

UPSC CURRENT AFFAIRS

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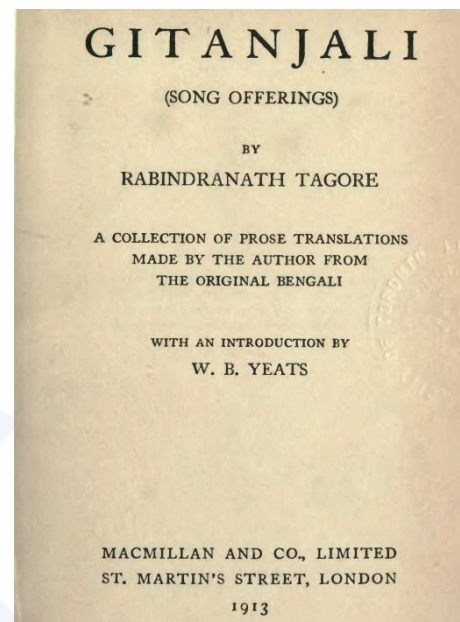
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1. Indians/ Indian origin Nobel Prize Winners till 2025

1. Rabindranath Tagore (India, Literature, 1913)

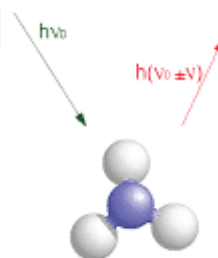
- Awarded the Nobel Prize in Literature in 1913 “because of his profoundly sensitive, fresh and beautiful verse, by which... he has made his poetic thought, expressed in his own English words, a part of the literature of the West.”
- First Asian laureate.
 - **Major work:** Gitanjali (poetry) and translations thereof.
- Indian citizen at time of award; born in British India (1861–1941)
 - **Field:** Literature.



2. C. V. Raman (India, Physics, 1930)

- Awarded the Nobel Prize in Physics in 1930 “for his work on the scattering of light and for the discovery of the effect named after him.”
 - **Effect named:** the “Raman Effect” — change in frequency of light scattered by a material.
- Indian citizen at time of award; born in British India
 - **Field:** Physics.

What is the Raman effect?



- Raman and Krishnan, *Nature*(1928) 1930 Nobel prize
- Predicted by Kramers, Heisenberg, Schrodinger, Dirac.
- Seen by Lommel (1878) and Wood (1928) before Raman's paper, but discounted.

3. Har Gobind Khorana (Indian-origin, Medicine/Physiology, 1968)

- Awarded the Nobel Prize in Physiology or Medicine in 1968 (shared) “for their interpretation of the genetic code and its function in protein synthesis.”
- Born in British India; later became U.S. citizen.
 - **Contribution:** Cracking how nucleotide sequences specify amino acids; synthetic genes.
 - **Field:** Medicine / Physiology.

4. Mother Teresa (India-citizen, Peace, 1979)

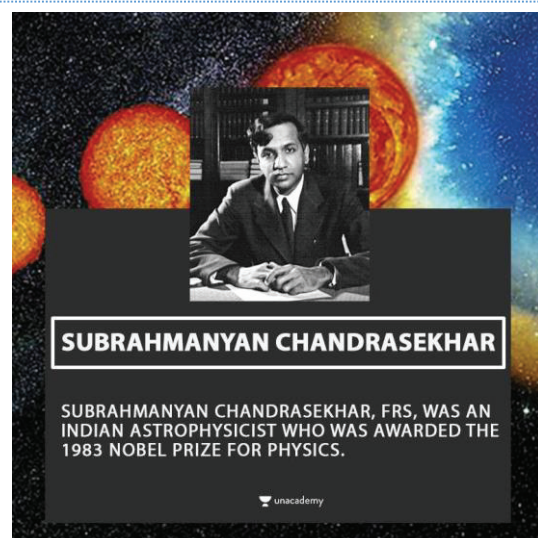
- Awarded the Nobel Peace Prize in 1979 “for work undertaken in the struggle to overcome poverty and distress ...”
- Though of Albanian origin, she held Indian citizenship and worked in India (especially Kolkata) for decades.
 - **Field:** Peace / Humanitarianism.

5. Subrahmanyan Chandrasekhar (Indian-origin, Physics, 1983)

- Awarded the Nobel Prize in Physics in 1983 (shared) “for his theoretical studies of the physical processes of importance to the structure and evolution of the stars.”
- Born in India (British India) and later became U.S. citizen.
 - **Field:** Physics (astrophysics / stellar structure).

6. Amartya Sen (India, Economic Sciences, 1998)

- Awarded the Nobel Prize in Economic Sciences in 1998 for his contributions to welfare economics.
- Indian citizen at time of award; born in British India.
 - **Field:** Economics (welfare economics, development economics).



7. V. S. Naipaul (Indian-descent, Literature, 2001)

- Awarded the Nobel Prize in Literature in 2001 “for having united perceptive narrative and incorruptible scrutiny in works that compel us to see the presence of suppressed histories.”
- Born in Trinidad, of Indian descent; later British citizen.
 - **Field:** Literature.

8. Venkatraman Ramakrishnan (Indian-origin, Chemistry, 2009)

- Awarded the Nobel Prize in Chemistry in 2009 (shared) “for studies of the structure and function of the ribosome.”
- Born in India; later moved abroad and became U.S./UK citizen.
 - **Field:** Chemistry (structural biology).

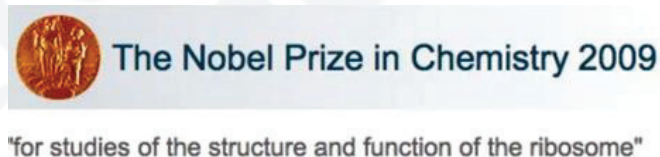


Photo: MRC Laboratory of Molecular Biology

Venkatraman Ramakrishnan

🏆 1/3 of the prize

United Kingdom

MRC Laboratory of Molecular Biology
Cambridge, United Kingdom

b. 1952
(in Chidambaram, Tamil Nadu, India)



Credits: Michael Marsland/Yale University

Thomas A. Steitz

🏆 1/3 of the prize

USA

Yale University
New Haven, CT, USA;
Howard Hughes Medical Institute

b. 1940



Credits: Micheline Pelletier/Corbis

Ada E. Yonath

🏆 1/3 of the prize

Israel

Weizmann Institute of Science
Rehovot, Israel

b. 1939

9. Kailash Satyarthi (India, Peace, 2014)

- Awarded the Nobel Peace Prize in 2014 (shared with Malala Yousafzai) “for their struggle against the suppression of children and young people and for the right of all children to education.”
- Indian citizen; major activist focusing on child labour, slavery, and education rights.
 - **Field:** Peace / Human Rights.

10. Abhijit Banerjee (Indian-origin, Economic Sciences, 2019)

- Awarded the Nobel Prize in Economic Sciences in 2019 (shared with Esther Duflo and Michael Kremer) “for an experimental approach to alleviating global poverty.”
- Born in India; later moved to the U.S. and works there.
 - **Field:** Economics (development economics, randomized evaluations).

- **Ronald Ross (1902 – Medicine)** – Though British, his malaria research was done in Secunderabad, India.
 - He discovered that malaria is transmitted by mosquitoes while serving in the Indian Medical Service.
- **Dalai Lama (Peace, 1989)** — Although Tibetan, he received the award while living in exile in India (Dharamshala).
 - Indian-Origin Nobel Nominees
- **Mahatma Gandhi** — Peace Prize Nominee (1937–1948)
 - **Nominated:** 5 times between 1937 and 1948.
 - **Reason:** Non-violent resistance and leadership of India’s freedom struggle.
 - **Tragic note:** He was assassinated in January 1948, just days before the Nobel Committee met that year.
- **Outcome:** No Peace Prize was awarded in 1948; the Committee later stated it was “in homage to Gandhi.”
- **Jawaharlal Nehru** — Peace Prize Nominee (1950s)
 - **Reported:** Nominated several times for promoting world peace and non-alignment.
 - **Verification:** Some nominations confirmed by later-declassified Norwegian Nobel Committee documents.

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3. Consider the following statements about **Mother Teresa**, Nobel Peace Prize winner (1979):
1. She was of Albanian origin but held Indian citizenship at the time of the award.
 2. She was the founder of the Missionaries of Charity.
 3. She received the Nobel Peace Prize for her efforts to promote inter-religious harmony in South Asia.

Which of the statements given above are correct?

- | | |
|-----------------|-----------------|
| A. 1 and 2 only | C. 2 and 3 only |
| B. 1 and 3 only | D. 1, 2 and 3 |

4. With reference to Nobel Prize winners in Economics of Indian origin, consider the following statements:
1. Amartya Sen was recognized for his contributions to welfare economics.
 2. Abhijit Banerjee shared the Nobel Prize for his experimental work on poverty alleviation.
 3. Both are alumni of the London School of Economics.

Which of the statements given above are correct?

- | | |
|-----------------|-----------------|
| A. 1 only | C. 2 and 3 only |
| B. 1 and 2 only | D. 1, 2 and 3 |

5. With reference to Nobel Prize nominees and honorary mentions linked to India, consider the following statements:
1. Mahatma Gandhi was nominated five times for the Nobel Peace Prize but never received it.
 2. The Nobel Committee decided not to award the Peace Prize in 1948, citing Gandhi's assassination.
 3. The Dalai Lama received the Peace Prize while living in exile in India.

Which of the statements given above are correct?

- | | |
|-----------------|-----------------|
| A. 1 and 2 only | C. 1 and 3 only |
| B. 2 and 3 only | D. 1, 2 and 3 |

2. Neeraj Chopra conferred with rank of Lieutenant Colonel by the Indian Army

- Neeraj Chopra, India's most celebrated track and field athlete, was conferred the honorary rank of Lieutenant Colonel by the Indian Army.
- The Indian athlete was presented the insignia at a ceremonial event in New Delhi, with the Indian Army recognising his exceptional achievements in sports.
- Neeraj joined the Indian Army in 2016 as a Naib Subedar (a junior commissioned officer) in the 4 Rajputana Rifles, following gold-medal performances at the Junior World Championships and South Asian Games.

