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The Analyst

CURRENT AFFAIRS Handout

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Coastal Erosion: India's Shrinking Shoreline

CONTEXT: More than one-third of India's assessed coastline is experiencing erosion.

What is Coastal Erosion?

'gradual removal and landward retreat of sediments from the shoreline

- waves, currents, tides, storms and human-induced changes'

Waves + currents + tides + cyclones + sea-level rise + altered sediment supply + human interventions → Shoreline change

ACCRETION -

India's Coastal Erosion: Current Status - NCCR (1990-2022)

- 34.2% - Eroding
- 39.5% - Stable
- 26.3% - Accreting

Odisha: An Important Case Study

According to the NCCR assessment:

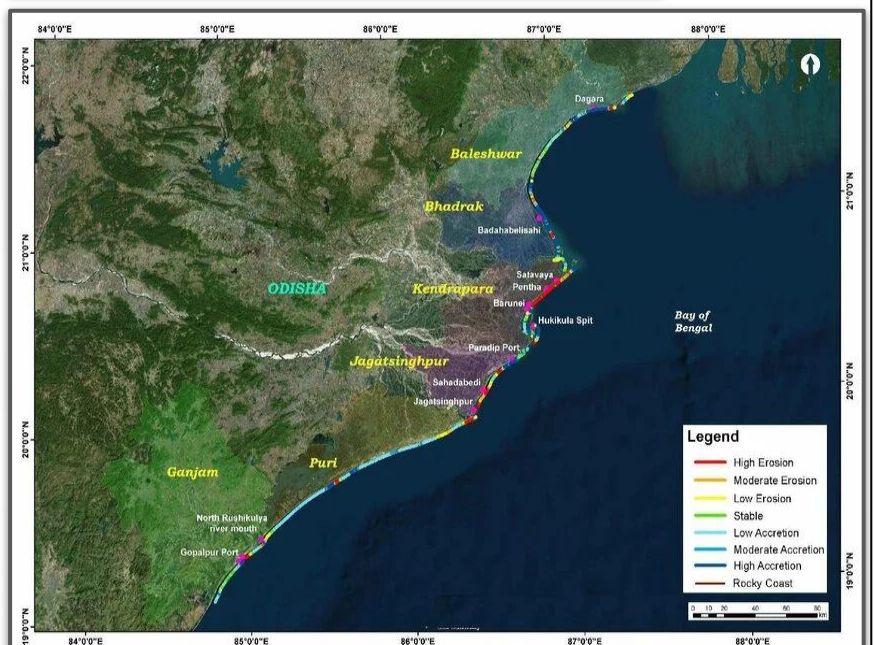
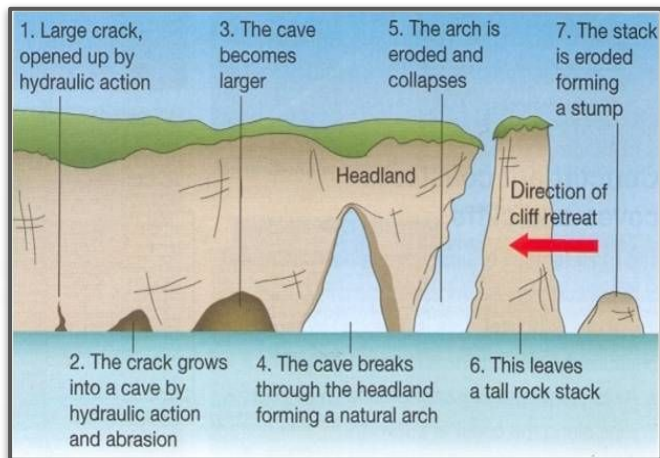
- **28.3%** of Odisha's coastline is eroding.
- **17.6%** is stable.
- **54.6%** is experiencing accretion.

Consequences

- Loss of agricultural land
- Destruction of fishing settlements
- Displacement of coastal communities
- Loss of sand dunes and vegetation
- Threats to tourism
- Damage to roads and infrastructure
- Threat to turtle nesting and coastal ecosystems

State-wise hotspots

State	Coastline under erosion
West Bengal	60.5%
Puducherry	47.3%
Kerala	43.9%
Tamil Nadu	39.2%
Gujarat	31.2%
Andhra Pradesh	31.0%
Odisha	28.3%
Maharashtra	25.5%
Karnataka	23.7%
Goa	15.3%



Coastal Erosion: India's Shrinking Shoreline



CONTEXT: More than one-third of India's assessed coastline is experiencing erosion.

