

06th February 2026: DSC

Denotified, Nomadic & Semi-Nomadic Tribes (DNTs/NTs/SNTs) and Census Recognition

1. Historical & Conceptual Foundations

1.1 Colonial Origins of Stigmatisation

- The Criminal Tribes Act, 1871 categorised entire communities as “hereditary criminals.”
- It authorised:
 - Mandatory registration of individuals
 - Continuous police surveillance
 - Restrictions on movement and residence
- This legal framework:
 - Institutionalised social stigma
 - Criminalised nomadic lifestyles
 - Disrupted traditional occupations across British India
- The Act was amended in 1924 and repealed on 31 August 1952.
- Despite formal “denotification”:
 - Social prejudice persisted
 - Administrative discrimination continued
 - Intergenerational exclusion emerged in:
 - Land ownership
 - Education access
 - Formal sector employment

1.2 Post-Independence Classification Trajectory

- After 1952 repeal:
 - Many DNTs/NTs/SNTs were absorbed into SC, ST, or OBC lists
 - Classification varied across States
- Consequences included:
 - Fragmented community identities
 - Uneven access to reservations
 - Inconsistent welfare entitlements

- The Government of India (Scheduled Castes) Order, 1936 historically influenced caste listing.
 - Contemporary demands emphasise:
 - Creation of a separate constitutional Schedule
 - Parity with SC/ST/OBC categories
 - Coherent recognition and targeted policy design
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2. Relevance

2.1 GS-1 (Society)

- Covers:
 - Caste and tribal marginalisation
 - Historical injustice rooted in the Criminal Tribes Act
- Links to:
 - Social exclusion
 - Persistent stigma
 - Identity politics and social stratification

2.2 GS-2 (Polity & Governance)

- Involves constitutional provisions:
 - Articles 14–16 (Equality and affirmative action)
 - Articles 341–342 (Caste and tribe notification)
 - Engages debates on:
 - Reservation design
 - Sub-classification
 - Creation of new constitutional Schedules
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3. Demography, Enumeration & Data Deficits

3.1 Census & Caste Enumeration Context

- The 2027 Census proposes caste enumeration for the first time since 1931.
- This creates a critical opportunity to:
 - Generate reliable data on DNTs/NTs/SNTs
 - Enable evidence-based policymaking
 - Improve budget allocation

- Strengthen outcome monitoring
- Demand for a separate Census column or code aims to:
 - Prevent statistical invisibility
 - Avoid misclassification
 - Reduce dilution within SC/ST/OBC categories
 - Enhance targeting and accountability

3.2 Scale of the Issue

- The Idate Commission (2017) identified:
 - Around 1,200 DNT/NT/SNT communities
 - 267 communities remained unclassified
- This highlights:
 - Large gaps in formal recognition
 - Incomplete welfare coverage
- Nomadic and semi-nomadic lifestyles complicate enumeration due to:
 - High mobility
 - Seasonal migration
 - Lack of fixed residential addresses
- These factors increase risks of:
 - Undercounting
 - Exclusion from public services

4. Constitutional, Legal & Institutional Dimensions

4.1 Equality & Affirmative Action Framework

- Articles 14–16 permit:
 - Reasonable classification
 - Reservation policies to address historical disadvantage
- A separate Schedule for DNTs/NTs/SNTs can be justified as:
 - A rational classification
 - Addressing stigma-based exclusion
 - Responding to mobility-linked deprivation
- Articles 341–342:
 - Empower the President to notify SC/ST lists



- Creating a new Schedule would require:
 - Constitutional amendment
 - Legislative clarity
 - Structured federal consultation
 - Clear articulation of benefit entitlements

4.2 Sub-classification Jurisprudence

- In August 2024, the Supreme Court of India allowed:
 - Sub-classification within SC/ST categories
- Objective:
 - Address “graded backwardness”
- Implication for DNTs/NTs/SNTs:
 - Strengthens case for internal prioritisation
 - Helps direct benefits toward the most deprived sub-groups

5. Socio-Economic Profile & Exclusion

5.1 Livelihood Insecurity

- Traditional occupations include:
 - Pastoralism
 - Itinerant trades
 - Performing arts
- These face:
 - Regulatory barriers
 - Declining markets
- Resulting impacts:
 - Shift to informal employment
 - Volatile and unpredictable incomes
 - Limited social security coverage

5.2 Documentation & Access Gaps

- Common deficiencies include lack of:
 - Caste or community certificates
 - Domicile proof
 - Identity documents

