

PART II · ENVIRONMENT TO DIRECT HIT TRACKER

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INSIDE PART II

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GS3

Taxonomy · Marine Biodiversity

Described February 2026 (RULE 16.2 rung 2 — newly described species)

ZSI Describes Two New Marine Polychaete Worm Species off the West Bengal Coast — One Named After Its First Woman Director

Why in News: Scientists at the Zoological Survey of India (ZSI) described two new species of marine polychaete (bristle) worms — *Namalycastis solenotognatha* and *Nereis dhritiae* — from the coastal waters off West Bengal in February 2026, adding to India's documented marine faunal diversity in the Bay of Bengal.

Background: Polychaetes are segmented marine worms of the family Nereididae that play an important ecological role as bio-indicators of coastal sediment health and as a base link in near-shore food webs; India's coastline, spanning over 7,500 km, remains under-surveyed for such infaunal taxa compared to its charismatic megafauna.

⚡ KEY FACTS

- *Namalycastis solenotognatha*: name derives from Greek "solenotos" (channeled) + "gnatha" (jaw), describing its distinctive multi-channeled jaw structure.
- *Nereis dhritiae*: named in honour of Dr Dhriti Banerjee, the first woman Director of the Zoological Survey of India.
- Both species belong to the family Nereididae (ragworms), class Polychaeta, phylum Annelida.
- Discovery location: coastal waters off West Bengal (Bay of Bengal), described February 2026.
- ZSI is headquartered in Kolkata and functions under the Ministry of Environment, Forest and Climate Change as India's apex zoological-taxonomy institution.
- Polychaetes serve as bio-indicators for assessing marine sediment and coastal ecosystem health.

Mains Dimensions:

- Taxonomic discovery of "unglamorous" infaunal species is as scientifically significant as charismatic-megafauna discoveries, but receives far less policy and funding attention.
- Naming a species after ZSI's first woman Director is a symbolic recognition of women's leadership in Indian taxonomic science — a soft but real institutional-history marker.
- Under-surveyed marine biodiversity along India's 7,500 km coastline is a genuine gap in India's Blue Economy and coastal-zone-management planning.

- Bio-indicator species like polychaetes have practical value for monitoring the ecological impact of coastal industrialisation and port development.

🧠 Let's Remember This Through a Trick

Remember "dhritiae for Dhriti" — the species name directly honours ZSI's first woman Director, Dr Dhriti Banerjee, a rare instance of an institutional-history fact hiding inside a taxonomic name.

📄 PYQ Linkage

GS3, thematic linkage: New species discoveries and India's taxonomic institutions — ZSI/BSI (recurring UPSC Prelims theme).

#ZSI

#NewSpecies

#Polychaeta

#BayOfBengal

#GS3-PYQ

GS3

Invasive Alien Species · Biodiversity Governance

Committee formed Mar 2026; data cited at Anil Agarwal Dialogue 2026 (RULE 16.2 rung 3)

India's Invasive Alien Species Crisis: NBA Expert Committee Confronts a ₹15-Lakh-Crore Problem

Why in News: The National Biodiversity Authority (NBA) has constituted an Expert Committee on Invasive Alien Species (formed March 2026) to address the scale of India's biological-invasion crisis — with invasive plants like *Lantana camara*, *Chromolaena odorata* and *Prosopis juliflora* now spread across 2,66,954 sq km of natural habitat, and the estimated economic cost of biological invasions in India projected at up to US\$182.6 billion (roughly ₹15 lakh crore).

Background: Invasive alien species are non-native organisms whose introduction and spread threaten native biodiversity, ecosystems and human livelihoods; India's regulatory response draws on the Biological Diversity Act, 2002, Wildlife (Protection) Act provisions on invasive species removal from protected areas, and global frameworks including the Kunming-Montreal Global Biodiversity Framework's Target 6 on reducing invasive-species introduction and impact.

⚡ KEY FACTS

- NBA Expert Committee on Invasive Alien Species: constituted March 2026.
- Key invaders: *Lantana camara*, *Chromolaena odorata*, *Prosopis juliflora* — spread across 2,66,954 sq km of natural habitat.
- High-risk regions: Shivalik-Terai belt, the Duars (Northeast), the Aravallis, Dandakaranya forests, and the Nilgiris (Western Ghats).
- Estimated economic cost of biological invasions in India: up to US\$182.6 billion.

- By 2022 estimates, invasions had exposed 144 million people, 2.79 million livestock and 2 lakh sq km of farmland to ecological/economic risk.
- Global framework linkage: Kunming-Montreal GBF Target 6 (reduce introduction/impact of invasive alien species by at least 50% by 2030).