Why is Coastal Erosion Increasing?

A. Natural factors

1. **Waves and longshore currents**
2. **Cyclones and storm surges** – Odisha, Andhra Pradesh and West Bengal
 - shoreline retreat.
3. **Tides** – alter beach morphology.
4. **Sea-level rise**
Thermal expansion + melting of glaciers/ice sheets
→ sea-level rise → increased coastal inundation and erosion risk
 - IPCC
5. **Sediment dynamics** – continuous sediment budget

B. Human-Induced Drivers: The Often-Ignored Dimension

1. **Dams and river regulation**
River → sediment supply to coast ↓ → delta/beach replenishment ↓ → erosion vulnerability ↑
2. **Ports, harbours and breakwaters** – Alteration –
3. **Sand mining** – reduce sediment availability
4. **Unplanned Urbanisation** – reduces natural buffers
5. **Seawalls and hard structures** – interrupt sediment movement

Climate Change Multiplies Existing Vulnerabilities

Climate change → **greater erosion and displacement risk**

Impacts

A. Ecological Impacts

1. **Mangrove degradation** – India's Sundarbans
2. **Coral reef and seagrass vulnerability**
3. **Turtle nesting** – Olive Ridley turtles – Gahirmatha and Rushikulya.
4. **Loss of sand dunes**

B. Socio-Economic Impacts

1. **Fisherfolk**
2. **Agriculture** – Saltwater intrusion
3. **Displacement** – Example: Odisha
4. **Infrastructure**

Coastal Erosion as a “Blue Economy Paradox”

Government Response

- A. **NCCR Shoreline Monitoring** – Remote Sensing, GIS, etc.
- B. **Coastal Vulnerability Index** – INCOIS
- C. **Coastal Regulation Zone (CRZ) Framework**
Ecology ↔ Livelihoods ↔ Infrastructure ↔ Disaster resilience
- D. **Integrated Coastal Zone Management** –
- E. **Odisha's Geotextile Tube Approach**

Nature-Based Solutions: The Way Forward

“Work with nature, not against it.”

- A. **Mangrove restoration**
- B. **Dune restoration**
- C. **Beach nourishment**
- D. **Wetland restoration**
- E. **Living shorelines**
vegetation + wetlands + reefs + limited engineering
- F. **Better Coastal Governance** – Stakeholders

“Soft engineering first, hard engineering where unavoidable.”

- seawalls
- groynes
- breakwaters



Coastal Erosion: India's Shrinking Shoreline

CONTEXT: More than one-third of India's assessed coastline is experiencing erosion.



Mains Practise Question

Coastal erosion in India is no longer merely an environmental concern but a growing threat to livelihoods, infrastructure and human settlements. Discuss the major causes and impacts of coastal erosion in India and suggest a sustainable, ecosystem-based approach to address it.

(15 Marks, 250 words)

CONTEXT: Bees are not merely honey producers; they are an essential for pollination services.

Why the Future Depends on Saving the Bee?

- Bees are not merely **honey producers**; they are essential - pollination services.
- FAO estimates that **~75% of major food crops - partly on pollinators**; pollinators - **35% of global crop production by volume**.

A bee colony can generate value twice – through honey and through higher agricultural productivity.

- Beekeeping - **Triple Dividend: farm income + pollination/productivity + biodiversity conservation**

India's Honey Sector: Current Status

- India - major global honey producer and exporter.
- APEDA - natural honey production **~1.52 lakh MT in 2024-25 (3rd Advance Estimates)**.
- Natural honey exports ~ **worth \$206.47 million in FY2024-25**. Major destinations include the **U.S., UAE, Saudi Arabia, Portugal and Libya**.
- India - **second-largest global honey exporter after China** - APEDA/CRISIL's 2025

Regional concentration - Major honey-producing States include:

- **Uttar Pradesh - ~17%**
- **West Bengal - ~16%**
- **Punjab - ~14%**
- **Bihar - ~12%**
- **Rajasthan - ~9%**

India's "Sweet Revolution"

The Government launched the **National Beekeeping & Honey Mission (NBHM)** in 2020 to promote scientific beekeeping and achieve the objective of **"Sweet Revolution."**

NBHM

- Central Sector Scheme
- Implemented by the **National Bee Board (NBB)**
- Total outlay: **₹500 crore**
- Focuses on:
 1. Productivity improvement
 2. Post-harvest management
 3. Research & technology

Important institutional interventions -



India's "Sweet Revolution"

CONTEXT: Bees are not merely honey producers; they are an essential for pollination services.