- Consequences:
 - Restricted access to reservations
 - Barriers to scholarships and housing
 - Exclusion from welfare schemes
 - Mobility and stigma further:
 - Discourage bureaucratic recognition
 - Reinforce administrative invisibility
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6. Welfare Architecture & Implementation Gaps

6.1 SEED Scheme Performance

- SEED scheme shows under-utilisation:
 - ₹69.3 crore spent
 - Against ₹200 crore planned (till Dec 2025)
- Indicates:
 - Design–implementation gaps
 - Low enrolment rates
 - Weak last-mile delivery

6.2 Federal Coordination Issues

- Challenges include:
 - State reluctance to issue DNT certificates
 - Inconsistent categorisation practices
 - These hinder:
 - Portability of benefits
 - Data standardisation
 - Convergence across education, skilling, and housing schemes
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7. Governance Challenges

7.1 Misclassification & Politics

- Allegations of misclassification reflect:
 - Political economy tensions around quota distribution
- Risks include:
 - Amalgamation into larger categories



- Crowding out of the most marginalised DNT households

7.2 Enumeration Methodology Risks

- Absence of:
 - Clear Census codes
 - Enumerator training
 - Standard operating protocols
- Leads to risks of:
 - Proxy reporting errors
 - Duplication
 - Omission
- Mobile populations require:
 - Adaptive listing methods
 - Robust verification strategies

8. Policy Options & Way Forward

8.1 Data & Identification

- Introduce:
 - Separate Census codes
 - Mobile-friendly enumeration tools
 - Post-enumeration surveys
- Integrate data with:
 - Civil registration systems
 - Targeted socio-economic surveys
- Objective:
 - Create triangulated, credible datasets

8.2 Legal-Institutional Design

- Consider:
 - A dedicated constitutional Schedule
 - Or a strong sub-classification framework
- Accompanied by:
 - Sunset clauses
 - Creamy-layer principles (where applicable)



- Safeguards against inter-group inequities

8.3 Delivery Reforms

- Standardise:
 - Certificate issuance procedures
- Ensure:
 - Portability through digital registries
- Converge SEED with:
 - Education schemes
 - Skilling programmes
 - Housing initiatives
- Prioritise:
 - Hostels
 - Transit housing
 - Mobile schools

8.4 Social Justice Lens

- Implement:
 - Anti-stigma awareness campaigns
 - Legal aid support
 - Community-led institutional mechanisms
- Outcomes include:
 - Reduced discrimination
 - Improved trust in administration
 - Higher uptake of entitlements

9. Conclusion

- DNTs/NTs/SNTs continue to face:
 - Deep-rooted historical stigma
 - Mobility-driven exclusion
 - Persistent data invisibility
- Credible enumeration and tailored affirmative action are essential for substantive equality.
- A balanced strategy combining:

- Recognition
- Sub-classification
- Delivery reform
- Can align constitutional morality with effective inclusion and ensure benefits reach the most deprived communities.

Bharat Taxi: Cooperative-Based Ride-Hailing Platform

1. Cooperative Model Basics

1.1 Nature of Cooperatives

- Cooperatives are enterprises that are:
 - Owned by members
 - Democratically governed
 - Based on the principle of *one-member-one-vote*
- Primary objective is:
 - Mutual benefit of members
 - Not profit maximisation
- Cooperatives receive constitutional recognition under the **97th Constitutional Amendment**, which promotes:
 - Autonomy of cooperatives
 - Democratic functioning
 - Professional management

1.2 Platform Cooperatives

- Platform cooperatives apply the cooperative model to the digital economy.
- Key features include:
 - Collective ownership of digital platforms by workers
 - Democratic control over platform rules and revenue sharing
- This model counters:
 - Monopoly power
 - Data concentration
 - Extractive practices of investor-driven ride-hailing aggregators

2. Policy Context

- The launch of Bharat Taxi aligns with:
 - Cooperative federalism
 - The vision of “*Sahakar se Samridhhi*”
 - Cooperatives are positioned as tools for:
 - Inclusive economic growth
 - Formalisation of informal service-sector work
 - Expansion of social security coverage in gig-based services
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3. Relevance

3.1 GS-2 (Governance)

- Linked to:
 - 97th Constitutional Amendment
 - Cooperative federalism
 - Regulation of digital aggregators under the Motor Vehicles Act

