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NEC Builds 2300 Km Submarine Cable Connecting Andamans and Nicobar Islands to Chennai

Enhancing National Security, Connectivity, and Economy in the region

Challenges

- Assessing the exact path for laying cable over a massive length of 2300 km

- Uneven ocean terrain with deep and shallow waters

- Unforeseen pandemic lockdown seriously hampering the supply chain and manpower availability

Solutions

- Leveraged indepth submarine cable systems experience to design and implement cable with repeaters at appropriate lengths for amplification and strength

- Closely liaising with local authorities and the customer to overcome lockdown related issues and expedite the cable deployment

Result

Timely deployment of the cable, connecting the remotest of the location of the Islands with the mainland (Chennai), enhancing telecom connectivity in the region.

Introduction

To the east of the Indian subcontinent lies the Andaman and Nicobar Islands, an archipelago complete with beaches, plantations, and picturesque scenery. It is an ideal set up for tourism and small-scale industry-led economy to thrive. However, due to the minimal digital network, it was considered an off-the-grid location. The only medium for providing telecom connectivity between the mainland and the Andamans was through expensive satellites with bandwidth limited to only 1Gbps.

Additionally, being an island terrain, the region was prone to floods and natural disasters. With no alternate medium to establish connectivity, it was challenging for the authorities to facilitate emergency operations efficiently. Consequently, a need to build a robust telecom infrastructure, connecting the islands with the mainland, had become imperative, leading to the development of the Chennai-Andaman & Nicobar Islands (CANI) submarine optical fiber cable project.

Project Overview

The ambitious goal to thread the islands to the mainland through a high-speed optical fiber cable network started in 2018. Fiber optic cables are one of the most cost-effective modes of transmission and offer improved compatibility, robustness, and efficiency to the network.

Under the DoT (Department of Telecommunications) initiative, BSNL awarded NEC India to design, engineer, supply, install, test and implement an optical submarine communication system that connected Andaman & Nicobar Islands to Chennai.

Key Features

- The total cable extends to approx. 2300 km

- The S1 segment, extending from Chennai to Port Blair, includes repeaters and carries 400 Gbps of optical waves

- 7 segments extending between Havelock, Little Andaman (Hutbay), Car Nicobar, Kamorta, the Great Nicobar Islands, Long Island, and Rangat are repeaterless and carry 200 Gbps

Challenges

Magnitude

The construction and laying of the CANI was a formidable task and involved a series of actions. Right from measuring a massive length of 2300 km to assessing the exact path for laying the cable, the process required precise planning, considering underwater topography and previously recorded obstacles.

Seafloor Variance

The seafloor depth naturally varies, and both very deep and very shallow waters bring their own challenges. The submarine cable needs to be able to endure the tremendous pressure of extreme depths, including deep trenches. At the same time, at shallow depths, it needs to be hard enough to withstand being struck by anchors.

Pandemic

As the project started to unfold, the country was struck with the Corona pandemic, and the supply chain network stood ruptured. With strict lockdown protocols and slow material and manpower movement, it got difficult for the team to obtain approvals for laying cables, especially in the COVID-sensitive areas.

Solution

NEC is recognized for its excellent track record and dependability when it comes to building complex cable systems in challenging marine environments. With over 50 years of experience in optical submarine cables, NEC has constructed some of the largest cable networks in service today.

The team understood the challenge at hand, and took assistance from local authorities to speed up the cable layout action plan. With the team's resilience, perseverance, and immense support from the client and the concerned authorities, the CANI project took to speed overcoming the COVID issues.
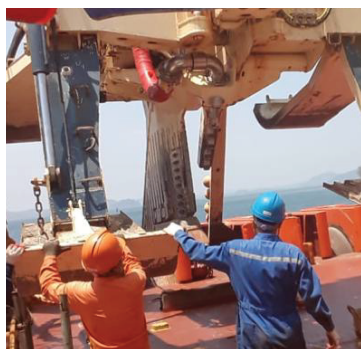
To overcome the Magnitude and terrain challenges, submarine repeaters were installed every 60-100 km to amplify and maintain the strength of transmitted signals, thereby ensuring a stable transmission even over such a long distance.

The project was carried out very cautiously by the team, with the speed and angle being constantly adjusted and crew members remaining on board for months to enable the successful completion of the project.

Result

The team delivered the project in September 2020, much ahead of its December 2020 deadline, connecting even the remotest locations of the island with Chennai.
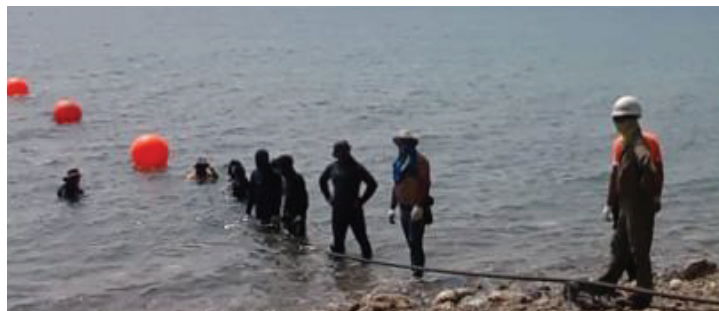
The project will spearhead the "Digital India" vision in the region, by extending and enhancing business opportunities in the region, thus empowering the island both economically & socially.

> "NEC being the main contractor of the project has shown exemplary commitment in completing the project, despite enormous challenges posed by Covid-19 pandemic. The entire team deserves accolades for this achievement. This has been possible only because of the extreme devotion, planning and co-ordination skills shown by the team in accomplishing this task in hand."
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> **V Munindra Nath**
> Chief General Manager
> BSNL

> "CANI project has been one of the most prestigious projects implemented by NEC in India. As a result of the immense experience and capability gained by the team through this project, NEC India has firmly established itself in the Global Submarine Business Arena. I am proud of the remarkable achievement of my team and look forward to bigger accomplishments in future."
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> **Ashutosh Zutshi**
> Vice President - Submarine Division
> NEC India

The CANI submarine project was inaugurated by the India's Prime Minister, Mr. Narendra Modi, on August 2020.

In his press statement, he said, "The CANI project, besides enhancing national security, will improve Internet connectivity in the islands, enabling its citizens to use net banking, e-commerce, online education, as well as telemedicine facilities. In addition, higher data speeds will enhance tourism and attract tourists, thus creating jobs."

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