- He has been serving in the Territorial Army.
- The javelin throw athlete was promoted to Subedar in 2018 after winning the Asian Games and Commonwealth Games gold and rose steadily through the ranks to Subedar Major in 2022.
- Born in 1997 in Khandra village in Haryana's Panipat, Neeraj Chopra has won every major title possible in javelin throw.
- He claimed India's first Olympic gold medal in athletics at Tokyo 2020 and followed it up with silver at the Paris 2024.
- Neeraj also scripted history by becoming India's first-ever senior athletics world champion after he won gold at Budapest 23 following silver at Oregon 22, which had ended the country's 19-year-long wait for a medal at the World Championships.
- The Indian ace has also secured titles at the Asian Games (2018, 2023), Commonwealth Games (2018), Asian Athletics Championships (2017), and Diamond League.
- His personal best of 90.23 metres, set in 2025, is a national record.
- Neeraj won the Arjuna Award in 2018 and received the Major Dhyan Chand Khel Ratna Award for 2021, bagging two of the most prestigious titles at India's National Sports Awards.
- In 2022, he also received the Padma Shri, India's highest civilian honour and Param Vishisht Seva Medal for excellence in sports from the Indian military.



Indian sports personalities have been honored with honorary ranks in the Indian Armed Forces.

MS Dhoni

- In 2011, the former Indian cricket captain was conferred the honorary rank of Lieutenant Colonel in the Territorial Army.
- His association with the army was further highlighted when he served as a paratrooper during the 2019 ICC World Cup.

Sachin Tendulkar

- The cricket legend was awarded the honorary rank of Group Captain by the Indian Air Force in 2010, recognizing his immense popularity and the inspiration he provides to the youth.

Kapil Dev

- The 1983 World Cup-winning captain was conferred the honorary rank of Lieutenant Colonel in the Territorial Army, acknowledging his leadership and contributions to Indian cricket.

Abhinav Bindra

- The 2008 Olympic gold medalist in shooting was awarded the honorary rank of Lieutenant Colonel in the Territorial Army, celebrating his achievement as the first Indian to win an individual Olympic gold.



Vijay Kumar

- The silver medalist in shooting at the 2012 London Olympics was conferred the honorary rank of Captain in the Territorial Army, recognizing his exceptional performance on the international stage.

Commissioned Officer Ranks

S.No.	Level	Indian Army	Indian Navy	Indian Air Force
1.	Second Lieutenant (no longer in active use; now entry rank is Lieutenant)	Sub-Lieutenant	Flying Officer	
2.	Lieutenant	Lieutenant	Flying Officer / Flight Lieutenant	
3.	Captain	Lieutenant Commander	Flight Lieutenant	
4.	Major	Commander	Squadron Leader	
5.	Lieutenant Colonel	Captain	Wing Commander	
6.	Colonel	Commodore	Group Captain	
7.	Brigadier	Rear Admiral	Air Commodore	
8.	Major General	Vice Admiral	Air Vice Marshal	
9.	Lieutenant General	Admiral	Air Marshal	
10.	General (Chief of Army Staff)	Admiral (Chief of Naval Staff)	Air Chief Marshal (Chief of Air Staff)	
	Field Marshal (Honorary / Wartime rank)	Admiral of the Fleet (Honorary)	Marshal of the Air Force (Honorary)	

Junior Commissioned Officers (JCOs)

Indian Army	Indian Navy	Indian Air Force
Naib Subedar	Chief Petty Officer	Warrant Officer
Subedar	Master Chief Petty Officer (2 nd Class)	Junior Warrant Officer
Subedar Major	Master Chief Petty Officer (1 st Class)	Master Warrant Officer

Non-Commissioned Ranks

Indian Army	Indian Navy	Indian Air Force
Havildar	Petty Officer	Sergeant
Naik	Leading Seaman	Corporal
Lance Naik	Able Seaman	Leading Aircraftman
Sepoy	Seaman	Aircraftman

QUESTIONS

6. Consider the following statements about Neeraj Chopra:

1. He was commissioned as an honorary Lieutenant Colonel in the Territorial Army in 2025.
2. He serves in the 4 Rajputana Rifles regiment of the Indian Army.

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

7. With reference to Neeraj Chopra's achievements, consider the following statements:
1. He is the first Indian track-and-field athlete to win an Olympic gold medal.
 2. He has won medals at both the World Athletics Championships and the Diamond League.

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

8. Which of the following pairs is **correctly matched**?

Sportsperson	Honorary Rank	Force
1. MS Dhoni	Lieutenant Colonel	Territorial Army
2. Abhinav Bindra	Group Captain	Indian Air Force
3. Kapil Dev	Lieutenant Colonel	Territorial Army

Select the correct answer:

- A. 1 only
B. 1 and 3 only
C. 2 and 3 only
D. All three

9. Which of the following is/are correctly matched in terms of equivalent rank in the three services of Indian Defence forces?

Army	Air force	Navy
1. Brigadier	Air Commodore	Commander
2. Major General	Air Vice Marshal	Vice Admiral
3. Major	Squadron Leader	Lieutenant Commander
4. Lieutenant Colonel	Group Captain	Captain

Select the correct answer using the code given below:

- A. 1 and 4
B. 1 and 3
C. 2, 3 and 4
D. 3 only

10. Consider the following statements:

1. Both Neeraj Chopra and Kapil Dev were awarded honorary ranks in the Territorial Army.
2. MS Dhoni and Sachin Tendulkar hold honorary ranks in the same wing of the Armed Forces.

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

3. State of Finance for Forests 2025 (SFF 2025) by the United Nations Environment Programme (UNEP)

- **Title:** State of Finance for Forests 2025: Unlock. Unleash. Realizing forest potential requires tripling investments in forests by 2030.

Purpose/Scope:

- Provide the first global, comprehensive assessment of public and private financial flows to forests (data for 2023) and project investment needs through 2030 and 2050.
- Focus on how forests can contribute to climate change mitigation, biodiversity conservation, land-restoration, and sustainable development (via nature-based solutions).
- Identify the gap between current financing and what is required, and highlight barriers, harmful flows, and opportunities.



2. Key Findings

2.1 Aggregate finance flows & current investment levels

- In 2023, annual forest-relevant investment stood at USD 84 billion.
- Of that: roughly 91% public finance (~USD 77 billion) and 9% private finance (~USD 7.5 billion).
- Private forest finance remains modest and is largely directed toward lower-risk markets rather than the highest deforestation-risk commodities.

2.2 Investment need / gaps

- To meet the goals set under the Rio Conventions (climate, biodiversity, land-degradation) via forest-based action, annual investment needs by:
- **2030:** USD 300 billion ($\approx 3\times$ current level)

UNEP - UN Environment Programme

- **2050:** USD 498 billion annually.
- This implies a finance gap of about USD 216 billion per year (*i.e.*, from ~84 to ~300) by 2030.

2.3 Public vs. private, domestic vs. international imbalances

- **Public finance dominates:** governments (domestic public spending) account for the lion's share.
- For example: domestic government spending comprised ~96% of public finance (~USD 75 billion) vs international public finance only ~4% (~USD 2.9 billion) in 2023.
- Tropical forest countries (31 countries considered) received only ~17% of global domestic government spending on forests (~USD 12.8 billion if total ~75b).

2.4 Harmful/Counterproductive financial flows

- In 2023, environmentally harmful agricultural-subsidies (which drive forest conversion/degradation) reached around USD 406 billion.

- Private financial institutions provided estimated USD 8.9 trillion in active financing to companies with high deforestation risk (as of Nov 2024).

2.5 Nature-based solutions (NbS) and role of forests

- The report emphasises scaling up forests as a nature-based solution: *e.g.*, it estimates that protected areas and other NbS must expand by an additional ~1 billion hectares by 2030, and ~1.8 billion hectares by 2050.
- In tropical forest countries: by 2030, an estimated USD 67 billion annually is required across six complementary NbS, including avoided deforestation, reforestation, agroforestry, protected forest areas, peatland conversion avoidance, and sustainable forest management.

2.6 Regional / Country Highlights – India as example

- **India:** In 2023, India's domestic forest and forestry sector expenditure was ~USD 7.1 billion, ranking 3rd globally after China (~USD 19.4 billion) and the US (~USD 11.7 billion).
- **India received** ~USD 81 million in international public forest finance in 2023.

3. Barriers & Challenges

- **Insufficient private-sector mobilisation:** Private forest finance remains very small (~9%) and mostly directed toward lower-risk segments.
- High-risk, high-impact opportunities (*e.g.*, tropical commodity supply chains linked to deforestation) are under-funded.
- **Large harmful financial flows:** Subsidies and credit flows that drive deforestation vastly outpace conservation/investment flows (*e.g.*, USD 406 billion subsidies, USD 8.9 trillion financing to deforestation risk firms).
- These counteract efforts to protect and restore forests.
- **Data and governance gaps:** Challenges in tracking private-finance flows, transparency in finance to Indigenous Peoples and Local Communities (IPLCs), and consistent monitoring frameworks.
- For example: IPLCs received <0.5% of international forest finance.
- **Regional inequities & domestic spending disparities:** Tropical forest countries, which arguably have the greatest need, receive a small share of global domestic public forest spending (only 17%).
- **Scaling up at speed:** The magnitude of increase required (3× by 2030) means that existing institutional/finance mechanisms must be radically scaled and new ones developed.
- **Aligning policy / economy / finance:** Financial systems, subsidies, trade, and land-use policies are often misaligned with forest-positive outcomes; modifying harmful flows and redirecting finance is complex.

4. Opportunities & Enablers

- **Nature-based solutions (NbS) as a strategic focus:** Forests deliver climate mitigation, biodiversity conservation, land-restoration, water regulation, livelihoods — making them high-leverage in multiple global goals.
- The report emphasises this integrated value.
- **Innovative asset classes:** Emerging opportunities such as certified commodity supply-chains, impact investing in forests, carbon & biodiversity markets, blended finance, results-based payments give new pathways for forest finance.
- **Domestic public commitment in forest-rich countries:** Even though international flows are low, many forest-rich countries show high domestic spending, signalling local ownership and potential leverage.
- **Increasing policy and institutional attention:** The report itself helps create a baseline for tracking forest finance; linked events (*e.g.*, launch at UNFF21 / upcoming climate COPs) may catalyse greater attention.

