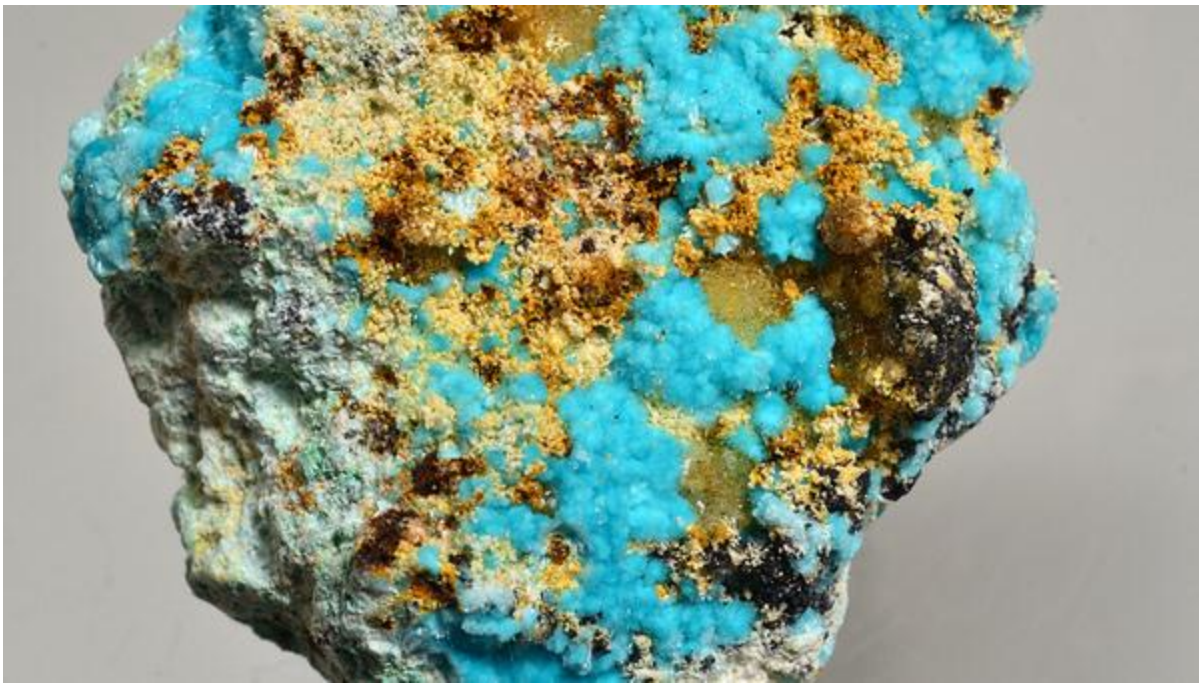
SHOULD DEEP-SEA MINING GO AHEAD IN PAPUA NEW GUINEA?



Financial disagreement has halted a controversial deep-sea mining project but deeper issues lie with the environment, *Prime Sarmiento* reports.

The fate of a currently halted deep-sea mining project in the Pacific is being watched closely by a number of parties.

Mining companies hope that the project might become the start of an extraordinary bonanza of mineral deposits, but environmentalists are fearful that allowing it to go ahead might lead to the destruction of a still unexplored ecosystem.

Other eyes on the Solwara 1 mining scheme include governments eager for a share of profits, local communities worried about harm to the fisheries on which they depend and scientists keen

to learn more about the formation of deposits at rarely plumbed depths and the pros and cons of mining.

The profit seekers won the first round when Canadian firm, Nautilus Minerals, secured a 20-year licence and the backing of Papua New Guinea to mine gold and copper at a depth of 1,600 metres in the Bismarck Sea — the first such deep sea operation in the world.

Rich pickings

Operations were scheduled to begin in 2014, with a target of producing about 80,000 tonnes of copper and more than four tonnes of gold a year.

Company officials estimate that Solwara would bring in more than US$140 million to Papua New Guinea's economy in its first two years of operation and claim that about 70 per cent of the project's staff would come from the country.

Nautilus also says it would use the latest ROV (remotely operated underwater vehicles) technology. ROVs are used by the oil and gas industry, although not at these depths. Rock collected from the seafloor would be pumped to the surface, loaded onto barges and shipped to China for processing.

The costs of using this technology look to be more than offset by a greater yield from the deep-sea ores than land-mined material, says Chris Yeats, who runs the mineral system science programme at Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO).

"For every tonne of ore you mine from the seafloor and process, you get ten times the metal you get from a tonne of ore from the land," he says.

