

# Japan 'rare earth' haul sparks hopes of cutting China reliance

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Rare earths are used in the production of a wide variety of high-tech items including mobile phone displays

The discovery of potentially millions of tons of valuable "rare earth" elements in sea sludge off Japan has raised hopes that Asia's number-two

economy can reduce its dependence on Chinese supply.

But experts warn that extracting the minerals—used in technology ranging from mobile phones to electric vehicles—is both costly and difficult, especially when buried miles deep in the ocean.

A Japanese study published last week revealed an estimated 16 million tons of rare earths, enough to feed global demand on a "semi-infinite" basis, with deposits to last hundreds of years.

The news made headlines internationally and in Japan, which is the world's second-largest consumer of these minerals but relies heavily on imports from China, which controls 90 percent of the highly strategic market.

China extracted around 150,000 tons of rare earths in 2016, according to experts, but has in the past restricted the supply amid political tensions.

For this reason, "Japan is looking for several ways of freeing itself from any dependence on Chinese supply," said Gaetan Lefebvre, an expert at the French Geological Survey.

Japanese firms are working on recycling products containing rare earths to re-use the elements, developing technology without rare earths and investing in foreign mining projects in exchange for the minerals.

And Japan is not alone in trying to diversify away from risky China—there are currently 38 projects outside China at various stages of development, according to Adamas Intelligence, a metal and minerals research firm.

In addition to wanting to cut reliance on China, the price of rare earths is rising due to a Chinese crackdown on illegal mining and surging demand

for electric vehicles.

## 'Resource security'

The study's author, Yutaro Takaya from Tokyo's Waseda University, says his team hopes to develop ways to extract the prized elements within five years.

"We are not talking about some dream technology of the distant future. We are conducting studies to make this possible," he told AFP.



Mining rare earths is difficult and expensive

The recent find "should contribute to the 'resource security' of Japan", he said.

"It can also serve as a diplomatic card. Japan will be able to say, 'if prices are made to go above this level, we can look to developing sea-bottom rare earths'," added the researcher.

Ryan Castelloux, director of the Adamas Intelligence consultancy, acknowledged the find was "impressive" but recommended keeping the champagne on ice.

"It takes up to 10 years or more to advance a rare [earth](#) project from discovery into a producing mine on land, so I do not imagine it will be faster in the sea," he said.

"The discovery in Japan is still in its very early stages and it will take several years to determine if mining will be feasible," added Castelloux.

There is currently no profitable way of extracting rare earths from that sort of depth—more than five kilometres (three miles) below the surface.

"Pilot mining tests have been performed, but it remains to be seen who will be the first to produce ore at a cost that is less than the value of the commodity," noted Mark Hannington from the Helmholtz Center for Ocean Research in the northern German city of Kiel.

"Although 16 million tons is a large number, there is no evidence that this amount could be recovered economically or sustainably," added the expert.

Analysts also point to the relatively weak concentration—less than one percent—of rare earths actually in the sea mud.

"Producing just 1,000 tons of rare earth oxide from this source would require mining over one million tons of mud," said Castelloux.

And the United States Geological Survey estimated last year there were 120 million tons of rare earth deposits worldwide, with 44 million in China, 22 million in Brazil and 18 million in Russia.

"There are millions and millions of tons of [rare earths](#) in other known land-based deposits around the world that, in my view, would be more attractive options for development," he said.

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