Mains Dimensions:

- Invasive species management sits at the intersection of forestry, agriculture and livestock policy — a genuinely inter-ministerial governance challenge, not a MoEFCC-only issue.
- Lantana camara's dominance in tiger-reserve understories (crowding out native fodder grasses) directly threatens prey-base availability for India's flagship tiger-conservation programme.
- Economic-cost framing (US\$182.6 billion) helps make the case for invasive-species control competing successfully for budget against other conservation priorities.
- India's commitment under Kunming-Montreal Target 6 creates an international accountability benchmark against which the NBA committee's eventual recommendations will be measured.

Let's Remember This Through a Trick

Remember "Lantana, Chromolaena, Prosopis — LCP" as India's invasive-plant "big three," together carpeting an area larger than Tamil Nadu (2,66,954 sq km).

PYQ Linkage

GS3, thematic linkage: Invasive alien species and biodiversity conservation (recurring UPSC theme on Lantana camara and the Biological Diversity Act).

#InvasiveAlienSpecies

#LantanaCamara

#NBA

#KunmingMontrealGBF

#GS3-PYQ

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From a single named worm to a ₹15-lakh-crore invasion crisis — Environment answers reward this range of scale, exactly what **LAKSHYAM AIR1** is built to train. theiasakademia.com

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Places in News



PLACES IN NEWS — 27 AUGUST 2026 | ANTIM ASSURED 100+



- ① New Delhi (Khelo India Dialogue; DRDO ToT approval) ● ② Nyoma, Ladakh (DRDO parachute test, 22,000 ft)
- ③ Jabalpur, MP (T-Series tank overhaul facility) ● ④ Bengaluru, Karnataka (HAL-Safran Aravalli engine JV)
- ⑤ Dholera, Gujarat (Tata-PSMC semiconductor fab) ● ⑥ West Bengal Coast (ZSI new marine worm species)
- ⑦ Tashkent, Uzbekistan (PM Modi's state visit, 29-30 Aug) ● ⑧ Bishkek, Kyrgyzstan (26th SCO Summit, 31 Aug-1 Sept)

Map note: no map_22Aug2026.jpg through map_27Aug2026.jpg exists in the workspace; map_21Aug2026.jpg (most recent available, per the user's explicit instruction to reuse the previous map file name) is reused again today with 8 freshly calibrated pins. Tashkent/Bishkek and Nyoma/Jabalpur/Dholera pairs sit close together and are label-offset vertically for legibility.

① New Delhi (28.61°N, 77.21°E)

National capital; anchor point for the Khelo India Dialogue's virtual address and Rajnath Singh's DRDO missile-technology transfer approval.

② Nyoma, Ladakh (~33.17°N, 78.66°E)

High-altitude site in eastern Ladakh near the Line of Actual Control, where DRDO tested its Military Combat Parachute System at 22,000 feet; also an emerging advanced-landing-ground hub.

③ Jabalpur, Madhya Pradesh (23.18°N, 79.99°E)

Home to the Vehicle Factory where a ₹472-crore T-Series tank overhaul facility for the T-72/T-90 fleets was inaugurated.

④ Bengaluru, Karnataka (12.97°N, 77.59°E)

Headquarters of Hindustan Aeronautics Limited (HAL), partner in the new HAL-Safran joint venture developing the 'Aravalli' helicopter engine.

⑤ Dholera, Gujarat (~22.24°N, 72.19°E)

Site of the Tata Semiconductor Manufacturing (Tata-PSMC) wafer fab, India's first commercial chip-fabrication plant, targeting first silicon by December 2026.

⑥ West Bengal Coast (~21.63°N, 87.51°E)

Bay of Bengal coastal waters where ZSI scientists described two new polychaete worm species, including one named for the institution's first woman Director.

⑦ Tashkent, Uzbekistan (41.30°N, 69.24°E)

Capital of Uzbekistan; destination of PM Modi's fourth state visit to the country, 29-30 August 2026, ahead of the SCO Summit.

⑧ Bishkek, Kyrgyzstan (42.87°N, 74.59°E)

Capital of Kyrgyzstan; venue for the 26th SCO Summit (31 Aug-1 Sept 2026), where PM Modi is expected to meet Russian President Putin on the sidelines.

3

Ethics & Integrity Cases

1

Athlete Representation as Distributive Justice in Sports Governance

Concept: Distributive Justice in Institutional Design

Mandating Sportspersons of Outstanding Merit (SOMs) inside National Sports Body governing structures redistributes decision-making power from career administrators to those who actually bear the consequences of poor governance — the athletes themselves. This reflects a distributive-justice principle: those most affected by a decision deserve a proportionate voice in making it.