3.2 GS-3 (Economy)

- Relevant for:
 - Gig economy expansion
 - Platform-based markets
 - Labour formalisation
 - Alternative digital economy models

3.3 GS-3 (Employment)

- Addresses:
 - Social security provisions for gig and platform workers
 - Implementation of the Code on Social Security, 2020
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4. Economic Rationale

4.1 Correcting Platform Market Failures

- Ride-hailing platforms exhibit:
 - Strong network effects
 - Data monopolisation
- These enable:
 - High commission extraction



- Surge pricing practices
- Cooperative platforms can:
 - Redistribute value toward drivers
 - Reduce exploitative intermediation
- Driver-owners:
 - Internalise platform profits
 - Gain greater stability in net earnings
 - Improve bargaining power in fare-setting and policy decisions

4.2 Livelihood & Formalisation

- India's gig workforce is rapidly expanding:
 - Estimated at ~77 lakh workers in 2020–21 (NITI Aayog)
 - Expected to grow further
- This necessitates models that ensure:
 - Income security
 - Dispute resolution mechanisms
 - Predictable and dignified working conditions

5. Labour & Social Security Dimensions

5.1 Welfare Provisions

- Announced benefits for top *sarathis* include:
 - ₹5 lakh personal accident insurance
 - ₹5 lakh family health insurance
- These indicate a shift toward:
 - Portable social protection
 - Non-employer-linked welfare for gig workers
- Cooperative structures can facilitate:
 - Pooled insurance mechanisms
 - Easier access to credit
 - Collective grievance redressal
- This reduces dependence on individual contractual arrangements

5.2 Legal Framework

- The Code on Social Security, 2020:



- Formally recognises gig and platform workers
 - Cooperative platforms can operationalise the Code by:
 - Maintaining member registries
 - Enabling contribution mechanisms
 - Using digital payroll and transaction trails
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6. Governance & Regulatory Aspects

6.1 Federal & Urban Regulation

- Ride-hailing services are regulated through:
 - State Motor Vehicle Aggregator Guidelines
 - Issued under the Motor Vehicles Act, 1988
- Cooperative platforms must comply with:
 - State-level licensing requirements
 - Fare regulation norms
 - Safety and passenger protection protocols
- MoUs with public and private stakeholders suggest:
 - Multi-actor governance frameworks
 - Shared responsibilities for payments, insurance, and technology
 - Lower entry barriers for national expansion

6.2 Data Governance

- Cooperative ownership enables:
 - Data fiduciary practices
 - Use of trip and earnings data in members' interests
 - This aligns with:
 - Emerging data protection norms
 - Principles of consent and transparency
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7. Technology & Platform Design

7.1 Digital Infrastructure Needs

- To compete with incumbent platforms, cooperative apps require:
 - Scalable and reliable architecture
 - Interoperable digital payments (UPI)



- Real-time ride matching
- Robust safety and grievance features
- User experience and reliability remain critical for market acceptance

7.2 Open-Network Approaches

- Open-network models can:
 - Reduce vendor lock-in
 - Encourage innovation by startups
 - Enable collaboration with cooperative technology partners

8. Opportunities

8.1 Inclusive Growth

- Driver-centric ownership can:
 - Increase income share retention
 - Reduce predatory commission structures
 - Promote local entrepreneurship
- Benefits can extend beyond metros to:
 - Tier-2 and Tier-3 cities
 - Smaller towns

8.2 Consumer Trust

- Transparent pricing mechanisms can:
 - Reduce grievances over surge pricing
 - Address complaints related to cancellations
- Accountable governance structures enhance:
 - Rider confidence
 - Platform credibility

9. Challenges

9.1 Scale & Capital

- Competing with established platforms requires:
 - Significant capital investment
 - Funding for technology development
 - Marketing and incentive structures

- Cooperatives may face:
 - Limited access to capital
 - Slower collective decision-making processes

9.2 Governance Risks

- Collective governance may encounter:
 - Free-rider problems
 - Politicisation of decision-making
 - Managerial and professional capacity gaps
- These risks can affect:
 - Service quality
 - Operational responsiveness

10. Way Forward

10.1 Institutional Strengthening

- Balance democratic control with efficiency through:
 - Professional management teams
 - Regular audits
 - Capacity-building and education of members

10.2 Policy Support

- Government support can include:
 - Easier access to institutional credit
 - Viability-gap funding during early stages
 - Integration with urban mobility plans
 - Alignment with EV transitions to reduce operating costs

