# Child Adoption in India

[Source: TH](#)

Why in News?

The **Central Adoption Resource Authority (CARA)** has been unable to **bridge this gap between the number of children available for adoptio**n and the number of **prospective parents**, resulting in prolonged delays in the adoption process.

- The waiting period for parents to receive an adoption referral has risen from **3 years in 2022 to approximately 3.5 years in 2025.**

What is the Status of Child Adoption in India?

- **State of Child Adoption in India:** In 2024–25, **4,515 children were adopted**, the highest since 2015.
    - Of these, **4,155 were domestic adoptions**, reflecting a growing acceptance of legal adoption in the country.

Child Adoption Statistics
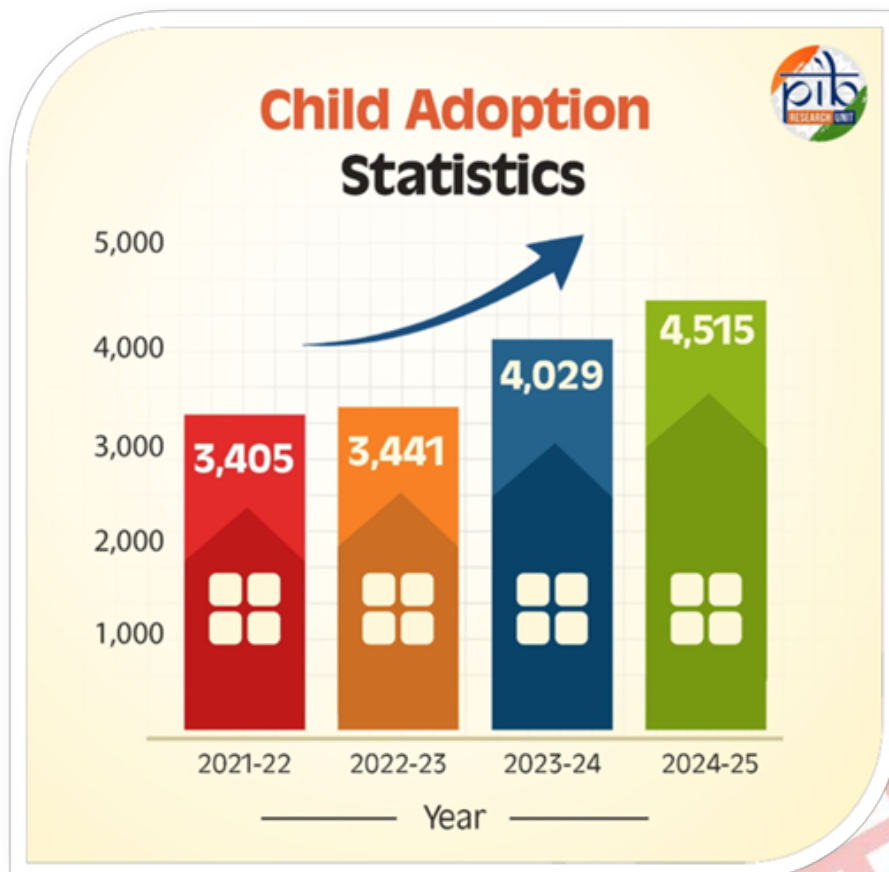
- **Nodal Central Agency:** The Central Adoption Resource Authority (CARA), established under the **Juvenile Justice Act, 2015** is responsible for overseeing **both domestic and international adoptions.**
- **State/UT Responsibility:** The implementation of the Juvenile Justice Act, 2015 at the state and Union Territory level is carried out by various agencies, including:
    - State Adoption Resource Agencies (SARA)
    - Local Child Welfare Committees
    - District Child Protection Units (DCPUs)
- **Legal Framework:**
    - **Hindu Adoption and Maintenance Act (HAMA), 1956: HAMA, 1956** permits **legal adoption for individuals from the Hindu, Buddhist, Jain, and Sikh** communities.
        - Notably, **adoptions under HAMA do not require registration with CARA**.
    - **Juvenile Justice (Care and Protection of Children) Act, 2015:** It governs **adoptions for all citizens** in India, **regardless of religion**.
        - Under this Act, prospective adoptive parents are required to **register on CARA's portal**, following which a **Specialised Adoption Agency (SAA)** conducts a **Home Study Report (HSR).**
        - If found eligible, they are **matched with a child** who has been **declared legally free for adoption**.
- **International Framework: The Hague Convention on Protection of Children and Cooperation in Respect of Intercountry Adoption (1993**) ensures that international adoptions are carried out in an ethical, legal, and transparent manner.

