bobata is furious; "...after slaving away for years for Comuf, they simply let us die a miserable death". He enumerates a series of colleagues who have died, and for him it is clear, from what. "Because of the uranium. The uranium has killed them, what else?"

Workers protests

The man referred to as Monsieur le maire (the mayor), is Dieudonné Bokoko, officially the deputy mayor but promoted by the villagers since the incumbent resides in the capital city of Libreville, 700 kilometers from Mounana. Bokoko accuses Cogéma of leaving the town completely in the lurch, with even the new jobs promised failing to materialize.

After the mine closure, Dieudonné Bokoko led a vociferous protest march to Comuf's management headquarters. The protestors were justifiably angry and emotions ran so high that ever

since, both the chairman and the mayor have avoided each other even more.

Comuf transferred Euro 150,000 (US\$184,000) to the Gabonese government as a single gift to the people of Mounana. Gabon president Omar Bongo is said to have personally added another Euro 30,000 (US\$36,000) in cash, according to Comuf's chairman Keiffer. Euro 180,000 (US\$220,000) was handed over to the regional prefect, who was responsible for distributing the cash in Mounana.

"It was absolutely chaotic", recalls mayor Bokoko (who was not yet in office then), "some got a lot, others nothing, resulting in people fighting in the street. The prefect was forced into hiding, returning one month later. Anyway, the money is gone."

Radiation exposure

In 1996, Comuf established a dozen monitoring stations in Mounana to determine the levels of radiation contamination in the air and water. Chairman Keiffer claims that Comuf's board of directors decided not to make the results public because they feared biased analysis of the data and polemics.

"We are not being informed by Comuf. We don't hear anything about their data and calculations", says mayor Bokoko. "Approximately 4000 people are still living in Mounana and were simply told that there would exist no hazard for them at all". Bokoko is suspicious. "Comuf is a concerned party and the judge at the same time", he says. The mayor himself had previously worked as a radiation protection inspector at Comuf.

The radiation exposure from the uranium mining is an abstract topic but is brought to life at the central covered market, one of Comuf's 'gifts' to the town. The market building has a double floor; both layers made from concrete. The concrete Comuf used for the first floor, layer one, had been mixed with sand from uranium production and upon inspection by a radiation official using a Geiger

counter, was found to contain excess radiation.

Comuf was thus forced to put down a second layer of concrete on top to isolate the radiation and limit the release of radon gas. But mayor Bokoko is not convinced by the effectiveness of the measure. "The floor is covered though, but the walls are not". No monitoring results were ever presented to the local authorities.

Tailings

Uranium mining produces enormous amounts of so-called low-level radioactive waste, approximately 7 million metric tonnes in Mounana alone. These tailings represent the largest environmental problem from uranium mining. Cogéma in Mounana released these wastes into the village creek, Ngamabougou, for years.

The creek eventually washed the slurry kilometers away from the mill, downstream to the confluence with the river Mitembe. Gabonese authorities are said to have been informed and to have consented.

Between 1961 and 1975, and from 1990 until the mines' closure, Comuf released more than two million tonnes of tailings into the Ngamabougou valley. During the period in between, it filled the first open pit mine with four million tonnes of tailings, which was left open for a long time, without access restrictions. "During dry periods, the children played soccer in the dust of the tailings", recalls former miner Christian Oyoumi. Nobody had known that there was a hazard.

At the occasion of an IAEA specialist conference in Vienna in October 2000, Comuf presented a short study on the situation in Gabon. This is virtually the only publicly accessible reference on environmental data at Mounana. According to the study, those most in danger of exposure are those living near the mill site and those that travel across the vast tailings dumps, left by Cogéma, en route to their plantations.

According to Comuf's rough calculations, this "critical group" has

received annual doses between 2.3 and 2.9 Millisieverts in excess of natural background.

For comparison, the international guidelines for non-occupationally exposure are set at 1 Millisievert per year. In Cogéma's Canadian McClean Lake uranium mine, the annual dose is 1.5 Millisievert - for the workers. In Mounana, some parts of the population have unknowingly been exposed to higher levels.

It is international practice to discharge tailings into enclosed impoundment where they are (intermediately) stored below a layer of water. The water shields the radiation and impedes the release of radon gas. Any water overflowing must be treated in a water treatment plant before it can be released into the environment.

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Only in 1990 did Cogéma finally decide to construct some kind of a retention basin also for the tailings in Gabon. It was to be an economy 'no frills' version though - Comuf simply made the Ngamabougou dam up with an embankment. The tailings were pumped into the artificial pond but the creek still flowed across the dam. Today, the overflow from the dam still flows untreated downstream towards river Mitembe.

This is particularly problematic, since the tailings were mixed with the acidic mill effluent. Acid enhances the dissolution of radionuclides into the environment. It is, therefore, worldwide practice to neutralize the mill effluents with lime. Cogéma did construct such a neutralization plant in Gabon but it never went into operation.

In the aforementioned study of October 2000, Comuf wrote that food from the region would not contain elevated radiation levels, "the intake

of radionuclides via the food chain is negligible". As proof, the company presented some not particularly detailed results of monitoring done on fish. However, this fish was not caught in the Ngamabougou where the tailings were dumped, nor the Mitembe, but in the next larger river downstream, the Lekedi.

Restoration

Currently, reclamation work is ongoing at Mounana. Comuf first started reclamation works in 1997 and covered several contaminated areas with a layer of soil. The sulfuric acid plant and the uranium mill were demolished and the mines flooded. In the Oklo mine, a light green lake of groundwater has formed - this is the lake where the contaminated production plants were sunk. The reclamation work was terminated in July 2004. A reclamation of the tailings dam is not planned.

Cogéma benefited greatly from uranium mining in Gabon and for decades showed not care for the protection of the environment. Even, the reclamation work in Mounana was funded by European Union taxpayers and not by the responsible company.

Under the cover titles of combating poverty and promoting the economy, the EU has, since 1997, paid more than Euro 50 million (US\$61 million) to Gabon for the development of its mining industry. Gabon is rich in mineral resources but, at present, only manganese is being mined on an industrial scale. To reduce the country's dependency on oil and timber exports, the government plans to exploit its resources in diamonds, gold, and niobium instead.

From more than Euro 50 million in EU aid money, the mining ministry has appropriated Euro 7 million (US\$8.5 million) for reclamation work and radiation monitoring at Mounana. The incumbent Gabonese mining minister, Richard Onouviet, is also a former employee of Comuf.

In an area of 40 hectares, a construction firm has covered the

tailings dumps at the Ngamaboungou and the former ore transfer and storage areas with a soil layer of red laterite.

It is questionable, however, whether this can withstand erosion in the long term. Such a cover layer should be effective for at least 100 years, according to IAEA requirements.

Overall, the radiating wastes should be monitored for several thousand years. "With the high precipitation we have in our area, the material will resurface in five or ten years already", fears mayor Bokoko. "None of the Frenchmen will then be here, still".

This article was originally written in German and has been translated and

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