11. Conclusion

- Bharat Taxi represents:
 - A platform-cooperative experiment
 - An attempt to align gig economy expansion with social justice and worker ownership
- Its long-term success depends on:
 - Scalable and competitive technology



- Credible and transparent governance
- Supportive and enabling regulation
- If successful, it can:
 - Serve as a replicable model
 - Promote inclusive and worker-centric digital markets in India

NDMA Guidelines for Identification of Disaster Victims (DVI)

1. What is Disaster Victim Identification (DVI)?

1.1 Concept of DVI

- Disaster Victim Identification (DVI) is a **scientific and systematic process** used to establish the identity of deceased persons in **mass-fatality incidents**.
- It relies on a combination of:
 - Forensic methods
 - Medical examination
 - Legal procedures
- The objective is to ensure:
 - Accuracy of identification
 - Preservation of human dignity

1.2 International Standards

- DVI follows globally accepted protocols such as:
 - INTERPOL DVI standards
- The process involves:
 - Systematic recovery of remains
 - Proper documentation
 - Collection of ante-mortem data
 - Post-mortem examination
 - Scientific comparison and reconciliation
 - Formal legal certification of identity

2. Relevance

2.1 GS-2 (Polity & Governance)

- Highlights the statutory role of the **National Disaster Management Authority** under the Disaster Management Act, 2005.

2.2 GS-3 (Disaster Management)

- Strengthens disaster response and recovery mechanisms in situations involving large-scale fatalities.

3. Institutional & Legal Context in India

3.1 NDMA's Mandate

- NDMA was established under the Disaster Management Act, 2005.
- It is responsible for:
 - Framing national disaster management policies
 - Issuing guidelines and best practices
 - Coordinating preparedness, response, and recovery across Union and States
- The DVI guidelines are:
 - The first dedicated national framework for victim identification
 - Intended to replace earlier ad-hoc practices during:
 - Train accidents
 - Industrial disasters
 - Floods
 - Aviation crashes

3.2 Rights-Based Perspective

- Victim identification upholds **Article 21** (Right to life and dignity).
- It ensures:
 - Dignity to the deceased
 - Psychological closure for families
 - Facilitation of inheritance and legal claims
 - Issuance of lawful death certificates

4. Need for DVI Guidelines

4.1 Lessons from Recent Disasters

- Several high-fatality events exposed systemic gaps, including:
 - Aviation accidents



- Bridge collapses
- Floods
- Industrial explosions
- Identified challenges included:
 - Burnt or fragmented human remains
 - Missing or incomplete documentation
 - Data mismatches between agencies
- These issues led to:
 - Delays in identification
 - Slower compensation and relief processes

4.2 Complexity of Modern Disasters

- Increasing urban density and infrastructure concentration raise disaster impact.
- Climate-linked extreme events further increase mass-casualty risks.
- This necessitates:
 - Scalable forensic systems
 - Strong administrative coordination
 - Standardised identification protocols

5. Core Components of the DVI Process

5.1 Scientific Identification Methods

Primary Identifiers

- Considered the most reliable methods:
 - DNA profiling
 - Fingerprint analysis
 - Dental records
- Especially useful when remains are:
 - Decomposed
 - Burnt
 - Fragmented

Secondary Identifiers

- Used to support identification when primary data are insufficient:
 - Personal belongings



- Medical implants
- Scars and tattoos
- Anthropological characteristics

5.2 Data Management

- Structured collection of:
 - Ante-mortem data from families (medical records, photographs, biometrics)
 - Post-mortem forensic findings
- Enables:
 - Systematic reconciliation
 - Reduction of false matches
 - Transparent decision-making

6. Operational Framework

6.1 Multi-Agency Coordination

- DVI requires coordination among:
 - Police authorities
 - Forensic laboratories
 - Medical officers
 - Disaster response forces
 - Civil administration
- Operations function under:
 - A unified incident command system
- Clear role demarcation:
 - Prevents duplication
 - Avoids evidence contamination
 - Reduces procedural delays

6.2 Forensic Capacity

- Guidelines emphasise:
 - Availability of trained forensic professionals
 - Prepared mortuary infrastructure
 - Standardised documentation and reporting
- These measures improve:

- Speed of identification
- Scientific reliability

7. Ethical & Psychosocial Dimensions

7.1 Dignity and Cultural Sensitivity

- Protocols stress:
 - Respectful handling of remains
 - Adherence to religious and cultural practices
 - Transparent and empathetic communication with families
- These practices help maintain:
 - Public trust
 - Social legitimacy of disaster response