Central Adoption Resource Authority (CARA)

- **About**: **CARA** is a **statutory & autonomous body under the Ministry of Women & Child Development**.
- **Objectives & Functions:**
    - It facilitates adoption of **orphaned, abandoned, and surrendered children** through its

recognised adoption agencies.
- It **monitors and regulates domestic adoptions** under the [**Juvenile Justice (Care and Protection of Children) Act, 2015**](#).
- It also serves as the **Central Authority** for **inter-country adoptions** under the [**Hague Convention on Intercountry Adoption, 1993**](#), which **India ratified in 2003.**

What are the Key Challenges Hindering the Child Adoption Process in India?

- **Widening Demand-Supply Gap:** There is a **significant gap** between **Prospective Adoptive Parents (PAPs)** and **adoptable children (13:1)**, with only a small fraction of children eligible for adoption due to issues like **intact parental rights and lack of legal free status.**
  - Adoption delays have increased from **1 year in 2017 to 3.5 years in 2025,** leading to concerns over **illegal or informal adoptions**, as highlighted by a Parliamentary Committee.
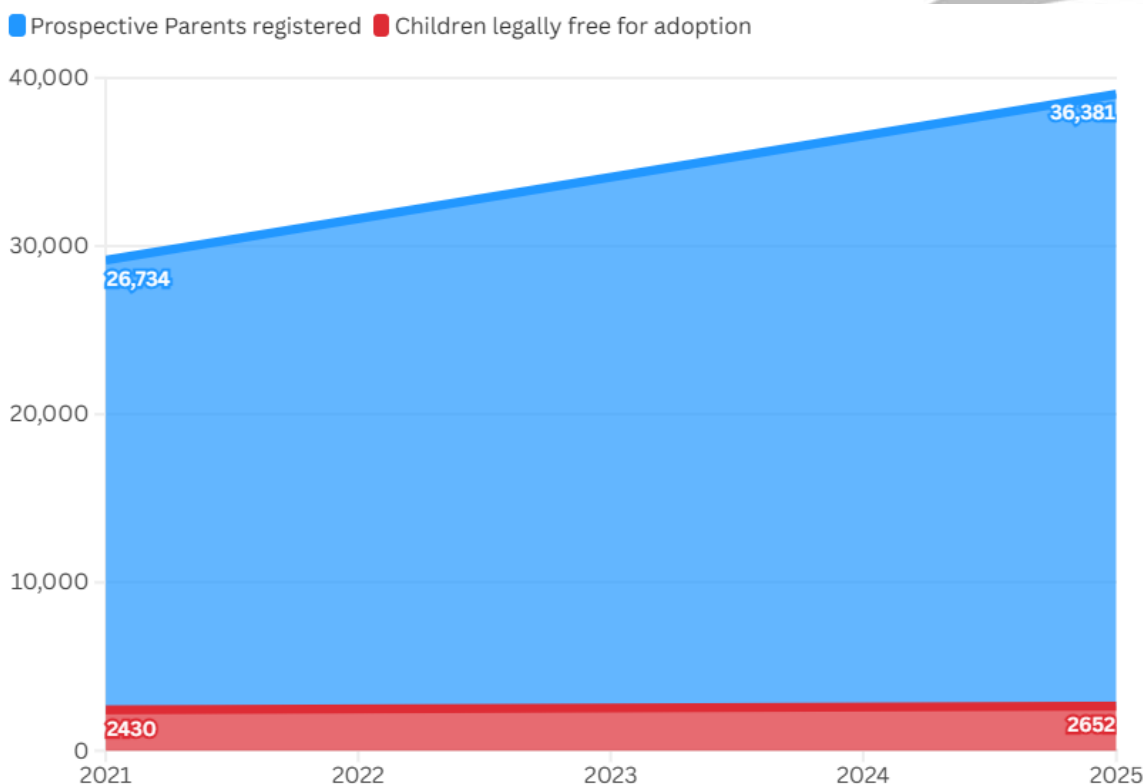
- **Structural & Legal Hurdles:** [**JJ Act, 2021**](#) faces **weak implementation, poor coordination among agencies, inadequate training,** and **legal hurdles** like **absentee guardians** causing delays in adoption.
  - The [**2022 Standing Committee**](#) flagged inconsistencies between **HAMA (simpler but lacks transparency)** and the **JJ Act (regulated but slower)**, raising concerns over trafficking and procedural delays.
- **Mismatch in Age & Parental Preference:** Around **34% of adoptable children** are **above 14 years**, while most Indian parents prefer **infants (0–2 years)**. This **preference bias** results in older and special needs children being overlooked.
  - As per **CARA data (2024)**, **60% of adopted children are female**, and **80% belong to the 0–2 age group**, reflecting a strong parental preference for younger children.
- **High Rate of Child Returns:** Between 2017–2019, there was a **rise in adoptive parents returning children**, **60% were girls**, **24% had special needs**, and many were **over 6 years**

