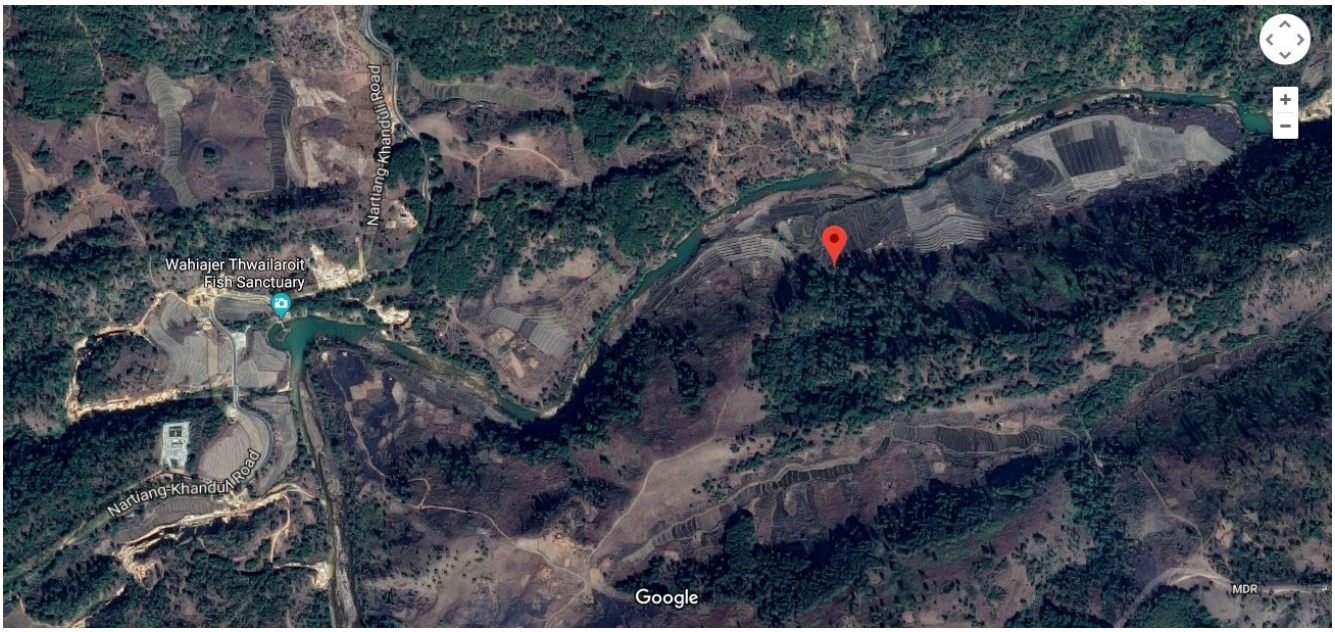
Meghalaya-East Jaintia Hills

Rescue Operation by Indian NAVY for 15 Trapped Coal Miners with VideoRay Remote Underwater Vehicle

and

Pan India Consultants Mission Specialists

The 15 miners were trapped in the 320-foot-deep mine in the Ksan area of Lumthari village in Meghalaya's East Jaintia Hills district since December 13, 2018.



Location of the Coal Mines at Jantia Hills, Meghayalaya.

About 20 miners on December 13 entered the mine. After reaching the bottom of the pit, they entered horizontal manholes, often termed as 'rat-holes', and each just about fits one person. The rat-hole mine located on top of a hillock fully covered with trees had got flooded. Five persons were able to climb out of the flooded mine, leaving the others behind. The miners were trapped in the illegal pit after water from nearby Lytein River gushed into the mine.

Rat Hole Mine

The National Disaster Response Force (NDRF) coordinating the rescue operations with the help of Navy, the NDMA, Coal India Ltd and Pan India consultants Pvt Ltd of Gurgaon.

Coal India Ltd tried with pumps to pull out the water from the mine which arrived at the site but generators were to follow. "After generators come, it'll take 5 days to pump out water,"

Then Navy divers would attempt to go inside the vertical shaft of the rat-hole coal mine but they reported that they were only able to attain a depth of 100 feet, whereas the NDRF divers could go to a depth of 30 feet. Then NDRF launched its floatable boat inside the mine to help the Indian Navy effort.

On December 14, 2018: Rescue operations began. Over 100 trained personnel were pressed into action to attempt the rescue of the miners from the 320-feet deep mine.

The 15-member team, equipped with specialised diving equipment, including a re-compression chamber and VideoRay Mission Specialist remotely operated vehicles capable of searching underwater, went straightway to the mine site in the remote Lumthari village in East Jaintia Hills district.

