Geoheritage Value of Ram Setu

Why in news?

Recently, the Supreme Court gave the Centre four weeks' time to file a response clarifying its stand on a plea by former Rajya Sabha MP Subramanian Swamy seeking national heritage status for the 'Ram Setu'.

What is the Ram Setu?

- Ram Setu or Adam's Bridge is a linear coral ridge that separates the shallow sea consisting of the Gulf of Mannar in the south and Palk Bay in the north.
- It runs between Rameswaram in Tamil Nadu and Thalaimannar in Sri Lanka.
- Like the Great Barrier Reef, the Ram Setu is also a continuous stretch of limestone shoals.

How was the Ram Setu formed?

- In 2003, space-based investigations using satellite remote sensing imagery, by the Space Applications Centre in Ahmedabad, concluded that Ram Setu is **not man-made**.
- But the Ram Setu comprises 103 small patch reefs lying in a linear pattern with reef crest, sand cays and intermittent deep channels.
- Cays or keys refer to low-elevation islands situated on surfaces made of coral reef.
- Thus, it is reasonable to assume that Ram Setu is a **linear ridge made of coral reefs** and forms a shallow part of the ocean that is being constantly impacted by sedimentation processes.

- During a global glaciation period that began around 2.6 million years ago and ended 11,700 years ago, the Indian coast, including parts of the Sethusamudram, may have been raised above water.
- The coral polyps could once again have grown higher on the newly submerged platforms. And in time, the platforms may have been used by migrants to cross oceans.

What is the Sethusamudram Ship Channel Project?

- The story of the Sethusamudram Ship Channel Project (SSCP) can be traced back to the British, who proposed creating a channel to link the Palk Strait with the Gulf of Mannar.
- But it was only in 2005 that the project was inaugurated.
- Under the project, an 83-km-long deep water channel was to be created, linking Mannar with Palk Strait.
- It will be created by extensive dredging and removal of limestone shoals.
- If completed, the SSCP is expected to reduce the navigation time between the east and west coasts of India.

What are the concerns about the project?

- Though the CSIR-NEERI ruled out any serious environmental risk and certified the feasibility of the project, concerns have been raised on the stability of the proposed channel and its environmental impact.
- Computer models suggest that the central, eastern and north-eastern parts of the Palk Bay may be impacted by **waves of higher energy**.
- This means that these areas also receive more sediment, rendering them more turbid.
- The area is also vulnerable to **cyclonic storms**. Cyclonic storms can cause the local sedimentary dynamics to go haywire.
- Finding safe places for dumping dredged material without harming terrestrial or marine ecosystems is therefore a big challenge.
- **Emissions from ships** traversing the narrow channel will pollute the air and water.
- And if a ship carrying oil or coal is grounded or strays from its course within the canal, it could cause an ecological disaster.
- Other than the environmental groups, religious groups have been opposing it as they believe that the structure, which is mentioned in the Ramayana, is of religious significance.

Why is there a need for protection?

- The coral reef platforms between Thoothukudi and Rameswaram in the Gulf of Mannar were notified as a marine biosphere reserve in 1989.
- More than 36,000 species of flora and fauna live there, flanked by mangroves and sandy shores which are considered conducive for turtles to nest. It is also a breeding ground for fish, lobsters, shrimps and crabs.
- This area is already threatened by discharge from thermal plants, brine run-off from salt pans, and illegal mining of corals.
- The SSCP, if it becomes a reality, will be the final blow to this sensitive environment and to the livelihoods of the people there.

What is the geoheritage perspective?

- While considering this issue from a believer's point of view, it is also important to consider this feature from a 'geoheritage' perspective.
- The geoheritage paradigm is used in nature conservation to preserve the natural diversity of significant geological features.
- The geodiversity, consisting of varied landforms and features representative of dynamical natural processes, is under threat from human activities and needs protection.
- The natural heritage of a country includes its geological heritage.
- The value of abiotic factors like geology, soils and landforms is also recognised for their roles in supporting habitats for biodiversity.
- The Ram Setu carries the unique geological imprints of an eventful past.

Ram Setu needs to be preserved not just as a national heritage monument, but also as a geoheritage structure as defined from a scientific perspective.

References

1. The Hindu | The geoheritage value of Ram Setu
2. The Hindu | Ram Setu: Supreme Court questions delay in Centre's response
3. The Indian Express | The myth and mystery behind Ram Setu

IAS PARLIAMENT
Information is Empowering
A Shankar IAS Academy Initiative