5. Recommendations & Pathways Forward

- **Based on the report's findings and analysis, the key recommended actions include:**
 - **Scale up overall investment:** Mobilise forest finance to reach USD 300 billion annually by 2030 (and USD 498 billion by 2050).
 - **Mobilise private capital:** Develop mechanisms (green bonds, blended finance, carbon/biodiversity markets) to attract greater private-sector participation, especially in high-impact (e.g., tropical) forest sectors.
 - **Redirect/phase out harmful subsidies and flows:** Reform agricultural and land-use subsidies that drive deforestation; align finance, policy and markets with forest-positive outcomes.
 - **Strengthen governance, data and tracking systems:** Improve transparency of forest-finance flows (especially private, and flows to IPLCs), build robust monitoring systems, integrate forests into national climate/biodiversity/land-restoration finance strategies.
 - **Support forest-rich countries and IPLCs:** Increase international public finance for tropical forest countries; ensure financing reaches IPLCs and women; promote inclusive governance models.
 - **Embed forests in systemic transformations:** Recognise forests as integral to multiple global agendas (climate, biodiversity, land degradation, sustainable development) and align policies (trade, finance, land-use) accordingly.

6. Implications & Analysis

6.1 Significance

- **The SFF 2025 offers a much-needed baseline:** For the first time, a global assessment focusing on both public and private financial flows to forests, and projecting future needs.
- This gives policymakers, investors and civil society a clearer picture of where we stand.
- **The scale of the gap is alarming:**
 - Tripling investment by 2030 is a major escalation; such a steep rise signals that incremental effort will be insufficient — transformative change is required.
 - The mismatch between harmful flows (subsidies, financing to high-risk firms) and conservation/restoration flows underscores that finance is currently working against rather than for forest goals in many respects.

6.2 Critical reflections

- While the global targets are clear, mobilising private finance remains a key bottleneck.
- The report notes ~USD 7.5 billion private finance in 2023.
- Without meaningful de-risking or improved returns for investors, the private sector may continue to shy away from forest investments.
- The regional equity dimension matters.
- Although forest-rich tropical countries need large finance inputs, they currently receive a small share of domestic public spending and international flows.
- This raises questions of fairness, capacity, and leverage.
- Governance and data gaps hamper action.
- For instance, if IPLCs receive <0.5% of international forest finance, many of the most effective forest stewards may remain under-funded. Strengthening data systems, recognising rights and ensuring access to finance are essential.

- The targets (USD 300 billion by 2030; USD 498 billion by 2050) are ambitious but necessary.
- The question remains: how many governments, financial institutions and private investors will commit to this scaling, and how soon.
- Harmful flows are huge and entrenched. Redirecting USD 406 billion of subsidies and USD 8.9 trillion of credit away from deforestation-risk firms is not just a financial challenge—it involves structural economic change (agriculture, land-use, trade, banking).

6.3 Implications for India & tropical forest countries

- India already spends significantly on forests domestically (~USD 7.1 billion) but low international flows and limited private investment signal untapped potential.
- The SFF 2025 provides justification for India to scale up forest finance further, including tapping private capital and forest-carbon/biodiversity markets.
- For tropical forest countries, the report suggests that avoided deforestation (USD 16 billion annually) and reforestation (USD 33 billion) are cost-effective priorities.
- Many such countries could leverage these co-benefits (climate, biodiversity, livelihoods) if finance flows were scaled.
- Domestic policy alignment (forestry, agriculture, land-use, finance) becomes even more critical.
- For example, redirecting subsidies, encouraging agroforestry, protecting peatlands, strengthening forest governance.

6.4 Risks & caveats

- The report uses 2023 data; the situation may shift rapidly, especially given global economic uncertainties, competing priorities (*e.g.*, post-COVID recovery, energy transition) and policy changes.
- Scaling forest finance is necessary but not sufficient: actual on-ground impact depends on governance, rights, implementation quality, local capacity.
- Private finance may flow, but if it's directed to low-impact or low-risk segments (as current flows suggest), it may not yield the outcomes needed in tropical high-deforestation zones.
- Monitoring and accountability will be crucial. Without robust tracking, the risk of green-washing or misallocation increases.
- The SFF 2025 report sends a clear and urgent signal: forests hold enormous potential for climate mitigation, biodiversity conservation, land restoration and sustainable development — but are severely under-financed.
- With current investment (~USD 84 billion/year) falling far short of the ~USD 300 billion/year needed by 2030, a major scaling of public and private finance is required.
- At the same time, the persistent flows into forest-harmful activities underscore that traditional economic systems and finance architectures are misaligned with forest-positive outcomes.
- For meaningful progress, we must not only increase finance but redirect it — from harmful subsidies and deforestation-linked investment toward forest conservation, restoration, inclusive governance (especially involving Indigenous Peoples and Local Communities), and innovative finance mechanisms.
- The report provides a baseline, a sense of scale, and a call to action; the real challenge lies in the mobilisation, alignment and effective deployment of the required resources.

QUESTIONS

11. Consider the following statements regarding the *State of Finance for Forests 2025 (SFF 2025)* report:
1. The report was released by the United Nations Environment Programme (UNEP).
 2. It provides a global assessment of financial flows to forests using data up to 2023.
 3. It estimates that by 2030, forest-related investments must reach USD 500 billion annually to meet Rio Convention goals.

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

- | | |
|------------------------|-------------------------|
| A. One statement only | C. All Three Statements |
| B. Two statements only | D. None of the above |

12. With reference to the *Global Forest Resources Assessment (GFRA) 2025*, consider the following statements:

1. India has moved up to 9th position globally in terms of total forest area.
2. India ranks 3rd in the world in terms of annual net forest area gain.
3. India accounts for about 5 percent of the world's total forest area.

Which of the statements given above is/are correct?

- | | |
|-----------------|-----------------|
| A. 1 and 2 only | C. 1 and 3 only |
| B. 2 and 3 only | D. 1, 2 and 3 |

13. With reference to the *Global Forest Resources Assessment (GFRA) 2025* released by the Food and Agriculture Organization (FAO), consider the following statements:

1. The total global forest area is approximately 4.14 billion hectares, covering about 32 percent of the Earth's land area.
2. More than half of the world's forests are concentrated in five countries — the Russian Federation, Brazil, Canada, the United States of America, and China.

Which of the statements given above is/are correct?

- | | |
|-----------|--------------------|
| A. 1 only | C. Both 1 and 2 |
| B. 2 only | D. Neither 1 nor 2 |

14. Which one of the following statements best describes the *Global Forest Resources Assessment (GFRA)*?

- A. It is an annual report released by the United Nations Environment Programme on forest carbon sequestration trends.
- B. It is the only global assessment based on official national data, compiled and released periodically by the Food and Agriculture Organization.
- C. It is a report of the Intergovernmental Panel on Climate Change (IPCC) focusing on afforestation financing.
- D. It is a biennial index published by the World Bank on deforestation and reforestation rates.

15. With reference to the *India State of Forest Report (ISFR) 2023*, consider the following statements:

1. The report is published biennially by the Forest Survey of India (FSI) under the Ministry of Environment, Forest and Climate Change.
2. As per the report, India's total forest and tree cover accounts for more than 30% of the country's geographical area.
3. Chhattisgarh recorded the highest increase in forest and tree cover between 2021 and 2023.
4. Area wise top three states having largest forest cover are Madhya Pradesh followed by Arunachal Pradesh and Chhattisgarh.
5. In terms of percentage of forest cover with respect to total geographical area, Lakshadweep has the highest forest cover followed by Mizoram and Andaman & Nicobar Island.

Which of the statements given above are correct?

- A. 1, 2 and 5 only
B. 1, 2 and 3 only
C. 2, 4 and 5 only
D. 1, 2, 3, 4 and 5

4. Tuvalu joins IUCN as newest Pacific Island State Member

IUCN

- **Founded:** 1948
- **Headquarters:** Gland, Switzerland
- **Type:** International environmental organization
- **Members:** Comprises over 1,400 members including States, government agencies, NGOs, and Indigenous Peoples' Organizations
- **Mission:** To influence, encourage, and assist societies to conserve nature and ensure that any use of natural resources is equitable and ecologically sustainable.

Purpose of IUCN

- Conservation of biodiversity
- Sustainable use of natural resources
- Support for environmental governance and policy
- Climate change adaptation and mitigation
- Promotion of nature-based solutions for development challenges

Key Functions & Duties

Global Knowledge Hub

- Maintains the IUCN Red List of Threatened Species – the world's most comprehensive inventory of the global conservation status of plant and animal species.
- Supports ecosystem assessments and biodiversity monitoring.



Policy Advisory

- Provides science-based advice to governments and international bodies like the UN, CBD (Convention on Biological Diversity), and IPBES.
- Influences international environmental agreements and conventions.

Capacity Building

- Trains and supports governments, civil society, and communities in biodiversity conservation.
- Builds capacity in areas like environmental governance, protected area management, and climate resilience.

Convening Power

- Organizes the IUCN World Conservation Congress every 4 years – a global forum for governments, NGOs, scientists, and business leaders to shape conservation agendas.
- Facilitates collaboration among diverse stakeholders.

Funding and Partnerships

- Collaborates with major funding bodies such as the Green Climate Fund (GCF) and the Global Environment Facility (GEF).
- Channels investments into conservation and sustainable development projects.

Implementation Support

- Works on-ground through programs in over 160 countries to implement conservation and restoration projects.
- Promotes nature-based solutions in areas like disaster risk reduction and sustainable livelihoods.

Significance of Tuvalu's Membership

- Tuvalu joins as the 90th State Member, reinforcing its commitment to:
 - Global biodiversity conservation
 - Sustainable development
 - Climate resilience and adaptation
- **Ministry of Environment** in Tuvalu will serve as the official liaison with IUCN.

Tuvalu's Ecological & Environmental Context

- **Geography:** Nine low-lying atolls and islands (total land area: 26 km²)
- **Marine Zone:** Exclusive Economic Zone (EEZ) of ~900,000 km²
- **Ecological Richness:** Coral reefs, migratory seabirds, fisheries
- **Cultural Link:** Deep traditional connection between communities and nature

Environmental Challenges:

- Climate change & sea-level rise
- Coastal erosion
- Invasive species
- Threats to biodiversity and livelihoods

Opportunities for Tuvalu through IUCN Membership

- Access to international expertise & resources
- Participation in global conservation dialogues

- Funding pathways (e.g., GEF, GCF)
- Enhanced ability to implement national biodiversity strategies
- Support for community-based conservation and climate adaptation
- Platform to share Indigenous knowledge and island resilience practices

QUESTIONS

16. Consider the following statements about International Union for Conservation of Nature (IUCN):

1. The Government of Tuvalu has officially become the 90th State Member of the International Union for Conservation of Nature (IUCN), following its formal endorsement of the IUCN Statutes.
2. It was created in 1948 and it is now the world's largest and most diverse environmental network.

