

Bolstering India's Undersea Cable Infrastructure: Importance, Risks and Measures for Growth

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India Subsea Cable Infrastructure Latest News

- India is expanding its international internet bandwidth with new cable landing systems. The latest is **Airtel's 2Africa Pearls system**, backed by Meta, adding 100 terabits per second of capacity.
- Earlier in the year, the SEA-ME-WE-6 cable also landed in Chennai and Mumbai, further boosting connectivity.

About Undersea Cables

- Undersea cables are the backbone of global internet connectivity.
- They link internet service providers and telecom operators across countries, enabling fast and reliable data transmission worldwide.

Structure and Functionality

- These cables are just a few inches thick but heavily protected to survive harsh sea environments.
- Inside, they contain fiber optic strands that carry vast amounts of data at high speeds.

Landing Points and Stations

- Undersea cables come ashore at designated “landing points” — typically manholes buried under sand.
- From there, they connect to “landing stations” inland, where they integrate with major networks.

Critical Role in the Modern World

- According to experts, undersea cables handle: 90% of global data; 80% of world trade; \$10 trillion in financial transactions, and secure government communications.

Data Capacity

- Modern cables offer several hundred gigabits per second of capacity, serving thousands of telecom users.

Connection to Terrestrial Networks

- Once on land, undersea cables link to terrestrial networks — a web of less-visible infrastructure like towers and cables — that deliver internet to homes and businesses.

India's Undersea Cable Hubs

- India has two major undersea cable landing hubs — Mumbai and Chennai.
- Mumbai handles 95% of subsea cable traffic, mostly through a six-kilometre stretch in Versova. Many cables that land in Chennai also connect to Mumbai.

Current Cable Infrastructure

- 17 international cable systems currently land in India.
- India also has two domestic cable projects:
 - CANI (Chennai-Andaman and Nicobar Islands)
 - Kochi-Lakshadweep Islands project

Planning and Cost

- Undersea cable projects are capital-intensive and time-consuming, taking months or years to plan and execute, and costing millions of dollars.

India's Capacity

- India holds only **1% of global cable landing stations** and **3% of subsea cable systems**.
- For now, existing infrastructure meets demand, and most traffic is handled by current capacity.
- However, experts warn of future shortfalls due to rapidly increasing data usage.

Risks Surrounding Undersea Cable Deployment in India

- **Vulnerability to Cable Cuts at Sea**
 - India's internet infrastructure is highly dependent on undersea cables, with more cables landing in Singapore than in India, making the country vulnerable to disruptions at sea.
 - A disruption in critical areas like the Red Sea could bring down 25% of India's internet connectivity.
- **Impact of Cable Cuts in the Red Sea**
 - In 2024, subsea cable cuts in the Bab-el-Mandeb Strait (due to strikes by Houthi rebels) caused temporary issues.
 - These cuts did not significantly destabilize India's internet due to excess capacity in other networks, but a larger disruption could have a severe impact.
 - Large-scale damage to multiple cables in the region could cause significant internet outages, with limited ability to reroute data.
- **Historical Dependence on Shipping Routes**
 - Subsea cables have traditionally followed shipping trade routes, as these routes made it easier to lay down cables.
 - This alignment makes India's internet infrastructure susceptible to risks from disruptions in these maritime trade corridors.

Measures to Strengthen India's Subsea Cable Infrastructure

- **Streamlining Regulatory Processes**
 - Companies face delays due to excessive permissions required for landing subsea cables in India.
 - Currently, around 51 different approvals are needed, spanning various departments like the Department of Telecom, Home Ministry, Environment Ministry, and local municipalities.
 - Simplifying and streamlining these regulatory procedures would reduce delays and improve the ease of laying subsea cables.
- **Enhancing Cable Security**
 - Securing subsea cables is a significant concern, as fishing trawlers frequently damage cables, disrupting services.
 - Better security measures and monitoring systems need to be implemented to protect these critical infrastructures from physical damage.
- **Building Domestic Repair Capabilities**

- India currently depends on foreign repair vessels for fixing damaged subsea cables, which involves long approval processes.
- There is a need for increased domestic investment in subsea cable repair vessels and cable storage depots to expedite repair work and reduce dependency on foreign resources.

India Subsea Cable Infrastructure FAQs

Q1. What role do undersea cables play in global connectivity?

Ans. Undersea cables handle 90% of global data, 80% of trade, and \$10 trillion in financial transactions.

Q2. What are India's key subsea cable hubs?

Ans. India's main subsea cable hubs are Mumbai and Chennai, with Mumbai handling 95% of the traffic.

Q3. Why is India vulnerable to subsea cable disruptions?

Ans. India relies on cables landing in Singapore and other areas, leaving it vulnerable to global disruptions.

Q4. How can India's subsea cable infrastructure be improved?

Ans. By streamlining regulatory processes, enhancing cable security, and building domestic repair capabilities for cables.

Q5. What caused the subsea cable disruption in the Red Sea in 2024?

Ans. The disruption was due to attacks by Houthi rebels in the Bab-el-Mandeb Strait, affecting India's connectivity.

Source: TH | UNCLOS

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