Credit: Nautilus

Nautilus plans to use remotely operated underwater vehicles

Objections from government

But there's a spanner in the works. A few weeks ago Nautilus announced that it had halted construction of its seafloor production systembecause of a dispute with the Papua New Guinea government over financing.

Despite Papua New Guinea's US$80 million pledged in the project, prime minister Peter O'Neill says Nautilus has to clarify a number of issues, including intellectual property rights, before his government can release public funds.

O'Neill took office in August: the original deal with Nautilus was with his predecessor, Michael Somare.

In an interview with Radio Australia, O'Neill also pointed to serious environmental concerns. "They must clear those issues. We are now working together with our environment agencies,

ensuring that the concerns of landowners and provincial governments are put to rest before the project can get off the ground," he said.

One of Solwara's critics, Gary Juffa, governor of the country's northern province of Oro, welcomes the suspension.

"I am against the project because it is detrimental to the environment and Papua New Guinea's interests. I took action with others to stop it," he says.

He worries that mining operations might hit fisheries, as well as local communities and their culture, for example by affecting 'shark calling' — a ritual where fishers sing to lure sharks and capture them in handmade snares.

Scientists also cite harm

Juffa sides with critics who claim that Solwara would cause environmental and health impacts, and social harm that would outweigh its projected economic benefits. Critics also argue that, given the insufficient scientific data about the impact of deep-sea mining, it is prudent to carry out more research before resuming exploration and exploitation of seabed resources.

Richard Steiner, a US-based consultant and former marine conservation professor at the University of Alaska, tells *SciDev.Net* that the deep sea is a poorly understood environment. He wants a global moratorium on all deep-sea mineral extraction, in both territorial waters and the high seas, until there is a "clearer scientific understanding of its risks and impacts".

He adds: "We don't have even a rudimentary understanding of deep-sea ecosystems and how they would be impacted over the long term by mining".

Three years ago, Steiner wrote a report on the project for the Bismarck-Solomon Seas Indigenous Peoples' Council in which he warned that the operation would destroy tens of thousands of vents, which are associated with biological diversity and mineral deposits. [1]

He said the suspended sediment from mining operations and disposal of waste would contaminate the sea and that the project would generate underwater noise that could affect marine animals.

"To justify the destruction of deep-sea hydrothermal vent systems, as the Nautilus project will do, one would need to convince us that this is absolutely necessary for the world and the local economy. It isn't," he tells*SciDev.Net*. "Gold mining is perhaps the most useless and damaging industrial activity ever invented. And the other minerals are all readily available already in landfills."

Credit: Nautilus

Mined chimney vents would regenerate, says minerals expert

In addition, he says, deep-sea hydrothermal vent systems are some of the "most remarkable, unique biological systems ever discovered. I think there is a chance that unidentified species and genetic [resources] may be lost even with a small-scale mining project".

Another opponent is Helen Rosenbaum, coordinator of the Deep Sea Mining campaign in

Australia. She says: "We are completely out of our depth here. We don't know enough about the marine environment to be able to manage the impact of deep-sea mining and understand what we are losing even before we start."

Is sea mining sustainable?

Nautilus points to the environmental impact statement that it had to submit before getting a licence from Papua New Guinea (though this, too, has recently been criticised on the basis that it involved poor analysis). [2]

The company says that the Solwara 1 development was prepared by world-class scientists who undertook rigorous studies of the marine environment, and that a review of a report commissioned by the country's department of environment and conservation confirmed that surface waters would not be threatened.

Yeats tells *SciDev.Net* that there is no evidence to support the proposition that deep-sea mining would be catastrophic.

Properly managed, sea-floor mines can cause less environmental damage than the terrestrial ones, he says, and none of the roads, railways, port facilities, power lines, water pipes and other infrastructure used by traditional mining activity are needed. Most terrestrial mines generate significant amounts of waste rock that cannot be processed economically.

He adds that massive seafloor sulphides — the formations containing the ore — are dynamic environments and it is possible that that ore bodies, once mined, "could grow back".

"In some ways, the process may be more like farming than traditional mining," he says. "If you

cut one of the vents, it will definitely grow back … in just a few years or decades. So it will be possible to revisit it for another mining operation."

If that proves true, the problems currently faced by Nautilus may be nothing more than a local difficulty when weighed against the harvest that might be generated by deep-sea mining.

Source: http://www.scidev.net/global/fisheries/feature/should-deep-sea-mining-go-ahead-in-papua-new-guinea-.html