

Mining the ocean for diamond reserves

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Desie Heita

Windhoek-It has been a long journey since the country's diamond mining activities moved from land into the Atlantic Ocean. Not only has marine diamond production overtaken the diamond yields from land by a mile, but Namibians too have become experts in the field of marine diamond mining.

It is nearly 15 years since De Beers kicked off marine diamond mining in earnest, transferring its operations from Cape Town, South Africa to Namibia, and today, Namibians account for nearly 80 percent of the personnel aboard the various mining vessels in the Atlantic.

They are the shipmasters, engineers, production supervisors, electricians, environmental scientists and chefs, who spend nearly a month at a time out at sea. It is these men, and women, who see to it that diamond mining and production aboard these vessels run 24-hours seven days a week for 365 days of the year.

Namdeb Holdings, a 50/50 percent joint venture between the Namibian government and global diamond producer De Beers, has two diamond mining operations in southern Namibia, Namdeb for land mining operation and Debmarine Namibia for the sea operation.

Of all the 1,6 million carats Namibian diamonds mined in the last year alone, a bulk of that was sucked from the bottom of the Atlantic Ocean by a group of five mining vessels. Land-based diamond mining operations are just not yielding enough carats any longer.

This was the reason Debmarine Namibia went out to spend billions of dollars on a new diamond exploration and sampling vessel, the SS Nujoma, which was commissioned in Walvis Bay this week.

At a cost of N\$2,6 billion the SS Nujoma is a huge investment, but one which is necessary for Namdeb Holdings. The vessel is named after the founding president Dr Sam Shafiishuna Nujoma.

Consider the fact that Debmarine Namibia has only so far mined about 1,500 square kilometres of its 6,000 square kilometre concessions in the ocean. Jan Nel, the operations manager at Debmarine Namibia, reckons they have another 50 years to continue mining diamonds from the bottom of the ocean.

So, they need the SS Nujoma to get ahead of things. The SS Nujoma is equipped with a subsea sampling system and treatment plant developed by De Beers Marine South Africa. The vessel will also be fitted with a large drilling system capable of collecting 48 seabed samples a day. The process plant aboard the ship will employ screening, scrubbing and other methods to upgrade the product.

Resource mapping will be performed using side scan sonar, chirp sub bottom and airgun profilers, multi-beam echo sounders, and autonomous underwater vehicles. The vessel will support mining operations on the ocean floor at water depths between 90 metres and 150 metres.

In simple words, the SS Nujoma is the most advanced ship Debmarines Namibia has ever commissioned. Equally significant, Nel says, is the fact that the ship was specifically ordered by Debmarine Namibia, unlike other vessels that were converted for the purpose of marine diamond mining.

In the grade scheme of things, SS Nujoma would assist vessels, such as Mafuta, to continue mining, knowing full well where there are areas with good deposits.

Mafuta is the largest mining vessel in Debmarine Namibia's fleet of mining vessels and contributes between 30 and 40 percent of the annual total marine diamond production.

Unlike its sister ships, Debmar Atlantic, Debmar Pacific, Gariiep, and Grand Banks, the Mafuta vessel makes use of a crawler, which is really a huge tractor – imagine a steel machine the size of a double-storey three-bedroom house – that vacuums up diamond-rich sediments from the bottom of the ocean.

It is operated remotely by a team of pilots aboard Mafuta, who use joysticks and several screens to see where the crawler is going and keep the crawler working for 24 hours.

The teams operate in shifts, and every hour one pilot takes over, allowing the other to co-pilot and rest their eyes from the intense concentration required to keep the machine going.

The sediments are transported up on the Mafuta deck where a web of machines, drums and pipes rotate, hum and vibrate noisily as they crash and shift rocks and separate diamond-bearing gravel from the dirt that is pumped back into the ocean.

The diamond bearing gravel is pumped into the most secure part of the ship, where machines marked with radiation warnings sort, weigh and package the diamonds in tins that look like tins of jam.

In fact, this part of the ship is so secure that not even the marine production supervisor can enter at will. There are set of procedures on when and how he can enter the area. Going in and getting out requires vetting and some complicated surveillance, as well as a body search, which – when exiting – requires one to literally brush off any possible dirt underneath their shoes.

The diamonds from the Atlantic do not get a human touch at all. It is in this secluded part of the ship that the diamonds, now packed in tins, are sealed in a metal box and escorted by an army of people with clearance to the helipad, from where the helicopter takes them to the sorting and valuation division in Windhoek.

As though a thank you to the ocean, environmental scientists aboard the Mafuta – aboard the Debmarine Namibia's ships are always environmental scientists who keep an eye on the effects of mining on the marine ecosystem – would at various points have a peak at the eco system.

Their job is to ensure that natural rehabilitation takes place, says Aletia Bock, who was the senior environmental scientist aboard Mafuta at the time. They do sampling to determine the recovery made at the mined areas.

"Organisms do come back," says Bock of the areas that have been mined.