Major Challenges

- A. Pollinator decline – Excessive/indiscriminate pesticide use, Monoculture, CC, etc.
- B. Climate change – Seasons & Weather Patterns – **bee–flower–crop relationship**.
- C. Low value realisation – Less focus – high-value branded products; Manuka honey
- D. Quality and adulteration concerns – Export markets Demand –
- E. Export concentration – USA – geopolitical disruptions.

Way Forward: From "Honey Economy" to "Pollination Economy"

- A. Protect pollinator habitats– bee-friendly flora; Agricultural landscapes
- B. Promote scientific beekeeping – Better hive management; Disease surveillance,etc.
- C. Rational pesticide use – IPM; Biopesticides
- D. Build premium Indian honey brands – **"India sells honey" → "India sells differentiated, traceable Indian honey."**
- E. Strengthen FPOs – **aggregation → processing → testing → branding → export**
- F. Recognise the **economic value of pollination**

Mains Practise Question:

"India's beekeeping sector has significant potential to enhance agricultural productivity, diversify farmers' incomes and strengthen rural livelihoods. Discuss the challenges associated with India's "Sweet Revolution" and suggest a way forward.

(10 Marks, 150 words)



Disproportionate burden

The data for the charts were sourced from India's Time Use Survey (2025) and the Ministry of Statistics and Program Implementation (MoSPI)

CHART 1 : Time spent on housework (unpaid domestic and caregiving services)

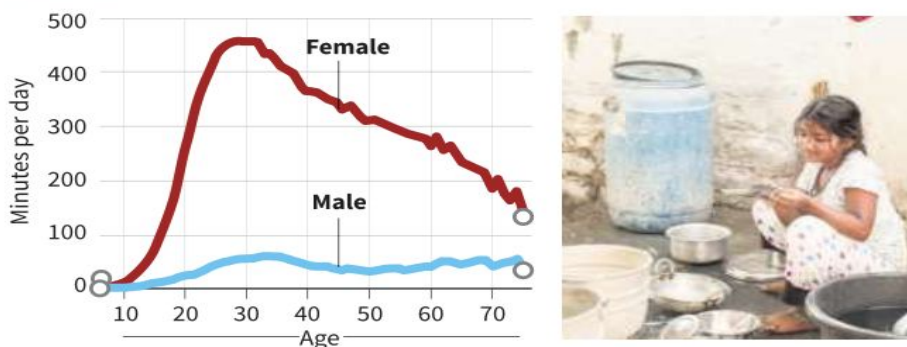


CHART 2 : Time spent by children on domestic work, leisure and learning

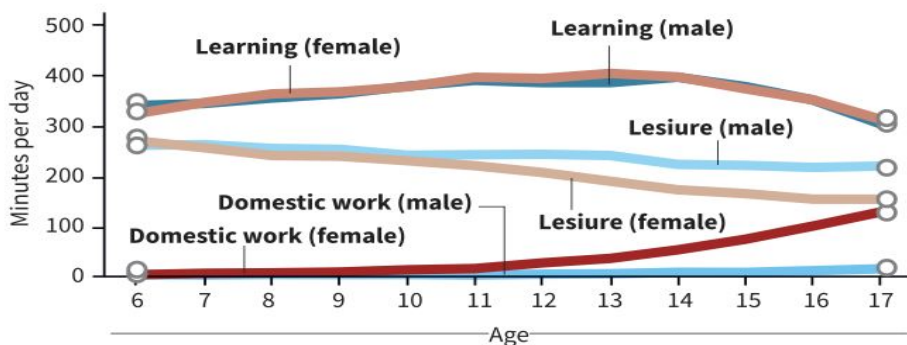
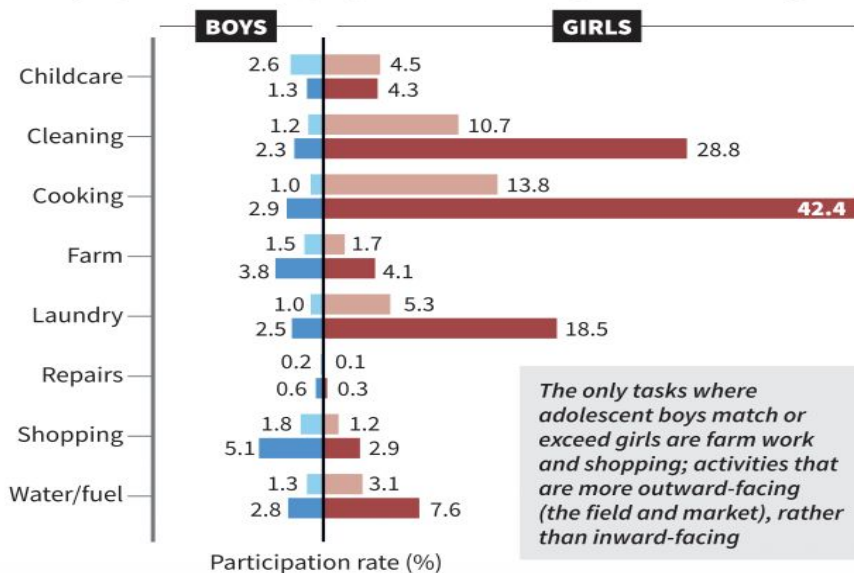