Which of the statements given above is/are correct?

- | | |
|-----------|--------------------|
| A. 1 only | C. Both 1 and 2 |
| B. 2 only | D. Neither 1 nor 2 |

17. With reference to the International Union for Conservation of Nature and Natural Resources (IUCN) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), consider the following statements:

1. IUCN is an organ of the United Nations, whereas CITES is an international agreement between governments.
2. IUCN runs thousands of field projects across the world for better management of natural environments.
3. CITES is legally binding on its member states, but it does not substitute or override national laws.

Which of the statements given above is/are correct?

- | | |
|-----------------|-----------------|
| A. 1 only | C. 1 and 3 only |
| B. 2 and 3 only | D. 1, 2 and 3 |

5. Journalists imprisoned in Belarus and Georgia win EU's top human rights award

- Two journalists, one imprisoned in Belarus and the other in Georgia, have won the European Union's top human rights honour, the Sakharov Prize, European Parliament President Roberta Metsola announced.
- Andrzej Poczobut is a correspondent for the influential Polish newspaper Gazeta Wyborcza.
- He was convicted of "harming Belarus' national security" and sentenced to eight years, which he is serving in the Novopolotsk penal colony.
- Mzia Amaghlobeli, a prominent journalist who founded two of Georgia's independent media outlets, was convicted in August of slapping a police chief during an anti-government protest.

- She was sentenced to two years in prison in a case that was condemned by rights groups as an attempt to curb media freedom.
- Both are journalists currently in prison on trumped up charges simply for doing their work and for speaking out against injustice.



Sakharov Prize

- **Full Name:** Sakharov Prize for Freedom of Thought
- **Established By:** European Parliament
- **Year Instituted:** 1988
- **Named After:** Andrei Sakharov – Soviet physicist, dissident, and human rights activist.
- **Purpose:** To honor individuals or groups who have dedicated their lives to the defense of human rights and freedom of thought.



Objectives and Significance

- **Promotion of Human Rights:** Recognizes exceptional contributions to defending human rights worldwide.
- **Freedom of Expression:** Upholds the right to free thought, speech, and political dissent.
- **Moral Support:** Provides global visibility and moral backing to those facing persecution or oppression.
- **Symbol of Europe's Commitment:** Reflects the European Union's commitment to democracy, human rights, and the rule of law.

Award Details

- **Presented By:** President of the European Parliament.
- **Award Ceremony:** Held annually in Strasbourg, France.
- **Prize Includes:** A certificate and a monetary award (currently €50,000).

Notable Laureates

- **Nelson Mandela and Anatoly Marchenko (1988)** – First recipients.
- **Aung San Suu Kyi (1990)** – For non-violent struggle for democracy in Myanmar.
- **Malala Yousafzai (2013)** – For her fight for girls’ education.
- **Alexei Navalny (2021)** – Russian opposition leader.
- **Mahsa Amini and Iranian Women (2023)** – For the women’s rights movement in Iran.

Sakharov Prize in the Indian Context

Indian Laureates / Nominees

Irom Sharmila (2017 nominee):

- Known as the “Iron Lady of Manipur.”
- Nominated for her non-violent protest against the Armed Forces (Special Powers) Act (AFSPA).
- Though she did not win, her nomination highlighted India’s internal human rights issues on a global stage.

Andrei Sakharov Prize (APS)

- The Andrei Sakharov Prize is a prize that is to be awarded every two years by the American Physical Society since 2006.
- The recipients are chosen for “outstanding leadership and/or achievements of scientists in upholding human rights.”
- It is named after Andrei Sakharov (1921-1989), a Soviet nuclear physicist, dissident, and human rights activist. Since 2007, it has been valued at \$10,000.
- The first Sakharov Prize was awarded to physicist and former Soviet gulag prisoner Yuri Orlov.
 - **American Physical Society’s Andrei Sakharov Prize:** This prize, intended for “courageous and effective work for human rights,” has been awarded to an Indian.
 - **2018 Winner:** Ravi Kuchimanchi of the Association for India’s Development.

QUESTIONS

18. Recently, two journalists — Andrzej Poczobut and Mzia Amaghlobeli — were awarded the **Sakharov Prize for 2025**. With reference to them, consider the following statements:

1. Andrzej Poczobut, from Belarus, was imprisoned for allegedly harming his country’s national security.
2. Mzia Amaghlobeli, from Georgia, was sentenced for violence during an anti-government protest.
3. Both laureates were recognized for their journalistic work in defending freedom of expression and democracy.

Which of the statements given above is/are correct?

- A. 1 only
B. 2 and 3 only
C. 1 and 3 only
D. 1, 2 and 3

19. With reference to the **Sakharov Prize for Freedom of Thought**, consider the following statements:

1. It is awarded annually by the European Parliament to individuals or groups defending human rights and freedom of thought.
2. It was established in 1988 and is named after a Nobel Peace Prize-winning Soviet physicist and dissident.
3. The prize includes a monetary award, a certificate, and is presented in Brussels, Belgium.

Which of the statements given above is/are correct?

- A. 1 and 2 only
B. 2 and 3 only
C. 1 only
D. 1, 2 and 3

20. How many Indians won the Sakharov Prize for Freedom of Thought, as of October 2025?
- A. Only one Indian
 - B. Only Two Indians
 - C. Only Three Indians
 - D. No Indian has yet won the Sakharov Prize for Freedom of Thought

6. Five Maharashtra Beaches Receive Prestigious International Blue Flag Certification



- Five beaches in Maharashtra have received the international Blue Flag certification.
- The list includes Shrivardhan and Nagaon beaches in Raigad district, Parnaka in Palghar, and Guhagar and Ladghar beaches in Ratnagiri district. This information was announced by Maharashtra Women and Child Development Minister Aditi Tatkare.
- The Blue Flag certification is awarded by Denmark's Foundation for Environmental Education (FEE) to beaches that meet 33 criteria related to cleanliness, beauty, and environmental sustainability.
- The evaluation covers aspects such as environmental education, water quality, safety, environmental management, and public amenities.

Blue Flag Certification

- The Blue Flag Certification is an international eco-label awarded to beaches and marinas that meet stringent environmental, educational, safety, and accessibility criteria.
- It's recognized globally as a symbol of cleanliness, safety, and sustainable tourism management.

1. Importance of Blue Flag Certification

Environmental Protection:

- Encourages coastal areas to adopt sustainable practices in waste management, water quality, biodiversity conservation, and eco-friendly tourism.

Tourism Promotion:

- Beaches with Blue Flag status attract eco-conscious tourists, boosting local economies and international recognition.

Health & Safety:

- Certified beaches ensure clean bathing water, safe access, lifeguards, and proper sanitation facilities.

Community Awareness:

- Promotes environmental education among visitors, locals, and authorities.

International Reputation:

- Blue Flag is a prestigious certification — it assures visitors of global standards of cleanliness and safety.

2. Significance for India

- India became the first country in Asia-Pacific to achieve Blue Flag certification for multiple beaches in 2020.
- It shows India's commitment to sustainable coastal management under the BEAMS programme (Beach Environment & Aesthetics Management Services), part of the Integrated Coastal Zone Management Project (ICZMP) by the Ministry of Environment, Forest and Climate Change (MoEFCC).
- This initiative supports India's goals under the UN Sustainable Development Goals (SDG 14 – Life Below Water).

3. Blue Flag Certified Beaches in India (as of recent updates)

Current India Blue Flag Status (as of 2025):

- **Total Certified Beaches:** 13 + 5 New (total 18 Beaches) Blue Flag beaches across India.
- **Recent Additions:** Five beaches from Maharashtra — Shrivardhan, Nagaon, Parnaka, Guhagar, and Ladghar — received certification in 2025.

Beaches by state

- **Andhra Pradesh:** Rushikonda
- **Andaman and Nicobar Islands:** Radhanagar
- **Gujarat:** Shivrajpur
- **Karnataka:** Padubidri End Point and Kasarkod
- **Kerala:** Kappad
- **Lakshadweep:** Minicoy Thundi and Kadmat
- **Maharashtra:** Shrivardhan, Nagaon, Parnaka, Guhagar, and Ladghar
- **Odisha:** Golden Beach
- **Puducherry:** Eden
- **Tamil Nadu:** Kovalam
- **Diu:** Ghogla

4. Administering Organization

- The certification is awarded by the Foundation for Environmental Education (FEE), based in Denmark.

Beaches are judged on 33 criteria across four categories:

- Environmental education and information
- Environmental management
- Water quality
- Safety and services

QUESTIONS

21. With reference to the **Blue Flag Certification**, consider the following statements:

1. The Blue Flag certification is awarded by the Foundation for Environmental Education (FEE), headquartered in Denmark.
2. The certification assesses beaches on 33 criteria under environmental education, water quality, environmental management, and safety.
3. India joined the Blue Flag Programme in 2018.

Which of the statements given above are correct?

- A. 1 and 2 only
B. 2 and 3 only
C. 1 and 3 only
D. 1, 2 and 3

22. As of **2025**, which of the following statements correctly describes **India's Blue Flag Beaches**?

1. Maharashtra has the highest number of Blue Flag beaches in India.
2. Golden Beach in Odisha and Shivrajpur Beach in Gujarat are among India's Blue Flag-certified beaches.
3. The total number of Blue Flag-certified beaches in India stands at 18.

Select the correct answer using the code given below:

- A. 1 and 2 only
B. 2 and 3 only
C. 1 and 3 only
D. 1, 2 and 3

23. Consider the following pairs regarding **Blue Flag Beaches in India (2025)**:

Beach	State/UT
1. Rushikonda	Andhra Pradesh
2. Radhanagar	Andaman and Nicobar Islands
3. Kovalam	Kerala
4. Eden Beach	Puducherry

Which of the pairs given above are correctly matched?