Difficulty of operation can be understood by the fact that divers had to use VideoRay Mission Specialist remotely operated vehicles (ROV). As there are many uncharted small mines, it was difficult to understand where to head next.

In 2016, Indian Navy has purchased 7 Nos. Remotely Operated Vehicle (ROV), Out of those, total of 6 naval ROVs had been deployed on this site and simultaneous probes were undertaken to maximise coverage.

VideoRay Mission Specialist Remotely Operated Vehicle

The Under Water Remotely Operated Vehicle is required for underwater inspection of the diving task to facilitate planning the operation. The equipment is capable of being used to conduct of an underwater salvage / diving operation.

The Underwater ROV is required for underwater inspection and repair, Mine Countermeasures (MCM), Security/Force Protection, Ship/Sub Strike, Port Inspection, Radiation Detection, Diver Communications, Accident Investigation, Search Rescue Recovery Operations, Intelligence, Surveillance, and Reconnaissance (ISR).

On December 27, 2018: Chief Minister Conrad Sangma said the state is in the process of acquiring these high-power pumps for the rescue operations.

The situation right now is very difficult. Almost the entire river came into the mine. 12 lakh litres of water were pumped out but even the water level was rising.

Experts said at least 10 pumps of 100 horsepower each will be required for the task NDRF and SDRF (National/State Disaster Response Force) personnel carry out rescue operations On Dec 28, Odisha Fire Service rescue team arrives.

On Dec 30, Navy divers with specialised equipment, including a remotely operated vehicle (ROV) capable of underwater search, was deployed.

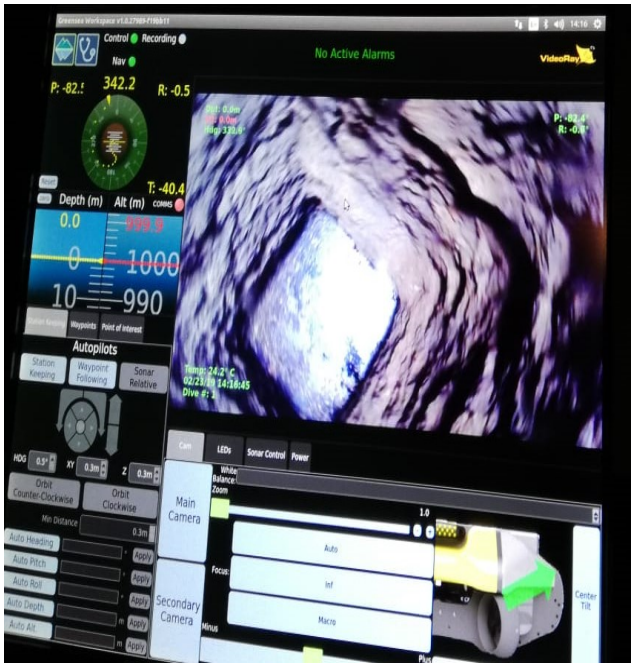


Image of RAT HOLES using ROV Software

On January 16, Navy divers deployed an ROV which detected a human body after moving 210 feet laterally from the mouth of the mine. It also detected skeletons behind the body through their remotely operated underwater vehicle (ROVs),

The divers of Indian Navy detected the body of one miner out of 15 who were trapped in an illegal rat-hole coal mine in Meghalaya's East Jaintia Hills district after over a month.

The body was detected by the divers using ROVs at a depth approximately between 60 feet and 210 feet inside a rat-hole mine. Total depth at which the body has been recovered is around 70 meters from the surface.

The exercise continued throughout the night and was expected to last till next morning, the official spokesperson said even as he was unsure whether the body parts spotted belonged to the second body detected by the ROV on January 26 but slipped out of the ROV's jaws during retrieval efforts.

The second body to be retrieved, was pulled out of the 370-feet illegal rat-hole mine, handed over to Meghalaya Police and taken to Khliehriat hospital for autopsy. "The highly decomposed unidentified body was pulled to the surface by the Indian Navy's underwater remotely operated vehicle (UROV) and then taken out in a container to the higher grounds at 1.20pm.

Earlier, Navy divers had retrieved the first body, identified as that of Amir Hussain from Assam's Chirang district on January 23.

"It was a painful exercise as they had to slowly pull out the body as the flesh got dislodged when the ROV tried to get a grip on it," the official said, adding that efforts are on to pull out the third and fourth body which were located on Saturday and Monday.

The Centre told the apex court it has to "believe in miracles" and see if the miners can come out, Since then, a multi-agency rescue operation has been attempting to evacuate the miners..