7.2 Family Assistance

- Structured family liaison systems provide:
 - Grief counselling
 - Legal guidance
 - Support in compensation procedures
- This reduces:
 - Psychological trauma
 - Spread of misinformation

8. Governance Significance

8.1 Standardisation & Accountability

- National DVI guidelines:
 - Create uniform procedures across States
 - Facilitate inter-state coordination
 - Strengthen legal defensibility of identification outcomes

8.2 Disaster Risk Governance

- DVI strengthens:
 - Response pillar
 - Recovery pillar
- Complements:



- Mitigation
- Preparedness strategies

9. Way Forward

9.1 Capacity Building

- Regular measures required include:
 - Training programmes
 - Mock drills
 - Investment in forensic infrastructure
- Enhances preparedness for:
 - Rare but high-impact disasters

9.2 Technology Integration

- Adoption of:
 - Digital databases
 - Biometric systems
 - Interoperable records
- Improves:
 - Speed of identification
 - Accuracy and traceability

10. Conclusion

- NDMA's DVI guidelines institutionalise a:
 - Scientific
 - Humane
 - Legally sound framework for managing mass fatalities
- Effective implementation:
 - Upholds dignity
 - Reinforces rule of law
 - Enhances citizen trust
- Ultimately makes disaster response:
 - More accountable
 - More compassionate

Carbon Capture, Utilisation and Storage (CCUS) & India's Net-Zero Pathway

1. What is CCUS?

1.1 Concept

- Carbon Capture, Utilisation and Storage (CCUS) involves:
 - Capturing CO₂ from industrial point sources or directly from air
 - Using it for industrial purposes **or**
 - Storing it in geological formations
- Objective:
 - Prevent release of CO₂ into the atmosphere

1.2 Role in Decarbonisation

- CCUS targets **hard-to-abate sectors** where:
 - Electrification
 - Renewable energy
- Alone cannot eliminate process emissions
- It acts as a:
 - Complement to decarbonisation
 - Not a substitute for clean energy transition

2. Relevance

2.1 GS-3 (Environment / Climate Change)

- Directly linked to:
 - India's net-zero commitments
 - Climate mitigation technologies
 - Long-term decarbonisation pathways

2.2 GS-3 (Economy)

- Relevant for:
 - Industrial competitiveness
 - Compliance with carbon border mechanisms such as CBAM

3. Global Context & Scale

3.1 Current Deployment

- Approximately 45 commercial CCUS facilities operate worldwide.
- Annual capture capacity is about:
 - 50 million tonnes of CO₂
- This is marginal compared to:
 - Global emissions exceeding 36 billion tonnes annually

3.2 Climate Imperative

- **Intergovernmental Panel on Climate Change** pathways indicate:
 - Net-zero by mid-century requires
 - Carbon removal technologies
 - Negative-emission solutions
- These must complement:
 - Rapid renewable deployment
 - Energy efficiency improvements

4. Why CCUS Matters for India

4.1 Emissions Profile

- India is the world's third-largest CO₂ emitter.
- Major contributors include:
 - Coal-based power generation
 - Steel, cement, and chemical industries
- Cement production emits CO₂ due to:
 - Calcination chemistry
- CCUS remains one of the few viable options for deep decarbonisation in cement.

4.2 Development–Climate Balance

- India's ongoing:
 - Infrastructure expansion
 - Urbanisation
- Implies sustained industrial activity.
- CCUS can:
 - Moderate emissions

- While supporting economic growth and energy security

5. Budgetary & Policy Push

5.1 Public Investment Signal

- Budget allocation of ₹20,000 crore over five years for CCUS.
- Indicates:
 - Strong state support
 - Commitment to pilot projects and scale-up
 - Development of domestic CCUS technology ecosystems

5.2 Institutional Ecosystem

- Indian PSUs and research institutions are already piloting CCUS.
- Adaptation is required for:
 - Indian coal characteristics
 - Industrial cluster configurations
 - Cost sensitivities

6. Technology Pathways

6.1 Capture Routes

- Major technologies include:
 - Post-combustion capture
 - Pre-combustion capture
 - Oxy-fuel combustion
- Solvent-based capture systems are currently:
 - Most commercially mature

6.2 Direct Air Capture (DAC)

- DAC captures CO₂ directly from ambient air.
- Current limitations include:
 - High energy consumption
 - High costs