- A. 1 and 2 only
B. 1, 2 and 4 only
C. 2, 3 and 4 only
D. 1, 2, 3 and 4

7. 4,000-year-old Harappan settlement at Kotada Bhadli in Kutch

- **Institutions involved:** Deccan College Post-Graduate and Research Institute (Pune), Symbiosis School for Liberal Arts, and Archaeological Survey of India (New Delhi).
- **Publication:** Study published in *L'Anthropologie* (Elsevier, 2025).
- **Site identified:** Kotada Bhadli in Kutch, Gujarat.
- **Period:** Between 2300–1900 BCE (around 4,000 years ago).



Key Findings

- The site represents the earliest known caravanserai in South Asia.
- It was a fortified rural stopover supporting long-distance Harappan trade.
- Discovery pushes back the origins of organised trade infrastructure in India by over 2,000 years.

Trade Network and Function

- Harappan commerce relied on a network of small, fortified stopovers.
- These connected urban centres such as Dholavira, Lothal, and Shikarpur.
- Kotada Bhadli was strategically located, non-urban, and designed for short halts rather than permanent habitation.

Archaeological Evidence

Excavations revealed:

- Multi-roomed central building.
- Fortified walls with bastions.
- Large open spaces for animals and goods.
- Food waste and imported materials suggesting trade activity.
- Layout and features align with known caravanserai structures.

Significance and Interpretation

- Indicates a well-organised trade logistics system in the Harappan civilization.
- Demonstrates that Harappans had infrastructure for overland commerce — not limited to urban markets or ports.
- Suggests caravanserai-like facilities existed 2,000 years before the Silk Route.

Harappan Civilization

- The Harappan Civilization — also known as the Indus Valley Civilization (IVC) — was one of the world's earliest urban civilizations.
- It flourished in the northwestern regions of South Asia, primarily in what is today Pakistan and northwest India, around 2600 BCE to 1900 BCE.

1. Major Sites

- **Harappa** – Located in present-day Punjab (Pakistan); first discovered site (hence the name “Harappan”).
- **Mohenjo-Daro** – In Sindh (Pakistan); one of the best-preserved cities, known for its advanced urban planning.
- **Dholavira** – In Gujarat (India); known for its unique water conservation system.
- **Lothal** – In Gujarat (India); famous for its dockyard.
- **Kalibangan** – In Rajasthan (India); known for fire altars and early ploughed fields.
- **Rakhigarhi** – In Haryana (India); one of the largest Harappan sites.

2. Urban Planning and Architecture

- **Grid System:** Cities were laid out in a grid pattern — streets intersecting at right angles.
- **Drainage System:** Highly sophisticated underground drainage and sewage systems.
- **Brick Houses:** Standardized baked bricks used for buildings.
- **Citadel and Lower Town:** Cities often had a raised area (citadel) for administrative or religious purposes and a lower town for residences.

3. Economy

- **Agriculture:** Wheat, barley, peas, sesame, dates, and cotton were grown.
- **Trade:** Extensive trade within the region and with Mesopotamia (Sumer).
- **Crafts:** Bead-making, pottery, metalwork (copper, bronze), and shell jewelry.
- **Weights and Measures:** Standardized system for trade and taxation.

4. Religion and Culture

- **Seals:** Thousands of seals found — often depicting animals (bull, unicorn, etc.) and a script not yet fully deciphered.
- **Mother Goddess:** Figurines suggest fertility worship.
- **Proto-Shiva (Pashupati):** A famous seal shows a horned figure, possibly an early form of Shiva.
- **No Temples:** Unlike Mesopotamia or Egypt, no clear temple structures have been found.

5. Writing System

- Known as the Harappan Script — composed of pictographic symbols.
- Still undeciphered, so much about their language and governance remains unknown.

6. Decline (around 1900 BCE)

Multiple theories exist:

- **Environmental changes:** Drought, river shifts (e.g., drying of the Saraswati River).
 - Floods or earthquakes.
 - Decline in trade and agriculture.
 - Possible Aryan migration (though debated).

QUESTIONS

24. With reference to the recently studied Harappan site of **Kotada Bhadli**, consider the following statements:

1. The site is located in the Kutch region of Gujarat.
2. It represents the earliest known example of a caravanserai structure in South Asia.
3. It was an urban trading hub similar in scale and complexity to Dholavira.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 2 only
- C. 1 and 3 only
- D. 1, 2 and 3

25. The recent excavations at **Kotada Bhadli** provide evidence of which of the following features?

- 1. Fortified walls with bastions
- 2. Large open spaces for animals and trade goods
- 3. Multi-roomed central buildings
- 4. Religious shrines and temple-like structures

Select the correct answer using the code given below:

- A. 1, 2 and 3 only
- B. 2, 3 and 4 only
- C. 1 and 4 only
- D. 1, 2, 3 and 4

26. Why is the discovery of **Kotada Bhadli** archaeologically significant?

- A. It provides the first evidence of metal coinage in the Harappan period.
- B. It shows the existence of long-distance overland trade infrastructure prior to the Silk Route.
- C. It proves that Harappans worshipped Proto-Shiva in rural sites.
- D. It marks the transition from the Chalcolithic to the Iron Age in western India.

27. Which of the following institutions were involved in the **Kotada Bhadli excavation project**?

- 1. Deccan College Post-Graduate and Research Institute, Pune
- 2. Symbiosis School for Liberal Arts
- 3. Archaeological Survey of India (ASI)
- 4. National Institute of Oceanography (Goa)

Select the correct answer using the code given below:

- A. 1 and 2 only
- B. 1, 2 and 3 only
- C. 1, 3 and 4 only
- D. 2, 3 and 4 only

28. With reference to the **Harappan Civilization**, consider the following statements:

- 1. The cities were built using standardized baked bricks and a grid layout.
- 2. Evidence of organized drainage systems and citadel planning has been found in several sites.
- 3. Religious structures resembling temples have been excavated at Dholavira and Kalibangan.
- 4. Harappans traded with contemporary civilizations like Mesopotamia.

Which of the statements given above are correct?

- A. 1, 2 and 4 only
- B. 1 and 3 only
- C. 2 and 4 only
- D. 1, 2, 3 and 4

8. 2025 Global Multidimensional Poverty Index (MPI) report

- 887 million out of 1.1 billion multidimensionally poor people ($\approx 80\%$) are directly exposed to climate hazards such as extreme heat, floods, drought, or air pollution.
- The 2025 MPI covers 109 countries, representing 6.3 billion people, with updated estimates for 13 countries (including Bangladesh, Mexico, Niger, and the Philippines).
- Multidimensional poverty is higher than monetary poverty in 63 of 105 countries, revealing that many above-income-poverty individuals still face critical deprivations.
- 651 million poor people face two or more climate hazards; 309 million endure three or four overlapping hazards.
- The most common hazards affecting poor populations are:
 - High heat – 608 million people
 - Air pollution – 577 million
 - Floods – 465 million
 - Drought – 207 million

Regional Insights

- South Asia and Sub-Saharan Africa are the global epicenters of overlapping poverty and climate risks:
 - **South Asia:** 380 million poor exposed to hazards; 99.1% face at least one hazard, 91.6% face multiple.
 - **Sub-Saharan Africa:** 344 million poor exposed.

East Asia & Pacific:

- 104 million poor (9% of global total).
- 56.8% face floods, over half exposed to air pollution.

Lower-middle-income countries are most affected:

- 548 million poor exposed to at least one hazard ($\approx 62\%$ of global total).
- 470 million face multiple concurrent hazards.

Country Spotlight – The Philippines

- **Multidimensional poverty rate (2022 data):** 3.9% or 4.47 million people.
- **Vulnerable to multidimensional poverty:** 5.2% or 6.02 million people.

Main contributors to poverty:

- Standard of living – 42.7%
- Education – 32.7%
- Health – 24.7%

Climate–Poverty Nexus

- The climate crisis is reshaping global poverty by reinforcing and deepening deprivation cycles.
- Poor populations often face multiple, compounding environmental risks with limited assets or safety nets.
- Future projections show that countries with higher current poverty will face the largest temperature increases by century's end.

Call to Action

- The report urges world leaders, ahead of COP30 in Brazil, to:
 - Integrate climate resilience into poverty reduction strategies.
 - Strengthen local adaptive capacities and protection systems.
 - Promote international cooperation and equitable climate finance.
 - Ensure climate action places human development at the centre.

Organizations behind the Report

- **UNDP:** UN's lead agency tackling poverty, inequality, and climate injustice in 170 countries.
- **OPHI (University of Oxford):** Pioneers in multidimensional poverty measurement and global well-being research.

Poverty in India

- Poverty refers to a condition where individuals or households lack sufficient income or resources to meet basic needs such as food, shelter, clothing, healthcare, and education.

In India, poverty is usually measured in two ways:

- **Absolute Poverty:** Measured by income or consumption below a defined “poverty line.”
- **Multidimensional Poverty:** Considers deprivations in health, education, and standard of living.

Current Situation (as of 2025)

- **Poverty Rate:** According to the NITI Aayog Multidimensional Poverty Index (MPI) Report 2023, about 11.3% of Indians were multidimensionally poor in 2022–23, down from 24.8% in 2015–16.
- **Rural vs Urban:** Poverty is higher in rural areas (~15%) than in urban areas (~5%).
- **Regional Disparities:** States like Bihar, Jharkhand, Uttar Pradesh, and Madhya Pradesh have higher poverty rates, while Kerala, Tamil Nadu, Punjab, and Himachal Pradesh show much lower rates.

Causes of Poverty

- **Unemployment and Underemployment** – Especially in rural areas and informal sectors.
- **Low Education Levels** – Limited access to quality education perpetuates the poverty cycle.
- **Inequality** – Wealth and opportunity are unevenly distributed.
- **Population Growth** – Increases pressure on resources and jobs.
- **Agrarian Distress** – Dependence on monsoon, small landholdings, and low productivity.
- **Inflation and Rising Living Costs** – Reduces real income of poor households.

Government Initiatives to Reduce Poverty

- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** – Guarantees 100 days of wage employment to rural households.
- **Pradhan Mantri Awas Yojana (PMAY)** – Provides affordable housing.

- **National Food Security Act (NFSA)** – Ensures subsidized food grains.
- **Ayushman Bharat – PM-JAY** – Health insurance for low-income families.
- **PM-KISAN** – Direct income support to small and marginal farmers.
- **Skill India Mission** – Promotes skill development and employability.
- **Jan Dhan Yojana** – Expands financial inclusion and access to banking services.