old.
  - ○ This reflects **challenges in adjusting to adoptive homes** due to **inadequate counselling and preparation.**
- ▪ **LGBTQ+ Adoption & Legal Barriers:** Due to **traditional family norms** and lack of **legal recognition**, **LGBTQ+** individuals and couples face **exclusion from formal adoption** systems. This has led to a **rise in informal or illegal adoptions** within the queer community.

Eligibility Criteria for Prospective Adoptive Parents (Regulation 5 of Adoption Regulation, 2022)

Adoption Eligibility Criteria in India

Who Can Adopt	Who Cannot Adopt
Married Couples:	• Convicted of an offense involving moral turpitude or punishable under IPC or other laws.
• Must be married and living together for at least two years.	• Found guilty of child abuse or cruelty towards a child.
• Age difference with the child should not exceed 45 years.	• Found guilty of abandoning or neglecting a child.
• Should not have more than two living biological children.	• Undergoing treatment for any life-threatening or infectious disease.
Single Parents:	• Declared of unsound mind by a competent court.
• Must be above 30 years of age.	• If one spouse in a couple has been declared of unsound mind or is undergoing treatment for any life-threatening or infectious disease.
General Eligibility:	• Divorced or legally separated couples.
• Anyone, regardless of gender or marital status, can adopt.	• Individuals under 21 years of age, married or single
• Must meet other criteria like age, financial stability, and ability to provide a supportive home.	• Single male cannot adopt a girl child.

Measures Taken to Improve Adoption and Foster Care in India

- ▪ **Child Pool Expansion:** CARA added **children from Child Care Institutions (CCIs)** to the **legal adoption pool** and classified them under **5 categories (Orphan, Abandoned, Surrendered, No Visitation, Unfit Guardianship)** as per Supreme Court directions (**SC, in 2023** while hearing a petition filed by a NGO)
- ▪ **Digital Reforms:** Upgraded **CARINGS portal** with **Foster Care modules** and new workflows for **relative/step-parent adoptions,** reducing processing time to **3–4 months**.
- ▪ **Mandatory Counselling (2025):** CARA introduced **structured counselling** at **pre-, during-, and post-adoption stages**, with qualified counsellors to support **adoptive families and**

children.

What Steps Can Be Taken to Strengthen and Streamline the Adoption System in India?

- **Child-Centric Approach:** Prioritize **children's right to family, care, and protection** by shifting from **parent-centric to child-centric adoption policies**, aligned with the **UNCRC**.
- **Simplify Adoption Procedures:** Streamline **JJ Act, 2021** and **Adoption Regulations, 2022** with **time-bound clearances**, **digital CCI–CARA integration,** and **dedicated adoption officers.**
- **Strengthen Psychosocial Support:** Ensure **proper implementation of CARA's counselling mandate** with trained professionals to **minimise disruptions and support family bonding.**
- **Promote Awareness & Destigmatise Adoption:** Launch **IIEC (Information, Education, and Communication) campaigns** to counter stigma around **non-biological parenthood,** and encourage adoption of older and special needs children.

> **Drishti Mains Question:**
>
> Examine the social attitudes towards adoption in India. How can public awareness and institutional reforms together build a more adoption-friendly culture?

Wind Energy Expansion and Biodiversity Conservation

Source: TH

Why in News?

India's rapid expansion of wind energy, reaching **51.3 GW by mid-2025**, has raised concerns about its **environmental impact,** particularly on bird populations.

- A study by the **Wildlife Institute of India (WII)** highlighted **high bird mortality at wind farms** in the **Thar Desert**, home to **critically endangered species**.
- Additionally, as **India expands offshore wind energy,** concerns grow over impacts on marine biodiversity and inadequate environmental assessments.

What are the Concerns Regarding Wind Turbines' Impact on Avian Populations and Offshore Wind Energy?