6.3 Utilisation & Storage

- Captured CO₂ can be:
 - Used in enhanced oil recovery



- Converted into chemicals and fuels
 - Used in construction materials
 - Storage options include:
 - Depleted oil and gas fields
 - Saline aquifers
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7. Economic & Operational Challenges

7.1 Cost & Energy Penalty

- CCUS involves:
 - High capture costs
 - Transport and storage expenses
- Energy penalties:
 - Increase fuel consumption
 - Raise operational costs
- Financial viability often depends on:
 - Carbon pricing
 - Subsidies
 - Compliance-based markets

7.2 Infrastructure Needs

- Requires development of:
 - CO₂ pipeline networks
 - Storage site mapping
 - Long-term monitoring systems
 - Needs regulatory clarity and liability frameworks.
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8. Environmental & Governance Risks

8.1 Storage Integrity

- Potential risks include:
 - CO₂ leakage
 - Induced seismicity
 - Groundwater contamination
- Necessitates:



- Rigorous site selection
- Continuous monitoring
- Verification protocols

8.2 Moral Hazard Debate

- Over-reliance on CCUS may:
 - Delay renewable energy transition
 - Lock-in fossil-fuel infrastructure
- Policy must follow:
 - Avoid → Reduce → Remove hierarchy

9. Strategic Opportunities for India

9.1 Industrial Competitiveness

- CCUS can help exporters:
 - Reduce embedded carbon
 - Comply with CBAM-type regulations
- Particularly relevant for:
 - Steel
 - Cement sectors

9.2 Innovation & Employment

- Development of CCUS value chains can:
 - Boost R&D
 - Promote domestic manufacturing
 - Generate skilled green jobs
- Aligns with clean-technology industrial policy.

10. Way Forward

10.1 Phased Scale-Up

- Begin with:
 - Industrial clusters
 - Shared CO₂ hubs
 - Cement and steel pilots
- Gradually expand nationwide.

10.2 Policy Mix

- CCUS must be combined with:
 - Renewable energy
 - Energy efficiency
 - Green hydrogen
 - Afforestation
- Ensures portfolio-based decarbonisation.

11. Conclusion

- CCUS is a crucial enabler for decarbonising hard-to-abate sectors in India.
- However, it cannot replace:
 - Rapid clean-energy transitions
- Its effectiveness depends on:
 - Prudent deployment
 - Strong regulatory oversight
 - Cost reductions
- If managed well, CCUS can serve as a **bridge** toward deep decarbonisation rather than a distraction from it.

Amphibians Reach 9,000 Described Species

1. What are Amphibians?

1.1 Basic Characteristics

- Amphibians are **ectothermic vertebrates**, which include:
 - Frogs
 - Salamanders
 - Caecilians
- They possess **biphasic life cycles**, typically involving:
 - An aquatic larval stage
 - A terrestrial or semi-terrestrial adult stage
- This dual life cycle links:
 - Aquatic ecosystems
 - Terrestrial ecosystems

1.2 Ecological Sensitivity

- Amphibians have:
 - Permeable skin
 - Complex physiological and reproductive traits
- These features make them highly vulnerable to:
 - Pollution
 - Climate variability
 - Pathogens
 - Habitat modification
- As a result, amphibians function as:
 - Sensitive bioindicators of environmental quality
 - Early-warning species in conservation biology

2. Relevance

GS-3 (Environment)

- Relevant to:
 - Biodiversity loss
 - Global extinction crisis
 - Principles of conservation biology

3. Taxonomy & Species Discovery

3.1 Milestone in Described Diversity

- Global amphibian diversity has reached:
 - **9,000 formally described species**
- This marks a major taxonomic milestone reflecting:
 - Long-term scientific effort
 - Advances in molecular systematics
 - Expanded field exploration
- Recognised amphibian species numbers have:
 - More than doubled over the last 40 years
- Annual species descriptions peaked at:
 - Nearly 180 species per year during 2017–2020

- This indicates:
 - Active and ongoing biodiscovery

3.2 Undescribed Diversity

- Scientific estimates suggest:
 - Around 6,000–7,000 amphibian species remain undescribed
- This implies that:
 - Current scientific knowledge may cover only about half of existing amphibian diversity
- Undescribed species are concentrated mainly in:
 - Understudied tropical regions
- Species accumulation models project:
 - Total amphibian diversity of 15,000–16,000 species by 2100
- Projections assume:
 - Continued discovery efforts
 - Sustained taxonomic research

