Daily News Juice

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1. The new Pamban Bridge inaugurated

Why in News?

Stretching across the blue ocean and connecting Rameswaram with mainland India, through which trains and ships both pass by with the scenic view, the new Pamban Bridge has been inaugurated by Prime Minister Narendra Modi.

The new bridge, will replace the century-old original Pamban Bridge, and is considered an engineering marvel with the tag of becoming India's First Vertical Lift Railway Sea Bridge. Built with stainless steel reinforcements and Polysiloxane Paint, the bridge is designed to withstand harsh marine conditions. Its expected lifespan is up to 58 years. It has an automated electromechanical lift system, which will help the bridge rise to 17 meters, allowing smooth ship passage.



Old Pamban bridge

With its genesis in the Indo-Ceylon (now Sri Lanka) trade during the British Era, the old bridge stood firm even during the horrific 1964 tsunami when a train full of passengers was washed away. According to railway officials, the new bridge is a testament to the railways' engineering prowess and has elevated the benchmark of India's infrastructure.

The construction of the old Pamban Bridge started in 1911 and was opened to traffic in 1914. It was India's first sea bridge, built for trade. In those days of British rule, the ships used to ply between two ports – Dhanushkodi, at the south-eastern tip of the Pamban or Rameswaram Island, and now abandoned, and Talaimannar in Sri Lanka. During the 1964 Tsunami, Dhanushkodi was entirely destroyed and it is still uninhabited.

The old bridge could also be raised to let ships pass. It is considered a technical marvel as the bridge was constructed with lesser availability and the corrosive environment it withstood. It remained India's longest sea link until the Bandra-Worli sea link opened in 2010.

The new bridge

The old bridge played an important role in trade and pilgrimage for over a century. Due to corrosion, high maintenance and operational challenges, the decision to construct a new Pamban bridge was taken and the foundation stone for the new bridge was laid in 2019.

The new 2.08 kilometers long structure stands three metres higher than the old Pamban Bridge. It allows the smaller ships to pass beneath without lifting the span. According to the Ministry of Railways, the bridge has been constructed with 99 spans of 18.3 meters each, with a 72.5 meter vertical lift span at its centre that can be raised up to 17 meters to accommodate larger vessels when needed.

Relevance: GS Prelims; Economics Source: Indian Express

2. Why are undersea cables important?

Why in News?

India is getting new cable landing systems coming online gradually. The latest addition is Airtel's 2Africa Pearls system, which has investments from Facebook parent Meta, adding 100 terabits per second of capacity to India's international bandwidth. Earlier this year, the SEA-ME-WE-6 cable was also landed in Chennai and Mumbai.

What are undersea cables?

Undersea cables are the main link connecting the world's internet networks. They connect internet service providers and telecom operators everywhere with those in other countries. These cables are a few inches thick and are heavily padded to withstand the hostile environment of the sea floor. Inside, strands of fiber optic cable — similar to those that connect modern telcos' towers and routers — provide massive capacity for large volumes of data to quickly crisscross the earth.

Does India have enough undersea cables?

India has two major hubs of cable landing sites: Mumbai and Chennai. Many of the cables connected to Chennai also land in Mumbai. In total, 17 cable systems land at some point in India. India also has two domestic cable systems — the Chennai Andaman and Nicobar Islands (CANI) cable to provide high-speed connectivity to the islands, and the Kochi Lakshadweep Islands project.

Cables take several months, even years, to plan out and lay, at a cost of millions of dollars. Most cables in countries with well-developed internet infrastructure are able to commission capacity years before it is required. As such, most international internet traffic in India is largely served by existing capacity.

What are some risks surrounding undersea cable deployment in India?

More cables land in Singapore, a small city-state, than they do in all of India, making India vulnerable to the consequences of cable cuts at sea. If there is a disruption at the Red Sea, it pretty much brings down 25% of India's Internet in our estimate. It's not a theory because it just happened about two years back." He was referring to the cuts that brought down subsea cables in the Bab-el-Mandeb Strait, likely caused by strikes by Houthi rebels in Yemen. That strait is a critical narrow passage through which dozens of subsea cables pass.



SUBMARINES CABLES OPERATING IN INDIA

These cuts — some of which happened in 2024 — have not destabilised India's internet experience so far, thanks to excess capacity built into other networks. But that may not always be the case. If several cables in the Red Sea are damaged, large parts of the internet may stop working, and there is only so much data that can be rerouted through other cable systems.

What can be done to bolster India's subsea cable infrastructure?

For one, the companies laying subsea cables complain of excessive permissions needed to land a single cable in India. By last count, about 51 permissions were needed, beyond just the Department of Telecom, including the Home Ministry, Department of Fisheries, the Environment Ministry, local municipalities, and so on.

In addition to streamlining regulations, securing these cables is also important. Fishing trawlers break the cables all the time.

India depends on foreign repair vessels with long permission processes for them to begin work in Indian waters. India currently does not have the requisite subsea cable repair ships and cable storage depot capacity that is required. There is need for more domestic investment in cable repair capabilities.

Relevance: GS Prelims & Mains Paper III; Economics Source: The Hindu

3. Which countries are quitting a key landmine treaty and why?

Why in News?

All European countries bordering Russia have announced plans to quit the global treaty. Many have said they fear that, as United States President Donald Trump steps up pressure to end the war in Ukraine, Russia could use any pause to re-arm and target them instead.

Major Powers Among Non-Signatories of Mine Ban Treaty

Countries which have/have not signed and ratified the Ottawa Mine Ban Treaty of 1999



Source: International Campaign to Ban Landmines

Civilian victims

Anti-personnel landmines are generally hidden in the ground and designed to detonate automatically when someone steps on them or passes nearby.

More than 80% of mine victims are civilians, according to the International Committee of the Red Cross (ICRC).

The convention includes provisions to assist victims, many of whom have lost limbs and suffer from other permanent disabilities. In October 2024, the United Nations reported that Ukraine had become the most mined country in the world. As of August 2024, it said there had been around 1,286 civilian victims of mines and explosive remnants.

Stockpiles

Under the terms of the 1997 convention, countries were supposed to destroy all landmine stockpiles within four years, although not all have complied, according to the ICRC.

Some of the countries pulling out of the landmines treaty, including Lithuania, are also considering leaving the 2008 Convention on Cluster Munitions. Cluster munitions are weapons designed to release or disperse multiple explosive submunitions (also called "bomblets") over an area, often from a single container or dispenser.

The US, which had also not signed that convention, in 2023 transferred cluster munitions to Ukraine to help it defend itself against Russia.

Mine Ban Treaty

The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction of 1997, known informally as the Ottawa Treaty, the Anti-Personnel Mine Ban Convention, or often simply the Mine Ban Treaty, aims at eliminating anti-personnel landmines (APLs) around the world.

By March 2025, 165 states had ratified or acceded to the treaty. Major powers, which are also past and current manufacturers of landmines, are not parties to the treaty. These include the United States, China, and Russia. Other non-signatories include India and Pakistan.

Relevance: GS Prelims & Mains Paper II; International Organisations Source: Indian Express

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