

'Crawlers' save De Beers offshore mining activity

De Beers is using a 286-ton machine to suck up diamonds from the seabed off the Namibian coastline. Over the past decade the company has advanced the technology that has saved its marine mining business, but which has come too late for its South African sea venture.



The huge Green crawler that sucks up sediment from the ocean floor so diamonds can be extracted.
Image: [EMU](#)

De Beers Marine Namibia uses two machines, called the Green Crawler and the Orange Crawler, each more than four times heavier than a battle tank, to suck diamonds from sediment up to 6m thick in a 6,000 km² concession area south of Lüderitz.

The crawlers, which are individually used at depths of about 150m, are rotated annually for maintenance in Cape Town.

These are the third generation machines, which extract 500,000 carats of diamonds a year, half of Namibia's diamond production.

But it is their efficiency and reliability that have been a key factor in saving the marine side of the De Beers business in Namibia - although they were unable to make mining off the South African west coast viable; it was suspended in 2010 after three years.

The licences for areas between the mouths of the Orange and Buffels Rivers are held by De Beers Consolidated Mines (DBCM), the South African mining arm of the Anglo American subsidiary.

Closure of SA's marine mining

"DBCM has applied for a closure certificate for the South African Sea Areas," Domingos Valbom, the General Manager of De Beers Marine, said.

That could have been the fate of the Namibian marine business if not for the changes made in the performance of the crawler during research and development by De Beers Marine, which provides technical, exploration, maintenance and sampling services to De Beers Marine Namibia.

"The crawler has driven up the economics and sustained the life of mine way beyond what might otherwise have been done," says Kevin Richardson, Manager of Research and Development at De Beers Marine.

"The marine mining business would probably have ended in the mid-2000s had it not been for technological improvements. It would have been a loss-making venture but has now been saved by the major technological changes that have come along," he said.

A decade ago, an earlier generation crawler mined about 250m² an hour. There has been a fourfold improvement to 1,000m² an hour.

Mafuta is key to processing sediment

The sediment is pumped onto a ship, the Mafuta, where it is processed. The processing plant treats up to 140 tons an hour, meaning between 400 and 860 tons of waste are being pumped overboard.



The MV Mafuta is used to process sediment from the submarine crawlers that scour the ocean floor.
Image: [Republikein](#)

There are five mining vessels in the Namibian fleet, including the Mafuta. The other four ships use large-diameter drills attached directly to the hulls to stir up the sediment and pump it to the surface, and these can generally produce between 180,000 and 200,000 carats a year.

"One of the key areas of research finding a way to sort the material before it is pumped onto the ship," Richardson says.

"The plant will be upgraded in two years to make adjustments, possibly in the nozzle sucking up the sediment, resulting in increased volumes," he says.

The crawler, operated by a pilot on board the Mafuta, has a reliability rate of more than 70%, up from the mid-50% range when De Beers first started work with crawlers. The researchers are investigating ways to iron out any inefficiency in the way the crawler operates, sweeping an arm with the vacuum nozzle in a 22m arc.

Source: Business Day via I-Net Bridge

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