4. Order-wise Biodiversity Patterns

4.1 Anurans (Frogs & Toads)

- Account for approximately:
 - 88% of all known amphibian species
- Historically the most species-rich group due to:
 - Adaptive radiation across diverse microhabitats
 - Wide range of reproductive strategies
- Species discovery accelerated in the late 20th century as:
 - Molecular tools revealed cryptic species complexes

4.2 Salamanders

- Constitute about:
 - 9% of known amphibian species
- Diversity is concentrated in:
 - Temperate regions
 - Montane ecosystems
- Discovery trends mirror those of frogs, with:

- Recent increases driven by DNA-based taxonomy

4.3 Caecilians

- Represent only:
 - Around 3% of described amphibian species
- Actual diversity is likely underestimated because:
 - They are fossorial (burrowing) in nature
 - Surveys require labour-intensive excavation
 - Specialised sampling methods are needed

5. Biogeographic Distribution

5.1 Continental Richness

- Share of global amphibian diversity by continent:
 - South America: ~37%
 - Asia: ~23%
 - North America: ~17%
 - Africa: ~15%
 - Oceania: ~9%
 - Europe: ~1%
- High diversity in the Neotropics is driven by:
 - Tropical climates
 - Stable rainfall patterns
 - High habitat heterogeneity

5.2 Area-Corrected Diversity

- When species richness is adjusted for land area:
 - South America shows the highest amphibian density (~2.8 times expected)
 - Europe records the lowest (~0.2 times expected)
- These patterns reflect:
 - Historical glaciation events
 - Habitat simplification in temperate regions

6. Conservation Status & Threats

6.1 Most Threatened Vertebrates

- Amphibians are regarded as:
 - The most threatened vertebrate group globally
- Major drivers of decline include:
 - Habitat loss and fragmentation
 - Climate change
 - Invasive species
 - Chemical pollution
 - Infectious diseases such as chytridiomycosis
- A large proportion of species occur:
 - Outside formally protected areas
- This increases exposure to:
 - Land-use change
 - Infrastructure expansion

6.2 Funding Mismatch

- Amphibians receive:
 - Less than 2.8% of global conservation funding
- This is disproportionate to:
 - Their high extinction risk
- Indicates a structural gap in:
 - Global biodiversity finance allocation

7. Scientific & Policy Challenges

7.1 Taxonomy Crisis

- Global taxonomic capacity is declining due to:
 - Limited funding
 - Ageing expert workforce
 - Weak training pipelines for new taxonomists
- Consequences include:
 - Slower species description
 - Delays in Red List assessments

7.2 Data Deficiency

- Many newly described species lack:



- Ecological and population data
 - This delays:
 - Conservation prioritisation
 - Integration into protected-area planning
 - Evidence-based policy formulation
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8. Ecological Significance

8.1 Ecosystem Services

- Amphibians contribute to ecosystem functioning by:
 - Regulating insect populations
 - Supporting nutrient cycling between land and water
 - Serving as prey for higher trophic levels
- These roles help:
 - Stabilise food webs

8.2 Bioindicator Role

- Amphibian population declines signal:
 - Deteriorating water quality
 - Pesticide contamination
 - Climate-related stress
 - This makes them valuable for:
 - Environmental monitoring
 - Adaptive ecosystem management
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9. Way Forward

9.1 Strengthen Taxonomy & Research

- Invest in:
 - Molecular laboratories
 - Regional taxonomic expertise
 - Citizen science initiatives
- Objective:
 - Accelerate species discovery
 - Improve ecological documentation

9.2 Targeted Conservation

- Prioritise:
 - Biodiversity hotspots
 - Amphibian-rich landscapes
- Integrate amphibians into:
 - Land-use planning
- Scale up:
 - Disease surveillance
 - Habitat restoration efforts

9.3 Finance Alignment

- Increase biodiversity funding in proportion to:
 - Threat levels faced by amphibians
- Align funding strategies with:
 - Global Biodiversity Framework (Kunming–Montreal) targets

10. Conclusion

- The achievement of 9,000 described amphibian species reflects:
 - Significant scientific progress
 - Rapid advances in biodiversity discovery
- However, it also highlights:
 - An urgent conservation gap, as discovery is faster than protection
- Safeguarding amphibians requires:
 - Closing funding shortfalls
 - Addressing knowledge gaps
- Without timely action, many species risk:
 - Silent extinction among the world's most sensitive vertebrates

06th February 2026: Daily MCQs

Q1. With reference to Denotified, Nomadic and Semi-Nomadic Tribes (DNTs/NTs/SNTs), consider the following statements:

1. The Criminal Tribes Act was repealed in 1952, but its social consequences continued beyond repeal.
2. All DNT communities in India are uniformly classified under the Scheduled Castes category.