Progress and Challenges

Progress:

- Over 250 million people lifted out of multidimensional poverty between 2015–16 and 2022–23.
 - Expanding digital and financial inclusion.
 - Improved access to electricity, water, and sanitation.

Challenges:

- Persistent income inequality.
- Urban poverty and slum conditions.
- Jobless growth in some sectors.
- Climate change affecting rural livelihoods.

6. The Road Ahead

- To eliminate extreme poverty by the 2030 Sustainable Development Goals (SDG) target, India must:
 - Invest more in education and health.
 - Promote inclusive economic growth.
 - Strengthen social protection systems.
 - Encourage sustainable agriculture and rural development.

QUESTIONS

29. With reference to the **2025 Global Multidimensional Poverty Index (MPI)**, consider the following statements:

1. The 2025 MPI jointly developed by UNDP and OPHI covers more than 100 countries and integrates climate vulnerability indicators for the first time.
2. Over 80% of the multidimensionally poor population worldwide is directly exposed to at least one climate hazard.
3. Sub-Saharan Africa accounts for the largest number of multidimensionally poor people globally.

Which of the statements given above is/are correct?

- | | |
|-----------------|-----------------|
| A. 1 and 2 only | C. 1 and 3 only |
| B. 2 only | D. 1, 2 and 3 |

30. Which of the following hazards affect the highest number of multidimensionally poor people worldwide, according to the **2025 MPI Report**?

- | | |
|--------------------------------|------------------------------|
| A. Droughts and floods | C. Floods and sea-level rise |
| B. Air pollution and high heat | D. Cyclones and earthquakes |

31. Consider the following statements regarding the **regional insights** of the 2025 Global MPI Report:
1. South Asia and Sub-Saharan Africa together account for over two-thirds of the world's multidimensionally poor.
 2. More than 90% of South Asia's poor face multiple climate hazards simultaneously.
 3. The East Asia & Pacific region shows the lowest overlap between poverty and climate vulnerability.
- Which of the statements given above are correct?
- A. 1 and 2 only
B. 2 and 3 only
C. 1 and 3 only
D. 1, 2 and 3
32. With reference to the **Multidimensional Poverty situation in India**, consider the following statements:
1. According to NITI Aayog's MPI Report 2023, India's multidimensional poverty fell to 11.3% in 2022–23 from 24.8% in 2015–16.
 2. Poverty reduction has been faster in urban areas compared to rural areas.
 3. Kerala, Tamil Nadu, and Punjab are among the states with the lowest multidimensional poverty levels.
- Which of the statements given above are correct?
- A. 1 only
B. 1 and 2 only
C. 1, 2 and 3
D. 2 and 3 only
33. With reference to the **policy recommendations** of the 2025 Global MPI Report, which of the following are correct?
1. Integrate climate resilience into poverty alleviation programmes.
 2. Prioritize international cooperation for equitable climate finance.
 3. Shift focus from human development to infrastructure-led growth to mitigate climate risks.
 4. Strengthen local adaptive capacities in vulnerable communities.
- Select the correct answer using the code given below:
- A. 1 and 2 only
B. 1, 2 and 4 only
C. 2, 3 and 4 only
D. 1, 3 and 4 only

9. Iceland recorded its first sighting of mosquitoes now

Mosquitoes Arrive in Iceland

- Iceland, historically mosquito-free, recorded its first-ever mosquito sighting in Kjós, discovered by insect enthusiast Björn Hjaltason.

- Scientists found three mosquitoes (two females and one male).
- The presence of mosquitoes is believed to be linked to rising temperatures due to global warming, which is making Iceland more suitable for their survival.



Link between Global Warming and Mosquito Proliferation

1. Temperature and Mosquito Activity

- Mosquitoes are cold-blooded arthropods, relying on external temperatures to regulate their body heat.
- Warmer climates enable mosquitoes to expand into previously inhospitable areas and increase their population.

2. Extended Breeding and Transmission Seasons

- Higher global temperatures lengthen the active season for mosquitoes.
- This extends the period for vector-borne disease transmission (*e.g.*, malaria, dengue, Zika).

3. Faster Reproduction and Growth

- A 2009 study in PLOS found that higher temperatures accelerate egg hatching and larval development, shortening the mosquito life cycle and increasing reproductive rates.

4. Increased Feeding and Biting Frequency

- Female mosquitoes bite humans to obtain proteins for egg production.
- Warm temperatures speed up digestion of blood meals, making mosquitoes bite more frequently, which enhances disease transmission.

5. Role of Humidity

- High humidity ($\geq 42\%$) combined with temperatures between 10–35°C creates ideal conditions for mosquito activity.
- Studies show humidity increases feeding activity, survival, and egg development.

6. Limits to Heat Tolerance

- **Mosquito activity declines beyond 32°C.**
- Optimal disease transmission occurs around:
 - 25°C for malaria
 - 29°C for Zika
- Excessive heat reduces both mosquito survival and disease spread.
- Warmer cold regions = increased disease risk; warmer hot regions = decreased risk.

Impact of Global Warming on Iceland

1. Rapid Warming Trend

- Iceland is warming four times faster than the rest of the Northern Hemisphere.
- This has led to glacial melt and frequent heatwaves.

2. Record-Breaking Temperatures in 2025

- **May 2025:** Iceland saw 10 consecutive days above 20°C, unusual for the month.
- **Highest May temperature on record:** 26.6°C at Egilsstaðir Airport.

3. Climate Consequences

- Extended warm periods and higher humidity are creating suitable habitats for mosquitoes, previously unsustainable in Iceland.
- Signals a broader shift in Arctic and sub-Arctic ecosystems due to climate change.

QUESTIONS

34. With reference to the **first-ever mosquito sighting in Iceland (2025)**, consider the following statements:

1. Iceland was historically mosquito-free due to its extremely cold temperatures and short summers.
2. The recent presence of mosquitoes in Iceland is attributed to a rise in average temperatures and humidity levels caused by global warming.
3. Mosquitoes can survive and remain active even when average temperatures fall below 0°C.

Which of the statements given above is/are correct?

- | | |
|-----------------|---------------|
| A. 1 and 2 only | C. 1 only |
| B. 2 and 3 only | D. 1, 2 and 3 |

35. Which of the following statements correctly describes the **relationship between temperature and mosquito proliferation**?

1. Higher temperatures accelerate mosquito breeding and shorten their life cycle.
2. Excessive heat beyond 32°C can reduce mosquito survival and disease transmission.
3. The optimal temperature for malaria transmission is higher than that for Zika virus transmission.

Select the correct answer using the code given below:

- | | |
|-----------------|-----------------|
| A. 1 and 2 only | C. 2 and 3 only |
| B. 1 and 3 only | D. 1, 2 and 3 |

36. With reference to **global warming and mosquito distribution**, consider the following statements:

1. Climate change expands mosquito habitats into colder regions previously unsuitable for their survival.
2. Warmer temperatures can lead to both an increase and decrease in disease spread, depending on the regional climate.
3. Humidity plays no role in influencing mosquito activity and reproduction.

Which of the statements given above are correct?

- | | |
|-----------------|---------------|
| A. 1 and 2 only | C. 2 only |
| B. 1 and 3 only | D. 1, 2 and 3 |

10. India unveils Nafithromycin, first homegrown antibiotic to tackle resistant respiratory infections

- India has developed its first indigenously discovered antibiotic, **Nafithromycin**.
- Effective against resistant respiratory infections, especially beneficial for cancer patients and poorly controlled diabetics.
- First molecule conceptualized, developed, and clinically validated entirely in India.
- Developed by the Department of Biotechnology (DBT) in collaboration with Wockhardt, a private pharma company.
- Marks a significant step toward self-reliance in the pharmaceutical sector.



Promoting Industry-Academia Partnerships & Innovation Ecosystem

- Emphasis on building a self-sustainable innovation ecosystem.
- Encouragement for private sector participation and philanthropic support.
- Goal to reduce dependence on government funding.
- Aim to achieve global recognition in scientific research and innovation.

Gene Therapy Breakthrough for Hemophilia

- First successful indigenous clinical trial for Hemophilia treatment conducted.
- Supported by DBT and carried out at Christian Medical College, Vellore (non-government hospital).
- Achieved 60-70% correction rate with zero bleeding episodes.
- Findings published in the New England Journal of Medicine.
- India has sequenced over 10,000 human genomes; target is to scale up to 1 million.

Anusandhan National Research Foundation (ANRF) Initiative

- Total funding of Rs. 50,000 crore over five years; Rs. 36,000 crore from non-government sources.
- Represents a shift toward global-standard research and development models.
- Focus on greater collaboration between academia and industry.

Role of Artificial Intelligence (AI) in Healthcare and Governance

- AI is transforming healthcare accessibility, governance efficiency, and decision-making.
- AI-based hybrid mobile clinics provide quality healthcare in rural and remote areas.
- AI-driven grievance redressal system by DARPG disposes of 97-98% of cases weekly, improving citizen satisfaction.
- Institutions like Sir Ganga Ram Hospital are integrating AI, biotechnology, and genomics to improve health outcomes.

Vision for India's Scientific and Technological Growth

- Drive toward self-reliance in biotechnology, AI, and genomic medicine.
- Focus on innovation, collaboration, and compassion to build a developed nation by 2047 (Viksit Bharat @2047).
- Strengthen partnerships between government, private sector, and research institutions to establish India's leadership globally.

Antibiotic

1. Uses of Antibiotics

- Antibiotics are substances that kill or inhibit the growth of bacteria and are mainly used to treat bacterial infections. They are used for:
- Treating infections caused by bacteria such as pneumonia, tuberculosis, urinary tract infections, and sepsis.
- Preventing bacterial infections in surgeries or in immunocompromised patients.
- Treating specific infections in animals (veterinary use).
- Sometimes used in agriculture to prevent diseases in plants and livestock.

2. Formation of Antibiotics

- **Antibiotics can be:**
 - **Natural:** Produced by microorganisms like bacteria and fungi (*e.g.*, Penicillin is produced by *Penicillium* mold).
 - **Semi-synthetic:** Natural antibiotics chemically modified to improve effectiveness or reduce side effects (*e.g.*, Amoxicillin derived from Penicillin).
 - **Synthetic:** Completely made in labs through chemical synthesis (*e.g.*, Sulfonamides).
- The formation typically involves:
 - Isolation of antibiotic-producing microorganisms.
 - Cultivation and fermentation to produce antibiotics in large quantities.
 - Extraction and purification.
 - Chemical modification (for semi-synthetic antibiotics).