CHART 3 : The share (participation rate) of girls and boys who engage in different types of housework

Boys aged 10-14 Boys aged 15-17 Girls aged 10-14 Girls aged 15-17



Water Contamination in India



SYLLABUS : Prelims : Environment

Newspaper : The Hindu Page No : 06

Key Takeaways

- **Kanpur–Fatehpur region:** Groundwater contamination by **hexavalent chromium [Cr(VI)]**, linked to tannery/chemical-industrial waste.
- **Health risk:** Cr(VI) exposure is associated with **skin disorders, gastrointestinal problems and cancer risk**; IARC classifies inhaled Cr(VI) compounds as carcinogenic.
- **Legacy pollution:** About **62,225 tonnes of chromium waste** was identified at Rania; remediation followed NGT intervention.
- **Governance gap:** Pollution persists due to weak enforcement, delayed remediation and inadequate safe-water supply.
- **Inter-generational problem:** Groundwater remediation may take **decades to centuries**, depending on aquifer conditions.



Value Addition

- **Arsenic:** Ganga–Brahmaputra basin; chronic exposure → skin lesions & cancers.
- **Fluoride:** Rajasthan, Gujarat, Telangana, Andhra Pradesh etc.; excess → **dental/skeletal fluorosis**.
- **Nitrate:** Linked to fertiliser use, sewage and livestock waste; widespread in several regions.
- **Uranium:** Sporadic contamination reported in **Rajasthan, Punjab, Haryana, Andhra Pradesh and Telangana**.
- **Heavy metals:** Lead, chromium, manganese and mercury from industrial/mining activities.
- **Biological contamination:** Pathogens from untreated sewage cause diarrhoeal and other water-borne diseases.
- **Emerging contaminants:** **PFAS, pharmaceuticals, pesticides and microplastics** pose newer monitoring challenges.
- **Way forward:** **Source control + polluter-pays principle + aquifer mapping + real-time monitoring + decentralised treatment + safe piped water + community participation.** CGWB conducts systematic groundwater-quality monitoring and maintains national water-quality datasets.



SYLLABUS : Prelims : Governance

Newspaper : The Indian Express **Page No : 13**

About Directorate of Revenue Intelligence

- DRI was constituted in 1957 as the apex anti-smuggling intelligence and investigation agency.
- It works under the Central Board of Indirect Taxes & Customs (CBIC), Ministry of Finance, Government of India.
- DRI enforces the provisions of the Customs Act, 1962, and over fifty other allied acts, including the Arms Act, NDPS Act, COFEPOSA (Conservation of Foreign Exchange and Prevention of Smuggling Activities), Wildlife Act, Antiquities Act, etc.
- It is tasked with detecting and curbing smuggling of contraband, including drug trafficking and illicit international trade in wildlife and environmentally sensitive items, as well as combating commercial frauds related to international trade and evasion of customs duty.
- It has a country-wide network of zonal, regional, and sub-regional units and intelligence cells.
- DRI collects, analyzes, and disseminates intelligence to the field formations, helps in investigations, and keeps statistics of seizures and prices/rates, etc, for watching trends of smuggling and movement of other contraband and suggest remedies for fixing loopholes in existing laws and procedures.
- The DRI has also been designated as the lead agency for S-CORD, the national anti-smuggling coordination centre.
- DRI has also been at the forefront in international Customs collaboration through Customs Mutual Assistance Agreements of CBIC with over 60 other countries, where the thrust is on information exchange and learning from the best practices of other Customs administrations.



