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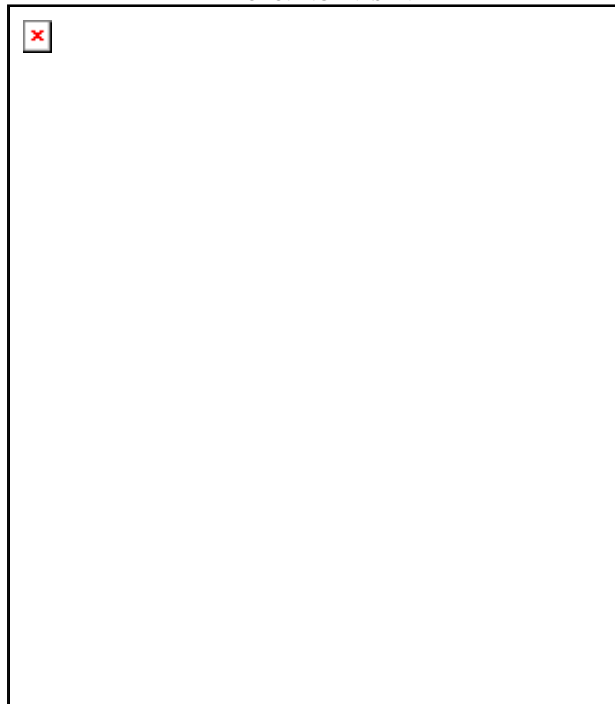
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A mockery of science, conservation and environmental laws

Sudarshan Rodriguez

It is beyond doubt that the Sethusamudram project will have disastrous consequences for the region's biodiversity.

PHOTO: K.GANESAN



UNCOMFORTABLE QUESTIONS: Dredging activity will result in the killing of species protected under the Indian Wildlife (Protection) Act, 1972.

The religio-political controversy and public debate surrounding the Sethusamudram Ship Canal Project (SSCP) have overshadowed the original arguments raised against this project, namely its environmental, economic and social impacts.

Ecological significance

Part of the project area, specifically Adam's Bridge, falls within the Gulf of Mannar Biosphere Reserve (GOMBR). It is India's largest biosphere reserve and has an area of 10,500 sq km, covering the "Indian part of Gulf of Mannar between India and Sri Lanka." It is one of India's major coral reef ecosystems with 3,600 species of flora and fauna, of which

377 are endemic. It is famous for its *chanks* (conches and other shells) which make Rameswaram one of the world's largest shell trade and craft centres. The 21 islands that constitute the core zone of the GOMBR form the Gulf of Mannar Marine National Park, which is India's second marine national park. UNESCO's Biosphere Reserve concept is based on the idea of oneness of humanity transcending national frontiers and recognises the need for conservation of vanishing species and habitats. The canal at Adam's Bridge is a mere 20 km from Shingle Island, one of these 21 islands. With the completion of the SSCP, ships will be navigating through the biosphere reserve and close to the park.

The other part where most of the capital dredging is planned is the Palk Bay, which is also ecologically sensitive and has extensive sea grass meadows. Sea grasses serve as nurseries for fish stocks, and are essential grazing areas for turtles and dugongs (also known as the sea cow: a highly endangered species on the verge of extinction).

Rohan Arthur, an ecologist and a leading expert on sea grasses and corals with the Nature Conservation Foundation, is of the view that "the importance of the sea grass meadows of the Palk Bay and Gulf of Mannar cannot be overstated, as they are a conservation hotspot of regional and global relevance." (from *Review of the Environmental and Economic Aspects of the Sethusamudram Ship Canal Project*, by Sudarshan Rodriguez, Jacob John, Rohan Arthur, Kartik Shanker and Aarthi Sridhar.)

Impact of dredging

The Palk Bay, known for its unusually high sedimentation rate, is one of the five permanent sediment sinks of India, that is, sediments are constantly being deposited in the Palk Bay and Palk Strait. The sediment sink and transport mechanism in the region are yet to be fully understood. Strangely, all the project documents summarily ignore important knowledge of sedimentation, and the bibliography stops at 1989 while some of the key papers were published in the late 1990s and since 2000. Dredging Adam's Bridge along a 300-metre wide stretch to make the canal passage will have drastic consequences for marine ecosystems in the Palk Bay and the Gulf of Mannar. It will be akin to opening the floodgates of a dam and will allow sediments from the Palk Bay to flow freely into the Gulf of Mannar, thus affecting the corals and fisheries in the Marine National Park and the whole biosphere reserve. Both sea grasses and corals are sensitive to increases in sediment levels. "The changed sediment conditions have a range of effects on corals and sea grasses, affecting their basic physiology, reproduction, recruitment, population and community structure," says Rohan Arthur in *Review of the Environmental and Economic Aspects of the Sethusamudram Ship Canal Project* (cited above).

Loss of wildlife

The project directly results in loss of wildlife, specifically protected species. This is evident from its own documents (Section 1.3 and 3.2 of the Environmental Impact Assessment prepared by NEERI) which acknowledges the presence of corals, sea fans, sponges, pearl oysters, *chanks* and sea cucumbers along the canal. The EIA (Section 6.4.1.2 and 6.6) report states: "Due to dredging, the bottom flora and fauna on an area of about 6 sq km along the channel alignment in Adam's Bridge and about 16-17 sq km in Palk Bay/Palk Strait area will be lost permanently." Thus, the dredging activity for the canal will result in the killing of corals, sea fans, sponges, and sea cucumbers, all of which are protected species under the Indian Wildlife (Protection) Act, 1972.

In fact, corals are Schedule I species, which means the government accords it the same protected status as a tiger. It is shocking that this aspect is being overlooked. According to the proponents of the project, it is an acceptable price to pay.

Environmental laws

The EIA did not have a dredging management programme. This is also pointed out in the L&T-Ramboll Detail Project Report (DPR) of the SSCP, which recommends that this be done (L&T-Ramboll DPR, Section 12.9.2 on page 12-11, bullet point 2). The EIA of the project also did not have a Disaster Management Plan (DMP), a mandatory legal requirement. (Under Form A, Item 11 of the EIA notification, 1994 and the Ministry of Environment and Forest's EIA Manual).

Till date there is no DMP for the project and the project authorities have stated on various occasions that the Tuticorin Port Trust's (TPT) DMP would be applicable for the project. The TPT's DMP was developed only for the functioning of the Tuticorin port, where ships navigated in the southern Gulf of Mannar (around Kanyakumari) to Tuticorin and not further through Adam's Bridge and Palk Bay.

Many experts have pointed out severe shortcomings in the project's documents and design in terms of data gaps with respect to basic parameters such as sub-surface geology, bathymetry, and sedimentation process in the project area. These have resulted in the poor design of the project and inadequate assessment of risks, hazards and environmental impacts. It is beyond doubt that it will have disastrous consequences for the region's biodiversity, causing major and permanent losses to fisheries and livelihoods.

The government needs to answer some uncomfortable questions on why it ignored its own conservation and environment laws. The relegation of the above-mentioned environmental arguments against the SSCP, and the lack of scientific rigour in the design and EIA of the project, represent a mockery of science, conservation and environmental laws.

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