3. Applications of Antibiotics

- **Medical Use:** Treating bacterial infections in humans (oral, intravenous, topical, etc.).
- **Veterinary Medicine:** Treating infections in animals.
- **Agriculture:** Preventing infections in plants and promoting growth in livestock (though this use is controversial due to antibiotic resistance concerns).
- **Research:** Used as tools in molecular biology to select genetically modified cells (*e.g.*, using antibiotics as markers for plasmid selection).

QUESTIONS

37. With reference to **Nafithromycin**, recently developed in India, consider the following statements:
1. It is India's first indigenously discovered antibiotic molecule.
 2. It was developed jointly by the Department of Biotechnology (DBT) and the Indian Council of Medical Research (ICMR).

3. Nafithromycin is primarily effective against resistant respiratory infections.

Which of the statements given above is/are correct?

A. 1 and 3 only

C. 1 and 2 only

B. 2 only

D. 1, 2 and 3

38. With reference to the **Anusandhan National Research Foundation (ANRF)**, consider the following statements:

1. It aims to enhance research and innovation through increased private sector participation.

2. The Foundation is expected to mobilize the majority of its funding from non-government sources.

3. It replaces the Science and Engineering Research Board (SERB).

Which of the statements given above are correct?

A. 1 and 2 only

C. 2 and 3 only

B. 1 and 3 only

D. 1, 2 and 3

39. With reference to the **gene therapy breakthrough for Hemophilia in India**, consider the following statements:

1. It represents the first successful indigenous clinical trial for gene therapy in India.

2. The trial achieved complete cure in all participating patients.

3. The research was conducted at Christian Medical College, Vellore, with support from the Department of Biotechnology.

Which of the statements given above is/are correct?

A. 1 and 2 only

C. 2 and 3 only

B. 1 and 3 only

D. 1, 2 and 3

40. Consider the following pairs regarding the **use and types of antibiotics**:

Type of Antibiotic	Example
1. Natural	Penicillin
2. Semi-synthetic	Amoxicillin
3. Synthetic	Sulfonamides

Which of the pairs given above are correctly matched?

A. 1 only

C. 1, 2 and 3

B. 1 and 2 only

D. 2 and 3 only

ANSWER KEY AND EXPLANATION

1. A 1 and 2 only

- **Tagore** was the **first Asian Nobel Laureate (1913)** and received the **Literature Prize** for *Gitanjali*.
- He did **not share** the award; it was awarded **solely to him**.

2. A 1 and 2 only

- **C.V. Raman (1930)** – Discovered the *Raman Effect*.
- **Subrahmanyam Chandrasekhar (1983)** – Worked on *stellar evolution and the Chandrasekhar limit*.
- **Venkatraman Ramakrishnan (2009)** – Won for *ribosome structure in Chemistry*, not Physics.

3. A 1 and 2 only

- Mother Teresa was **Albanian-born** and an **Indian citizen**, recognized for her humanitarian work through the **Missionaries of Charity**.
- The Peace Prize citation mentioned her fight against **poverty and distress**, *not inter-religious harmony*.

4. B 1 and 2 only

- **Amartya Sen (1998)** – Welfare and development economics.
- **Abhijit Banerjee (2019)** – Shared Nobel for *experimental approach to poverty alleviation*.
- Sen studied at Cambridge and Harvard, while Banerjee studied at JNU and Harvard, not LSE.

5. D 1, 2 and 3

- **Gandhi** was nominated multiple times between **1937–1948** but was **assassinated before the final decision**.
- The **Peace Prize was not awarded in 1948** as a tribute to him.
- **Dalai Lama (1989)** received the **Peace Prize** while residing in **Dharamshala, India**.

6. C Both 1 and 2

- Neeraj Chopra joined the Indian Army in 2016 as a Naib Subedar in the **4 Rajputana Rifles** and was **conferred the honorary rank of Lieutenant Colonel in 2025** in recognition of his outstanding sporting achievements.

7. C Both 1 and 2

- At **Tokyo 2020**, Neeraj became **India's first Olympic gold medallist in athletics**. He also won gold at the **World Athletics Championships (2023)** and has been a **Diamond League Champion**, making both statements correct.

8. B 1 and 3 only

- **MS Dhoni** and **Kapil Dev** hold honorary ranks in the **Indian Army (Territorial Army)** as **Lieutenant Colonels**.
- **Abhinav Bindra**, however, also received the **Lieutenant Colonel** rank, not *Group Captain*, making statement 2 incorrect.

9. D 3 only

- Here's the breakdown of the equivalency of ranks across the three services of the Indian Defence Forces:
- **Brigadier - Air Commodore - Commander**
Incorrect. Brigadier (Army) is equivalent to Commodore (Navy), not Commander. So, this pairing is not correct.
- **Major General - Air Vice Marshal - Vice Admiral**
Incorrect. Major General (Army) is equivalent to Air Vice Marshal (Air Force) and Rear Admiral (Navy), not Vice Admiral. Vice Admiral (Navy) is equivalent to Lieutenant General (Army) or Air Marshal (Air Force).
- **Major - Squadron Leader - Lieutenant Commander**
Correct. Major (Army) is equivalent to Squadron Leader (Air Force) and Lieutenant Commander (Navy). This is a correct match.
- **Lieutenant Colonel - Group Captain - Captain**
Incorrect. Lieutenant Colonel (Army) is equivalent to Wing Commander (Air Force), not Group Captain. Captain (Navy) is not equivalent to Lieutenant Colonel, which is a higher rank.
- **Correct Matching:**
 - Brigadier (Army) = Commodore (Navy) = Air Commodore (Air Force)
 - Major General (Army) = Rear Admiral (Navy) = Air Vice Marshal (Air Force)
 - Major (Army) = Squadron Leader (Air Force) = Lieutenant Commander (Navy)
 - Lieutenant Colonel (Army) = Wing Commander (Air Force) = Commander (Navy)

10. A 1 only

- Statement 1 is **true** — both **Neeraj Chopra** and **Kapil Dev** hold honorary ranks in the **Territorial Army**.
- Statement 2 is **false** — **MS Dhoni** is part of the **Indian Army**, whereas **Sachin Tendulkar** holds an honorary rank in the **Indian Air Force**.

11. B Two statements only

- The report was released by **UNEP** and uses **2023 data** for global public and private financial flows. By **2030**, the report estimates a need for **USD 300 billion** annually, not USD 500 billion (which is projected for 2050).

12. A 1 and 2 only

- According to *GFRA 2025*, India has moved up to **9th position** globally in total forest area and continues to hold **3rd position in net annual forest area gain**. India's forests make up about **2 percent** of the world's total, not 5 percent, making statement 3 incorrect.

13. C Both 1 and 2

- The *GFRA 2025* reports a **total global forest area of about 4.14 billion ha (\approx 32 percent of land area)**. Over **54 percent** of the world's forests are found in **five countries** — **Russia, Brazil, Canada, USA, and China**. Both statements are correct.

14. B It is the only global assessment based on official national data, compiled and released periodically by the Food and Agriculture Organization.

- The *GFRA* is produced by the **FAO**, a **UN specialized agency**, and is the **only worldwide assessment based on official national data** on forest area, change, and management.

15. D 1, 2, 3, 4 and 5

- Statement 1 is **correct** – *ISFR* is released every two years by the **Forest Survey of India (FSI)** under the **Ministry of Environment, Forest and Climate Change (MoEFCC)**.
- Statement 2 is **incorrect** – India's total **forest and tree cover** stands at **25.17%** of its geographical area, not above 30%.
- Statement 3 is **correct** – The **maximum increase** in forest and tree cover was recorded in **Chhattisgarh (684 km²)**.
- Statement 4 is **correct** – Area wise top three states having largest forest cover are Madhya Pradesh (77,073 sq km) followed by Arunachal Pradesh (65,882 sq km) and Chhattisgarh (55,812 sq km).
- Statement 5 is **correct** – Area wise top three states having largest forest cover are Madhya Pradesh followed by Arunachal Pradesh and Chhattisgarh.

16. C Both 1 and 2

The Government of Tuvalu has officially become the 90th State Member of the International Union for Conservation of Nature (IUCN), following its formal endorsement of the IUCN Statutes. It was created in 1948 and it is now the world's largest and most diverse environmental network.

17. B 2 and 3 only

- **Statement 1:**

The **International Union for Conservation of Nature (IUCN)** is *not* an organ of the United Nations. It is an **independent international organization** headquartered in **Gland, Switzerland**, founded in **1948**. While it collaborates closely with various UN agencies (such as UNEP, FAO, and UNESCO), it remains *outside* the UN system.

On the other hand, the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)** is an international agreement between governments, adopted in **1973** and enforced in **1975**. It regulates international trade in endangered species to ensure that such trade does not threaten their survival.

- **Statement 2:**

The IUCN plays a key role in biodiversity conservation and sustainable use of natural resources. It manages thousands of field projects globally that focus on: Protected area management and planning. Species conservation and monitoring (through the IUCN Red List).

- **Statement 3:**

“CITES is legally binding on its member states, but it does not substitute or override national laws.” **CITES is a legally binding treaty, but it does not replace national legislation.**

Instead, it **requires member countries (Parties)** to pass domestic laws aligning with the Convention's principles.

18. D 1, 2 and 3

- All three statements are **correct** —
 - **Andrzej Poczobut** is a Belarusian journalist imprisoned on **fabricated charges** of endangering national security.
 - **Mzia Amaghlobeli**, a Georgian journalist and founder of two independent media outlets, was jailed for allegedly **slapping a police chief** during a protest — an act widely condemned as politically motivated.
 - The **European Parliament** recognized both journalists for their **courage and commitment to free expression** despite imprisonment and intimidation.

19. A 1 and 2 only

- Statement 1 is **correct** – The **Sakharov Prize for Freedom of Thought** is conferred *annually* by the **European Parliament** to honour those who have dedicated their lives to defending **human rights, democracy, and freedom of expression**.
- Statement 2 is **correct** – Instituted in **1988**, the prize is named after **Andrei Sakharov**, the Soviet physicist, dissident, and Nobel Peace laureate.
- Statement 3 is **incorrect** – The award ceremony is held in **Strasbourg, France**, not Brussels. The prize includes **€50,000** and a certificate.