2

Documentation as an Ethical Duty of Custodianship

Concept: Duty of Custodianship / Intergenerational Trusteeship

Cataloguing 1.84 lakh monuments and 17.20 lakh antiquities is not mere bureaucratic record-keeping — it is an ethical act of custodianship, since undocumented heritage is heritage the state cannot legally defend against theft,

smuggling or neglect. The underlying value is intergenerational trusteeship: safeguarding what belongs to citizens not yet born.

3 Equity in Disaster Relief Distribution

Concept: Equity vs Equality in Relief Distribution

Relief camps distributing rice, dal, salt and oil across six Assam districts raise a quiet but real ethical question: should scarce relief be distributed equally per camp, or equitably based on each district's actual need and damage severity? Sound disaster administration favours equity — calibrated to need — over mechanical equality.

4 Design Sovereignty and the Ethics of Controlled Technology Sharing

Concept: Stewardship in Sensitive Technology Transfer

DRDO retaining missile design authority while licensing production technology to private industry embodies an ethic of stewardship: sharing capability widely enough to build national capacity, while retaining enough control to prevent security-sensitive knowledge from diffusing beyond accountable hands.

5 Sequencing Diplomacy — the Ethics of Reciprocal Respect in Statecraft

Concept: Reciprocity and Protocol Ethics in Diplomacy

Scheduling a full bilateral state visit to Uzbekistan before folding into the multilateral SCO Summit reflects a diplomatic ethic of reciprocal respect — treating a smaller partner's bilateral relationship as worthy of dedicated attention, not merely a stopover en route to a bigger multilateral stage.

6 Naming as Recognition — the Ethics of Institutional Memory

Concept: Recognition Justice

Naming a newly described species after ZSI's first woman Director is a small but genuine act of recognition justice — acknowledging a trailblazer's contribution in a permanent, publicly visible way, at a point in Indian science where women's institutional leadership still remains comparatively recent and under-recorded.

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Prelims MCQs

1. The National Sports Governance Act, 2025 received Presidential assent on which date?

- (a) 11 August 2025 (b) 12 August 2025 (c) 18 August 2025 (d) 1 January 2026

Answer: (c)

The Act received Presidential assent on 18 August 2025.

2. Consider the following statements regarding the National Sports Governance Act, 2025: (1) The National Sports Board grants statutory recognition to National Sports Bodies. (2) Appeals from the National Sports Tribunal lie directly to the High Courts. Which of the statements given above is/are correct?

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

Answer: (a)

Statement 1 is correct; NST appeals lie to the Supreme Court, not High Courts.

3. Who audits the accounts of the National Sports Board under the National Sports Governance Act, 2025?

- (a) CVC (b) CAG (c) NITI Aayog (d) Ministry of Finance

Answer: (b)

The Comptroller and Auditor General (CAG) audits the NSB's accounts.

4. The National Mission on Monuments and Antiquities (NMMA) functions under which institution?

- (a) National Museum (b) Archaeological Survey of India (c) Sahitya Akademi (d) Indira Gandhi National Centre for the Arts

Answer: (b)

NMMA operates under the Archaeological Survey of India, Ministry of Culture.

5. Consider the following statements: (1) Adopt a Heritage 2.0 was launched in September 2023. (2) It focuses exclusively on financial adoption without any visitor-amenity component. Which of the statements given above is/are correct?

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

Answer: (a)

Statement 1 is correct; the scheme focuses on visitor-friendly amenities at monuments, not just financial adoption.

6. The Assam floods 2026 relief operations, as reported, are being coordinated across how many districts with active relief camps?

- (a) Four (b) Five (c) Six (d) Eight

Answer: (c)

Relief camps and distribution centres are operating across six districts.

7. Disaster management in India, including flood relief coordination, derives its statutory basis primarily from which legislation?

- (a) Environment (Protection) Act, 1986 (b) Disaster Management Act, 2005 (c) National Emergency Act, 1976 (d) Calamity Relief Fund Act, 1990

Answer: (b)

The Disaster Management Act, 2005 provides the statutory framework, including NDMA/SDMA structures.

8. DRDO's approved transfer of conventional missile technologies to Indian industry, announced August 2026, primarily transfers which of the following?

- (a) Design ownership (b) Production/manufacturing technology under license (c) Export rights only (d) Raw material sourcing rights

Answer: (b)

DRDO retains design authority; only production technology is licensed to industry.

9. The T-Series tank overhaul facility inaugurated at Jabalpur in August 2026 primarily services which tank platforms?

- (a) Arjun Mk-1A only (b) T-72 and T-90 (c) T-55 only (d) BMP-2

Answer: (b)

The facility overhauls the T-72 and T-90 ("Bhishma") main battle tank fleets.

