

Regulators gird as miners eye the seafloor

Nathaniel Gronewold, ([Greenwire Environment & Energy News](#))
2 May 2008

UNITED NATIONS, 2 May 2008 -- With a global commodities boom toppling price records for base metals, miners are going to sea.

The Australian mining company, Nautilus, recently inked a deal with the government of Papua New Guinea to dig the world's first large-scale marine gold and copper mines in its territorial waters, adding industry giants Anglo American and Teck Cominco as partners in the venture. Startups such as Subsea Minerals and Namdeb are set to begin diamond mining off the coast of Africa and could soon expand to metals.

And the long-dormant International Seabed Authority (ISA) is now gearing up for regulating the first industrial-scale mining in deep waters -- a possibility spurred by the best bull market ever for precious and heavy metals.

"The interest in seabed commercial mining, commercialization, is growing," said Satya Nandan, secretary-general of the Kingston, Jamaica-based regulatory authority.

Established under the United Nations' Convention on the Law of the Sea, the ISA was designed in the 1980s and launched in 1994 in anticipation of a rush to exploit rich mineral deposits found in nodules on the ocean bottom. But the boom never came.

"The pace has been very slow largely because of the economic conditions," Nandan said in an interview. "The price of metals was not very good, particularly in the 1990s when they went down very drastically."

But the construction boom in China, India, the Middle East and elsewhere has pushed up demand for metals, and prices rapidly followed. Copper prices, for example, have risen by more than 450 percent since 2000 when the authority began issuing its first exploration licenses.'

"Now the price is very good, better than ever," said Nandan. "Things like cobalt, copper, nickel, which are the main things from nodules, manganese of course, they are all very high."

Before the recent market boom, Nandan and others at ISA have for 14 years kept busy studying the international seafloor under their jurisdiction -- particularly the region stretching southeast of Hawaii nearly to Mexican waters. They have been laying the groundwork for regulations and environmental guidelines for an industry that many skeptics said would never materialize.

"At one time I thought it may not happen in my lifetime," Nandan admits. "My hunch now is commercial mining from the seabed will begin in the next five to seven years. It's very imminent."

Riches and regulation

Mining companies' main targets are polymetallic nodules -- or places where thousands of years of erosion have deposited minerals on the ocean floor.

Tides, currents and wave action further sorted the metals on the nodules in varying densities. What is left are deposits with heavy concentrations of gold, copper, tin, iron, chromium and other elements.

Polymetallic sulphides are another promising resource. Where land-based miners find joy in gold concentrations of 0.2 to 1.2 percent per ton of ore, the Japanese and Australians are reporting concentrations of 10 to 14 percent in ocean sulphides.

To be sure, digging riches from the ocean floor is not new. Gold has been mined in fits and starts off the coast of Alaska as market conditions warranted. Relatively small-scale mining of tin is currently under way in the territorial waters of Burma, Indonesia and Thailand. And Africans have been diving for diamonds for centuries.

But commercial ventures have yet to start in international waters. Still, that has not stopped the bureaucracy. Sensing where demand was headed, the ISA has prepared accordingly.

"The first thing we did was to develop the regulations for mining of polymetallic nodules," said Nandan. "And that we completed in 2000, the result of which we issued seven licenses immediately."

Since those first 15-year exploration licenses were issued, China, Japan, India, South Korea, France, Russia and other governments have been busy studying and mapping regions that contain polymetallic nodules, sulphides and "cobalt rich crust," which the ISA likens to pavement covering dead seamounts.

The richest prospects are in the Pacific Ocean near Hawaii, in the Indian Ocean south of Sri Lanka and along the Mid-Atlantic Ridge. The United States cannot participate in mining those areas since it is not a party to the Law of the Sea.

As they stake their claims, Nandan and the ISA will soon issue the first licenses for exploitation. The rules governing both exploration and extraction activities are strict, he insisted.

"We have regulations, and people are contractually, legally bound to follow them," Nandan said. "We have guidelines as to how they should proceed. We require them to report to us annually. And we require at the end that they give us an environmental impact assessment."

"Not only that," he added, "we require that they set aside a part of the exploration area, which remains pristine against which we will assess what has been the nature of the impact."

Nandan and his team are clearly proud of their efforts to organize ahead of industry, an achievement they say stands in stark contrast to international fisheries plagued with overlapping jurisdictions and ineffective rules.

"We are proceeding on the basis of science, and it's working quite well," Nandan boasted. "The good thing is there has been no mining for the last decade or more, and it's given us time to do these kind of studies before we let people go ahead and do things."

Pressure on ecosystems

Still, the onset of seabed mining only adds one more stress to a global ocean ecosystem that many scientists say is being pushed to the brink. Fish stocks are being depleted as fleets move farther and deeper to find rich marine grounds. Bottom trawlers are busy scraping the ocean floor to scoop up bottom feeders. And land-based pollution and now climate change are believed to be wreaking havoc on the world's coral reefs.

But Nandan brushes off environmentalists' concerns.

"They have to look at our regulations and rules and what we are doing and what we require these people to do," he said. "We are far better in terms of environment than land-based mining. We don't have to build roads, move large tracts of soil, cut forests down to get to the ore and dig the earth about a kilometer or more to reach the ore."

ISA works with marine scientists from the University of Hawaii, Southampton University in the United Kingdom and elsewhere on projects that study the ocean life found in mining exploration zones -- from the largest corals to the smallest microorganisms. Such collaborations will help guard natural resources, the ISA says.

"We don't find conflict," Nandan said. "Our whole approach is to manage the situation in a rational way. That's why we want scientific information. We want to know about the environment we are working in and what is the impact and what are the relative benefits."