

1 Coastal Erosion (Source: The Indian Express)

COASTAL EROSION

— The Silent Loss of Our Shores —

Coastal erosion is the wearing away of land along the coastline by natural forces such as waves, tides, currents, and storms. It is a natural process, but human activities and climate change are accelerating its impact.



CAUSES



WAVE ACTION

Continuous crashing of waves against the shore wears away rocks and removes sediments.



STORMS & CYCLONES

High-energy storm surges and strong winds erode beaches and coastal land.



TIDES & CURRENTS

Tidal movements and longshore currents transport sediments away from the coast.



LOSS OF VEGETATION

Removal of mangroves and coastal vegetation exposes shorelines to wave attack.



HUMAN ACTIVITIES

Construction, sand mining, dam building and seawalls disturb the natural sediment balance.

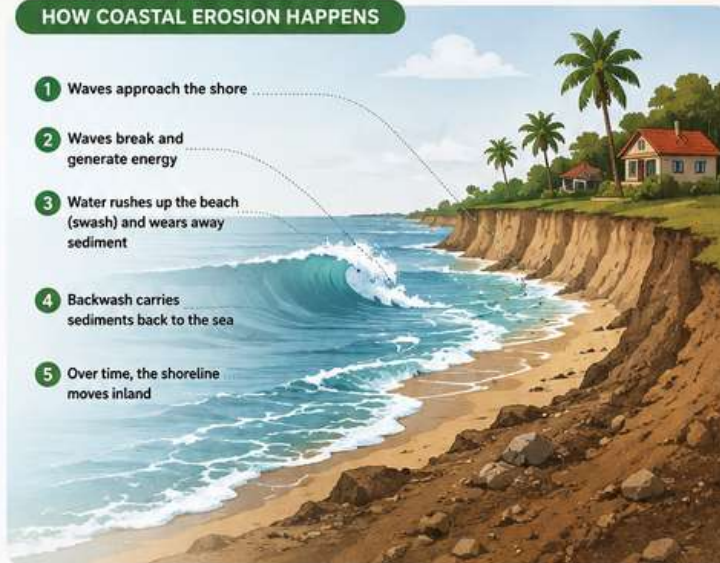


CLIMATE CHANGE

Rising sea levels and increased frequency of extreme events intensify coastal erosion.

HOW COASTAL EROSION HAPPENS

- 1 Waves approach the shore
- 2 Waves break and generate energy
- 3 Water rushes up the beach (swash) and wears away sediment
- 4 Backwash carries sediments back to the sea
- 5 Over time, the shoreline moves inland



IMPACTS



LOSS OF LAND

Reduces land area and displaces communities.



DAMAGE TO INFRASTRUCTURE

Roads, buildings, ports and other facilities are threatened.



IMPACT ON ECOSYSTEMS

Destroys beaches, dunes, wetlands and coastal habitats.



THREAT TO LIVELIHOODS

Affects fishing, tourism and other coastal economies.



INCREASED RISK

Increases vulnerability to floods, storm surges and sea level rise.

SIGNS OF COASTAL EROSION

- ✓ Retreating shoreline
- ✓ Steep or undercut cliffs
- ✓ Exposed tree roots or foundations
- ✓ Loss of beaches and sand dunes
- ✓ Increased flooding during high tides or storms



EXAMPLES IN INDIA

- ✓ Sundarbans, West Bengal
Erosion of islands and mangrove areas.
- ✓ Kanyakumari Coast, Tamil Nadu
Retreating coastline due to sea waves and rising sea level.
- ✓ Gujarat Coast
Erosion of beaches in areas like Mandvi and Dwarka.
- ✓ Kerala Coast
High erosion in places like Alappuzha, Kollam and Thrissur.



PREVENTION & MANAGEMENT



PROTECT NATURAL BARRIERS

Conserve mangroves, coral reefs, dunes and wetlands.



VEGETATION PLANTATION

Plant beach grasses, casuarina and other native species.



SOFT ENGINEERING SOLUTIONS

Use sand nourishment, beach renourishment and bio-engineering.



HARD STRUCTURES (When Necessary)

Build seawalls, groynes and breakwaters carefully and wisely.