20. D No Indian has yet won the Sakharov Prize for Freedom of Thought

- No Indian has yet won the Sakharov Prize for Freedom of Thought. While many Indians have received other prestigious awards like the Nobel Prize, such as Rabindranath Tagore in 1913, there is no record of an Indian recipient for the Sakharov Prize. Irom Sharmila (2017 nominee) Known as the “Iron Lady of Manipur.” Nominated for her non-violent protest against the Armed Forces (Special Powers) Act (AFSPA). Though she did not win, her nomination highlighted India’s internal human rights issues on a global stage.

21. D 1, 2 and 3

- All three statements are **correct** —
 - The **Foundation for Environmental Education (FEE)** in **Denmark** administers the Blue Flag Programme.
 - The certification is awarded based on **33 environmental, educational, and safety parameters**.
 - **India officially joined the programme in 2018**, promoting sustainable coastal management and eco-tourism.

22. D 1, 2 and 3

- **Statement 1 is correct.** Maharashtra became the state with the **most Blue Flag beaches (5)** — Shrivardhan, Nagaon, Parnaka, Guhagar, and Ladghar — added in **2025**.
- **Statement 2 is correct.** *Golden Beach (Odisha)* and *Shivrajpur Beach (Gujarat)* continue to hold Blue Flag status.
- **Statement 3 is correct.** The **total number** of Blue Flag-certified beaches in India reached **18** in 2025.

23. B 1, 2 and 4 only

- **Pair 1 – Rushikonda (Andhra Pradesh): Correct.** Recognized for its sustainable tourism management.
- **Pair 2 – Radhanagar (Andaman and Nicobar Islands): Correct.** Known for pristine water quality and safety standards.
- **Pair 3 – Kovalam: Incorrect.** The Blue Flag-certified Kovalam Beach is in **Tamil Nadu**, not Kerala.
- **Pair 4 – Eden (Puducherry): Correct.** Awarded for eco-tourism and beach cleanliness.

24. A 1 and 2 only

- **Statement 1 is correct.** Kotada Bhadli is a **Harappan site in Kutch, Gujarat**, excavated by researchers from Deccan College, Symbiosis, and the ASI.
- **Statement 2 is correct.** The 2025 study published in *L'Anthropologie* identifies it as the **earliest known caravanserai (fortified stopover)** in South Asia.
- **Statement 3 is incorrect.** It was **non-urban**, designed as a **rural, fortified rest-stop** supporting long-distance trade routes — unlike major urban centers such as Dholavira or Lothal.

25. A 1, 2 and 3 only

- **Excavations at Kotada Bhadli revealed:**
 - **Fortified walls and bastions**, suggesting defensive and logistical planning.
 - **Large open areas** likely used to rest pack animals or store goods in transit.
 - **Multi-roomed central structures**, possibly used by merchants or administrators.
- No evidence of **religious shrines or temples** has been found, which is consistent with the general absence of temple architecture in Harappan sites.

26. B It shows the existence of long-distance overland trade infrastructure prior to the Silk Route.

- The **Kotada Bhadli site** represents the earliest **organized trade stopover** in India, predating the Silk Route by nearly **2,000 years**.
- It demonstrates that Harappans maintained **overland trade logistics**, linking smaller rural outposts to major urban centers such as **Dholavira, Lothal, and Shikarpur**.

There is no evidence of coinage, religious icons, or Iron Age material at the site.

27. B 1, 2 and 3 only

- The **study and excavation** of the 4,000-year-old Harappan site at **Kotada Bhadli** were conducted collaboratively by:
 - **Deccan College Post-Graduate and Research Institute (Pune)**
 - **Symbiosis School for Liberal Arts**
 - **Archaeological Survey of India (ASI), New Delhi**
- There was **no involvement** of the National Institute of Oceanography (NIO).

28. A 1, 2 and 4 only

- **Statements 1 & 2 are correct:** Harappan urban centers like Mohenjo-Daro and Harappa used **baked bricks, grid layouts, and elaborate drainage systems**.
- **Statement 3 is incorrect:** No clear **temple structures** have been discovered at any Harappan site. Religious worship was practiced through **seals, figurines, and household altars**, not large temples.
- **Statement 4 is correct:** Trade links between Harappans and **Mesopotamia (Sumer)** are well-documented through seals, pottery, and references to “Meluhha” in Mesopotamian records.

29. A 1 and 2 only

- **Statement 1 is correct.** The **2025 Global MPI**, produced by the **UNDP and Oxford Poverty & Human Development Initiative (OPHI)**, covers **109 countries** and integrates **climate hazard exposure data** (heat, floods, droughts, air pollution) for the first time.
- **Statement 2 is correct.** Around **887 million out of 1.1 billion (≈80%)** multidimensionally poor people are exposed to at least one climate hazard.
- **Statement 3 is incorrect.** While **Sub-Saharan Africa** has a high share of multidimensional poverty, **South Asia** (especially India, Pakistan, and Bangladesh) has a larger *number* of poor people due to its higher population base.

30. B Air pollution and high heat

- The report identifies **high heat (608 million people)** and **air pollution (577 million)** as the **most common climate hazards** affecting the world’s multidimensionally poor. Floods (465 million) and droughts (207 million) follow, showing that **atmospheric hazards** are now more pervasive than hydrological ones.

31. A 1 and 2 only

- **Statement 1 is correct.** South Asia (380 million) and Sub-Saharan Africa (344 million) together make up the majority of the world’s poor.
- **Statement 2 is correct.** The report notes that **99.1%** of South Asia’s poor face at least one hazard, and **91.6% face multiple** hazards.
- **Statement 3 is incorrect.** The **East Asia & Pacific region** (104 million poor) still experiences significant exposure to **floods (56.8%)** and **air pollution**, so it is not the lowest; rather, **Europe and Central Asia** show lower overlap.

32. C 1, 2 and 3

- All statements are **correct** —
 - India’s **multidimensional poverty** has shown sharp decline: **11.3% (2022–23)** versus **24.8% (2015–16)**.
 - The fall is **faster in urban areas (≈5%)** than rural (≈15%), due to better infrastructure and access to welfare schemes.
 - **Kerala, Tamil Nadu, Punjab, and Himachal Pradesh** show the **lowest** poverty indices, while **Bihar, Jharkhand, and Uttar Pradesh** remain high-poverty states.

33. B 1, 2 and 4 only

- The **Global MPI 2025 Report** calls for a **human-centered climate–poverty response** by:
 - **Integrating climate resilience** into poverty reduction efforts.
 - **Promoting international cooperation** and equitable **climate finance**.
 - **Strengthening local adaptive capacities** to reduce vulnerability.
- It does *not* advocate shifting focus away from human development — hence, statement 3 is incorrect.

34. A 1 and 2 only

- **Statement 1 is correct.** Iceland had remained free of mosquitoes for centuries due to **long, harsh winters** and short breeding seasons that prevented mosquito survival.
- **Statement 2 is correct.** Rising temperatures and humidity linked to **climate change** have now made the environment more suitable for mosquito breeding and survival.
- **Statement 3 is incorrect.** Mosquitoes **cannot survive below 0°C**; their activity generally ceases below **10°C**, and they thrive best between **10–35°C**.

35. A 1 and 2 only

- **Statement 1 is correct.** Studies show that higher temperatures increase **egg hatching, larval growth, and biting frequency**, thereby accelerating mosquito population growth. Higher temperatures do accelerate mosquito breeding cycles, leading to faster reproduction and larger populations, but they can shorten the mosquitoes' lifespan.
- **Statement 2 is correct.** Beyond **32°C**, mosquito mortality rises and disease transmission decreases due to physiological stress.
- **Statement 3 is incorrect.** The **optimal temperature for malaria transmission is around 25°C**, whereas for **Zika virus it is around 29°C**, making Zika's optimal threshold higher.

36. A 1 and 2 only

- **Statement 1 is correct.** Global warming enables mosquitoes to migrate to **higher latitudes and altitudes**, including **Arctic and sub-Arctic regions** such as Iceland.
- **Statement 2 is correct.** Disease risk **increases in previously cold regions** but **decreases in already hot regions** due to reduced mosquito survival in extreme heat.
- **Statement 3 is incorrect.** **Humidity** is a crucial factor; mosquitoes require **>42% humidity** for feeding and egg development.

37. A 1 and 3 only

- **Statement 1 is correct.** Nafithromycin is the **first antibiotic molecule conceptualized, developed, and clinically validated entirely in India**.
- **Statement 2 is incorrect.** It was developed by the **Department of Biotechnology (DBT)** in collaboration with **Wockhardt Ltd**, a private pharma company — **not ICMR**.
- **Statement 3 is correct.** It is designed to combat **resistant respiratory infections**, particularly in **cancer patients and diabetics** with weak immunity.

38. D 1, 2 and 3

- **Statement 1 is correct.** The ANRF seeks to **deepen industry–academia partnerships** and promote **private innovation ecosystems**.
- **Statement 2 is correct.** Of the **Rs. 50,000 crore funding** planned over five years, **Rs. 36,000 crore (≈72%)** will come from **non-government sources**.
- **Statement 3 is correct.** The **ANRF replaces the Science and Engineering Research Board (SERB)** and expands its mandate to include social sciences, AI, and biotechnological research.

39. B 1 and 3 only

- **Statement 1 is correct.** This marks India's **first indigenous clinical gene therapy trial** for Hemophilia.
- **Statement 2 is incorrect.** The trial achieved **60–70% correction** with **zero bleeding episodes**, not a full cure.
- **Statement 3 is correct.** The study was conducted at **CMC Vellore**, a non-government hospital, and was **supported by DBT**. The results were published in the **New England Journal of Medicine**.

40. C 1, 2 and 3

- All three pairs are **correctly matched**:
 - **Natural antibiotics** are produced by microorganisms — *e.g.*, **Penicillin** from *Penicillium* mold.
 - **Semi-synthetic antibiotics** are **chemically modified natural compounds**, such as **Amoxicillin** derived from Penicillin.
 - **Synthetic antibiotics** like **Sulfonamides** are **entirely man-made** using chemical synthesis.