Wind Turbines and Avian Populations

- **High Bird Deaths Documented:** The WII study in the Thar Desert found 124 bird carcasses near 90 wind turbines, estimating 4,464 bird deaths per 1,000 sq. km annually.
  - **Great Indian Bustard** and **Raptors (Birds of prey),** are most affected due to their soaring flight and low reproduction rates, making them highly vulnerable to wind turbine collisions.
  - The Thar Desert, part of the **Central Asian Flyway,** sees significant migratory bird traffic, adding to the vulnerability.
- **Power Lines:** The study also accounted for bird deaths from collisions with power lines connected to wind farms, compounding the issue, which were not factored into earlier studies.
- **Lack of Environmental Oversight:** Onshore wind farms are not required to

conduct **Environmental Impact Assessments (EIAs)** in India, leading to projects being set up in ecologically sensitive zones without proper study.

Offshore Wind Energy Exploration

- **Threat to Marine Biodiversity:** Offshore wind farms can **disturb marine habitats,** especially **sensitive breeding grounds** for fish, turtles, and marine mammals.
  - Installation activities like **piling and dredging** generate underwater noise, affecting **echolocation and navigation** of species like dolphins and whales.
  - Maintenance of turbines and supporting vessels carries the **risk of fuel and lubricant spills**, potentially harming marine life.
  - Offshore wind projects **lack comprehensive studies** on their impact on marine ecosystems. While **offshore projects require EIAs,** many reports are **rapid** and may overlook critical ecological factors.
    - The rapid EIA for the **Gulf of Khambhat** offshore wind farm noted dolphins, sharks, and a reptile in the area, downplaying operational impacts.
- **Technological and Logistical Challenges:** India currently lacks domestic expertise and proven technology for deep-water installations. Harsh marine conditions can affect turbine durability and maintenance schedules.

How Can India Balance Wind Energy Development with Biodiversity Conservation??

- **Site Selection**: Use tools like **Avian Sensitivity Tool for Energy Planning (AVISTEP) (an open-source tool by Birdlife International)** to identify areas with minimal bird impact.
  - AVISTEP categorizes India into avian sensitivity levels—'low', 'moderate', 'high', and 'very high' but ground-level studies are essential before installing wind farms.
- **Zoning and Spatial Planning of Renewable Projects:** Identify and map **"no-go" zones** for renewable energy infrastructure using long-term field data, satellite tracking, and conservation research.
  - Establish **designated power corridors** to avoid fragmented infrastructure across GIB habitats.
  - The **Supreme Court-appointed Expert Committee** has recommended demarcating **priority, and potential conservation areas** for targeted protection.
- **Support Conservation Breeding and Species Revival:** Implement the **"jump-start" method** by **incubating late-stage eggs** of GIB from Rajasthan and transferring the chicks to safe places to rebuild local populations.
- **Technological Solutions**: Painting one turbine blade to increase visibility and prevent bird strikes, along with implementing shutdown strategies during migration periods, are key mitigation measures.
- **EIA Mandates**: Require **EIAs** for all onshore wind farms to assess ecological risks.
- **Integration of Wind, Solar, and BESS Systems:** Combining Wind with Solar and Storage: India should focus on integrating wind energy with solar power and **battery energy storage systems (BESS)** to ensure round-the-clock power supply and grid stability.
- **Monitoring & Research**: Conduct surveys and long-term studies to track wind energy's impact on wildlife, especially in sensitive areas like the **Thar Desert**.

Avoiding wildlife collisions with wind turbines

① **Curtailment**, which means shutting off turbines at lower wind speeds, is a very effective method to prevent bat collisions

② **Ultrasonic deterrents** emit disorienting noises to ward off bats, which can be a useful strategy for some species

③ **Painting the blades black** can help make them more visible to birds that would otherwise not see them due to motion blur

④ **Video surveillance** can be used to detect incoming bird life, and either turn the blades off or emit acoustic deterrents