REGULATE HUMAN ACTIVITIES

Control sand mining, construction near shorelines and waste dumping.



AWARENESS & COMMUNITY ACTION

Involve local communities in monitoring and protecting the coast.



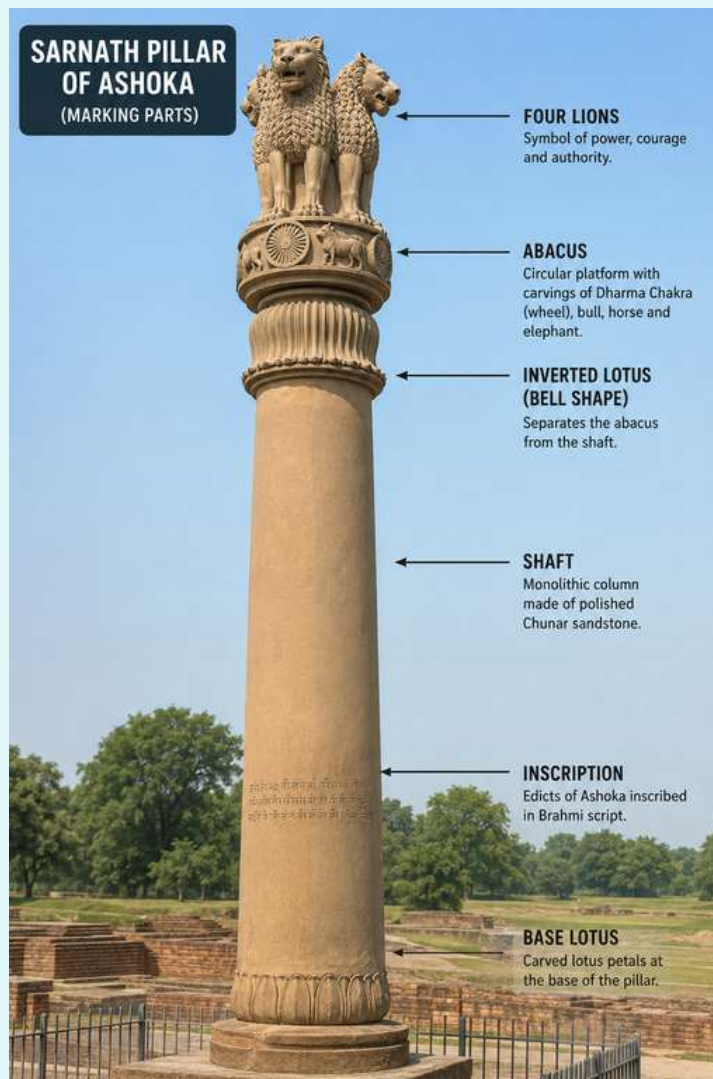
KEY TAKEAWAY

Coastal erosion cannot be stopped completely, but its impact can be reduced through sustainable practices, conservation and collective action for a resilient coastline.



2 Mauryan Pillar Architecture (Source: The Indian Express)

- Pillar inscriptions became significant during the Ashoka period.
- **Uses of Pillars.**
 - As a symbol of the State or to commemorate battle victories.
 - Also used to propagate imperial sermons as well.
- The material used to build the pillars was **chunar sandstone**.
- **Parts of the Pillars**
 - The shaft formed the base and was made up of a single piece of stone or monolith.
 - On top of it lay the capital, which was either lotus-shaped or bell-shaped and was influenced by Iranian pillars.
 - Above it, there was a circular or rectangular base known as the abacus on which an animal figure was placed.





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Sarnath Pillar

- The abacus and the animal part of the Sarnath pillar form the official national emblem of India.
- Four animals are shown representing four directions.

Animals	Direction	Representation
Galloping Horse	West	• The horse named Kanthaka, which Buddha is said to have used for leaving his princely life
Elephant	East	• Elephant depicts the dream of Queen Maya, where a white elephant is seen entering her womb.
Bull	South	• Bull depicts the zodiac sign of Taurus, the month in which Buddha was born.
Lion	North	• Lion shows the attainment of enlightenment.

- The four Lions symbolize Buddha spreading Dhamma in all directions.
- It was built in commemoration of the first sermon by Buddha known as Dharmachakrapravartana.