10. DRDO's Military Combat Parachute System was tested at 22,000 feet in August 2026 at which location?

- (a) Siachen Glacier (b) Nyoma, Ladakh (c) Tawang, Arunachal Pradesh (d) Leh town

Answer: (b)

The test was conducted at Nyoma, Ladakh.

11. The HAL-Safran joint venture's 'Aravalli' engine is being developed to power which platform?

- (a) Tejas Mk-1A fighter (b) Prachand Light Combat Helicopter (c) 13-tonne Indigenous Multi-Role Helicopter (IMRH) (d) Dhruv Advanced Light Helicopter

Answer: (c)

The Aravalli engine will power the 13-tonne IMRH, intended to replace the Mi-17 fleet.

12. As of August 2026, how many of the 12 approved commercial semiconductor facilities under the India Semiconductor Mission are operational?

- (a) 2 (b) 3 (c) 5 (d) 8

Answer: (b)

3 of the 12 approved commercial facilities are operational as of August 2026.

13. India's first commercial wafer fabrication plant, under construction at Dholera, Gujarat, is being built by which entity?

- (a) HAL-BEL JV (b) Tata Semiconductor Manufacturing (Tata-PSMC) (c) Vedanta-Foxconn JV (d) ISRO-DRDO JV

Answer: (b)

Tata Semiconductor Manufacturing (Tata-PSMC) is building the Dholera wafer fab.

14. WPI inflation for July 2026 was reported at what rate?

- (a) 4.45% (b) 5.4% (c) 9.78% (d) 15.4%

Answer: (c)

WPI inflation for July 2026 stood at 9.78% YoY.

15. Consider the following statements: (1) WPI is compiled by the Ministry of Commerce and Industry. (2) CPI is compiled by the Ministry of Statistics and Programme Implementation. Which of the statements given above is/are correct?

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

Answer: (c)

Both statements are correct.

16. The sugar dealer stock-holding limit of 400 tonnes announced for 2026 is imposed under which legislation?

- (a) Essential Commodities Act, 1955 (b) Consumer Protection Act, 2019 (c) FCRA, 2010 (d) Competition Act, 2002

Answer: (a)

Stock-limit orders are issued under the Essential Commodities Act, 1955.

17. PM Modi's 26th SCO Summit attendance in August-September 2026 will be held in which city?

- (a) Tashkent (b) Astana (c) Bishkek (d) Dushanbe

Answer: (c)

The 26th SCO Summit will be held in Bishkek, Kyrgyzstan.

18. India became a full member of the Shanghai Cooperation Organisation (SCO) in which year?

(a) 2005 (b) 2017 (c) 2020 (d) 2001

Answer: (b)

India became a full SCO member in 2017, alongside Pakistan.

19. The newly described marine worm species *Nereis dhritiae* is named after:

(a) A former President of India (b) The first woman Director of ZSI (c) A river in West Bengal (d) A marine research vessel

Answer: (b)

It is named after Dr Dhriti Banerjee, ZSI's first woman Director.

20. Consider the following statements regarding India's invasive alien species crisis: (1) *Lantana camara*, *Chromolaena odorata* and *Prosopis juliflora* are among the key invaders. (2) These species are spread across roughly 2,66,954 sq km of India's natural habitats. Which of the statements given above is/are correct?

(a) 1 only (b) 2 only (c) Both 1 and 2 (d) Neither 1 nor 2

Answer: (c)

Both statements are correct, per NBA Expert Committee assessments.

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5

Mains Questions

GS2 · 150 WORDS

1. Discuss the significance of a statutory National Sports Board and National Sports Tribunal in reforming sports governance in India.

GS1 · 150 WORDS

2. Examine the role of documentation and digitisation in heritage conservation, with reference to the National Mission on Monuments and Antiquities.

GS3 · 150 WORDS

3. Discuss the limitations of structural flood-control measures in Assam and suggest a more balanced non-structural approach.

GS3 · 150 WORDS

4. Analyse the significance of blanket technology-transfer policies, such as DRDO's missile ToT to industry, for India's defence-industrial base.

GS3 · 150 WORDS

5. "Engine technology remains India's weakest link in aerospace indigenisation." Discuss with reference to recent joint ventures.

GS3 · 150 WORDS

6. Distinguish between "operational" assembly/packaging facilities and true wafer fabrication capacity in assessing India's semiconductor self-reliance.

GS2 · 150 WORDS

7. Examine the significance of sequencing a bilateral state visit before a multilateral summit, with reference to PM Modi's Uzbekistan visit and the SCO Summit.