SYLLABUS : Prelims : IR

Newspaper : The Hindu Page No : 16



The **military demarcation line (MDL)**, sometimes referred to as the **armistice line**, is the effective land border or **demarcation line** between **North Korea** and **South Korea**. On either side of the line is the **Korean Demilitarized Zone (DMZ)**. The MDL and DMZ were established by the **Korean Armistice Agreement**.^[1]

In the Yellow Sea, the two Koreas are divided by a *de facto* maritime "military demarcation line" and maritime boundary called the **Northern Limit Line (NLL)** drawn by the **United Nations Command (UNC)** in 1953.^[2] The NLL is not described by the Korean Armistice Agreement.^[3]



SYLLABUS : Prelims : Culture

Newspaper : The Hindu Page No : 07

About Pulikkali:

- Pulikkali (Tiger Dance) is one among the **folk art forms of Kerala**.
- On the **fourth day of Onam festival**, artists paint their bodies like tigers with stripes of yellow, red and black and dance to the rhythm of traditional percussion instruments such as thakil, udukku and chenda.
- The Swaraj Ground in **Thrissur district** plays host to this carnival that has people appearing in various unique hues and masks.
- The main theme of this **folk art is tiger hunting** with participants playing the role of tiger and hunter.
- It was introduced by the erstwhile ruler of Cochin, **Maharaja Rama Varma Sakthan Thampuran**.

Key facts about Onam

- It is the biggest and the most important **festival of the state of Kerala**.
It is a harvest festival, celebrated in the **beginning of the month of Chingam**, the first month of the Malayalam Calendar (Kollavarsham).
- The Onam lasts **from four to ten days**. **First day, Atham and tenth day, Thirunonam** are the most important of all.
- According to a popular legend, the festival is celebrated to **welcome King Mahabali, whose spirit** is said to visit Kerala at the time of Onam.
- Another key feature is Vallamkali, the Snake Boat Race, held on the river Pampa.
- **Kaikotti kali and Thumbi Thullal** are two graceful dances performed by women on Onam.



Q1. With reference to hexavalent chromium [Cr(VI)], consider the following statements:

1. The Kanpur–Fatehpur region has reported Cr(VI) contamination from tannery and industrial waste.
2. Exposure to Cr(VI) is associated with skin disorders and gastrointestinal problems.
3. Cr(VI) compounds are generally considered non-carcinogenic to humans.

How many of the statements given above is/are correct?

- a) Only one
- b) Only two
- c) All three
- d) None

Answer: b

Q2. With reference to the Directorate of Revenue Intelligence (DRI), consider the following statements:

1. Established in 1957, the DRI is India's apex agency for anti-smuggling intelligence and investigation.
2. It functions under the Central Board of Indirect Taxes and Customs, Ministry of Finance.

Which of the statements given above is/are correct?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: c

Q3. Consider the following statements regarding the Korean Peninsula:

1. The 38th Parallel broadly separates North Korea from South Korea.
2. The Sea of Japan lies to the west of the Korean Peninsula, while the Yellow Sea lies to its east.
3. Russia shares a land border with North Korea.

How many of the statements given above is/are correct?

- a) Only One
- b) Only Two
- c) All three
- d) None

Answer: b

Q4. With reference to Pulikkali, consider the following statements:

1. Pulikkali is a traditional folk art of Kerala associated with the Onam celebrations.
2. Pulikkali primarily depicts mythological stories involving tigers and forest deities.
3. Maharaja Rama Varma Sakthan Thampuran, the erstwhile ruler of Cochin, introduced Pulikkali.

Which of the statements given above is/are correct?

- a) 1 and 2 only
- b) 1 only
- c) 1 and 3 only
- d) 1, 2 and 3

Answer: c

Q5. With reference to the National Beekeeping and Honey Mission (NBHM), consider the following statements:

1. NBHM was launched in 2025 to promote scientific beekeeping.
2. It is a Centrally Sponsored Scheme implemented by the National Bee Board.
3. The scheme focuses on productivity improvement and post-harvest management.

Which of the statements given above is/are correct?

- a) 2 and 3 only
- b) 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

Answer: b





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