3. Mobility and lack of fixed residence complicate census enumeration of DNTs.

Which of the statements given above is/are correct?

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

Answer: A

Explanation:

- Statement 1 Correct – repeal did not erase stigma.
- Statement 2 Incorrect – DNTs are spread across SC/ST/OBC or unclassified.
- Statement 3 Correct – mobility is a key enumeration challenge.

Q2. With reference to Bharat Taxi and platform cooperatives, consider the following statements:

1. Platform cooperatives are owned and governed by workers rather than external investors.
2. Bharat Taxi operates outside the regulatory framework of the Motor Vehicles Act, 1988.
3. Cooperative platforms aim to reduce commission extraction common in investor-led aggregators.

Which of the statements given above is/are correct?

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

Answer: B

Explanation:

- Statement 1 Correct – worker ownership is core feature.
- Statement 2 Incorrect – ride-hailing remains regulated by State MV Aggregator Rules.
- Statement 3 Correct – value redistribution is a key rationale.

Q3. With reference to Asiatic cheetah rewilding, consider the following statements:

1. The Asiatic cheetah is currently found only in Iran.
2. Genetic similarity alone is sufficient to justify translocation of cheetahs across continents.

3. Open habitats with low predator density are essential for cheetah survival.

Which of the statements given above is/are correct?

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

Answer: A

Explanation:

- Statement 1 Correct – ~50 individuals survive in Iran.
- Statement 2 Incorrect – ecological feasibility is equally critical.
- Statement 3 Correct – cheetahs avoid dense forests and apex predators.

Q4. With reference to NDMA Guidelines for Disaster Victim Identification (DVI), consider the following statements:

1. Disaster Victim Identification follows internationally accepted forensic protocols.
2. DVI is relevant only for natural disasters and not for industrial or transport accidents.
3. Victim identification has constitutional relevance under Article 21.

Which of the statements given above is/are correct?

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

Answer: B

Explanation:

- Statement 1 Correct – INTERPOL standards are followed.
- Statement 2 Incorrect – applies to all mass-fatality events.
- Statement 3 Correct – dignity of the dead is part of Article 21.

Q5. With reference to Carbon Capture, Utilisation and Storage (CCUS), consider the following statements:

1. CCUS is particularly relevant for industries where emissions arise from chemical processes.
2. CCUS completely eliminates the need for renewable energy transition.
3. High capital cost and energy penalties limit large-scale CCUS deployment.

Which of the statements given above is/are correct?

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

Answer: B

Explanation:

- Statement 1 Correct – cement calcination is key example.
- Statement 2 Incorrect – CCUS complements, not replaces, renewables.
- Statement 3 Correct – cost and energy penalty are major barriers.

Q6. With reference to Amphibians and biodiversity, consider the following statements:

1. Amphibians are effective bioindicators due to their permeable skin and biphasic life cycle.
2. Amphibians receive conservation funding proportional to their extinction risk.
3. A large proportion of amphibian species occur outside protected areas.

Which of the statements given above is/are correct?

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

Answer: B

Explanation:

- Statement 1 Correct – physiological sensitivity.
- Statement 2 Incorrect – they receive <2.8% of funding.
- Statement 3 Correct – increases vulnerability.

Q7. With reference to amphibian species discovery, consider the following statements:

1. The number of described amphibian species has more than doubled in the last four decades.
2. Most undiscovered amphibian species are expected to be in temperate regions.
3. Molecular taxonomy has significantly increased discovery of cryptic species.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 1 and 3 only

C. 2 and 3 only
D. 1, 2 and 3

Answer: B

Explanation:

- Statement 1 Correct – major taxonomic expansion.
- Statement 2 Incorrect – tropical regions dominate undiscovered diversity.
- Statement 3 Correct – DNA tools revealed cryptic species.

Mains: Identification of disaster victims is not merely a technical exercise but a moral obligation of the State. Discuss this statement in the context of Disaster Victim Identification (DVI), focusing on dignity, accountability, and trust in public institutions.
(150 words)