GS3 · 150 WORDS

8. "Invasive alien species management is an inter-ministerial governance challenge, not a purely environmental one." Critically examine with reference to India's invasive-plant crisis.

GS4 · CASE STUDY · 250 WORDS

9. As the administrator overseeing flood relief in a severely affected district, you have limited relief supplies and must choose between distributing them equally across all camps or directing more resources to the worst-hit villages, risking accusations of favouritism from less-affected camps. Discuss the ethical considerations involved and the course of action you would adopt.

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6

Answer Writing Value Addition

"The National Sports Board grants recognition to National Sports Bodies; its accounts are audited by the CAG. The National Sports Tribunal resolves sports disputes independently, with appeals lying to the Supreme Court."

— *National Sports Governance Act, 2025 framework*

"As on 15 July 2026, 3,75,707 of 4,88,983 catalogued artefacts had been digitised and made available online."

— *Ministry of Culture, Aug 2026*

"481 villages remain submerged; damage assessment covering houses, livestock and other losses is to be completed by 31 August 2026."

— *Assam CMO, Aug 2026*

"DRDO retains design authority even as production technology transfers to industry — a licensing, not an ownership, transfer."

— *MoD statement, 25 Aug 2026*

"3 of 12 approved commercial semiconductor facilities are operational; the Dholera wafer fab targets first silicon by December 2026 and 50,000 wafer starts per month by 2028."

— *India Semiconductor Mission milestone update, Aug 2026*

"WPI inflation eased to 9.78% in July 2026 from 9.87% in June — the first month-on-month decline under the new 2022-23 base series."

— *Ministry of Commerce and Industry, Aug 2026*

"India's bilateral trade and investment with Uzbekistan is approaching US\$1 billion."

— *MEA briefing, Aug 2026*

"Invasive species like Lantana camara, Chromolaena odorata and Prosopis juliflora have spread across 2,66,954 sq km, with an estimated economic cost of up to US\$182.6 billion."

— *NBA Expert Committee assessment, cited at AAD 2026*

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TOPIC	GS PAPER	ONE-LINE CAPSULE	PROBABILITY
National Sports Governance Act's institutional architecture	GS2	NSB (recognises, CAG-audited) vs NST (adjudicates, SC-appeal)	★★★★
NMMA heritage digitisation (1.84L monuments, 17.2L antiquities)	GS1	ASI's documentation backbone for conservation and repatriation	★★★
Assam Floods 2026 — 100 deaths, 481 villages	GS3	Disaster Management Act framework; damage assessment by 31 Aug	★★★★
DRDO missile technology ToT to industry	GS3	Design stays with DRDO; production licensed to private firms	★★★★★
T-Series tank overhaul facility, Jabalpur	GS3	₹472cr; services T-72/T-90 fleets domestically	★★★
DRDO Military Combat Parachute System, Nyoma	GS3	22,000 ft high-altitude jump test in Ladakh	★★★★
HAL-Safran 'Aravalli' engine JV	GS3	Powers 13-tonne IMRH, Mi-17 replacement	★★★★
India Semiconductor Mission — 3/12 fabs operational	GS3	Dholera wafer fab targets first silicon Dec 2026	★★★★★
WPI inflation 9.78%, July 2026	GS3	Eases from 9.87%; fuel/power inflation cools sharply	★★★★
Sugar stock-limit order (400 tonnes)	GS3	Essential Commodities Act, 1955; Aug-Nov window	★★★
PM Modi's Uzbekistan visit & 26th SCO Summit	GS2	Tashkent (29-30 Aug) then Bishkek (31 Aug-1 Sept)	★★★★★
ZSI's two new marine worm species	GS3	Namalycastis solenotognatha & Nereis dhritiae, W. Bengal coast	★★★
NBA Expert Committee on Invasive Alien Species	GS3	Lantana/Chromolaena/Prosopis across 2.67 lakh sq km	★★★★★
Kunming-Montreal GBF Target 6	GS3	Global invasive-species reduction target by 2030	★★★
India-SCO membership since 2017	GS2	Full member alongside Pakistan; consensus-based grouping	★★★

Disaster Management Act, 2005	GS3	Statutory basis for NDMA/SDMA flood-response coordination	★★★
Essential Commodities Act, 1955	GS3	Legal basis for stock-limit orders (sugar, pulses, onions)	★★★
Aatmanirbhar Bharat in defence manufacturing	GS3	DAP 2020 and Positive Indigenisation Lists framework	★★★

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QUESTIONS FROM
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6

QUESTIONS FROM
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