⑤ **Tweaking the space between the ground and the blades** can create more space for birds to fly through underneath
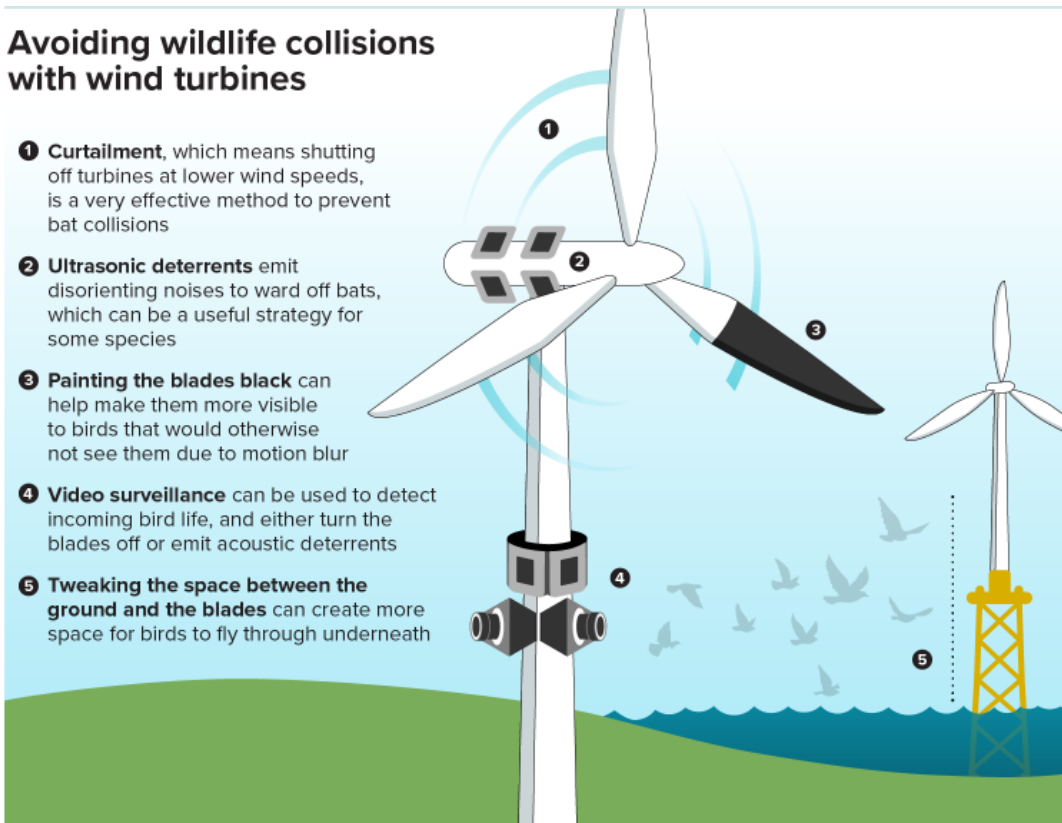
Wind Power

- As of June 2025, Wind energy contributed **21.78% to India's total renewable energy generation.**
- As per **International Renewable Energy Agency (IRENA) Renewable Energy Statistics 2025**, India ranks 4th globally in Wind Power.
- India's wind energy capacity has surged from approx. **21 GW in 2014 to 51.3 GW by June 2025,** more than doubling in a decade.
- According to the **National Institute of Wind Energy,** India has a massive wind potential of **1164 GW at 150 meters above ground level,** highlighting the vast untapped resources for further growth in the wind energy sector.

Drishti Mains Question:

"India's rapid wind energy expansion has come at an ecological cost." Discuss.

AI in Public Service Delivery

Source: IE

Why in News?

India's **first Artificial intelligence (AI) powered Anganwadi** was launched in Waddhamna village, Nagpur district, Maharashtra.

- This pilot project is being hailed as a major leap in bridging the **rural-urban digital divide** in early childhood education, marking a significant advancement in **public service delivery.**

How can AI Aid in Public Service Delivery?

- **Early Child Care:** Maharashtra's AI-enabled Anganwadi integrates with the **Poshan Tracker** to monitor children's nutrition and health in real time.
    - Anganwadi workers upload meal photos for **instant dietary analysis,** enabling predictive alerts on **malnutrition risks.**
    - AI integration facilitates targeted delivery of supplementary nutrition under **Integrated Child Development Scheme.**
    - Children now learn through **virtual reality (VR)** experiences, interactive stories, and drawing on smart boards.
- **Smarter and Inclusive Governance:** AI is helping the government move from a one-size-fits-all approach to tailored, real-time service delivery.
    - **BharatGen**, a **government-funded multimodal AI model,** aims to enhance public service delivery in language, speech, and computer vision, catering to India's diverse population.
    - At **Mahakumbh 2025,** AI tools were used to **manage railway passenger flow,** optimize **crowd dispersal,** and power multilingual chatbots, setting a global benchmark in tech-driven mass event management.
- **Efficient and Targeted Welfare Delivery:** AI models trained on high-quality anonymised datasets (via the **IndiaAI Dataset Platform**) can analyse patterns in poverty, health, education, etc.
    - This helps policymakers identify gaps, predict needs, and deliver targeted benefits.
- **Accessibility**: Tools like **Digital India BHASHINI**, **Sarvam-1** break language barriers, making services available in multiple Indian languages, and enhancing inclusivity for differently-abled individuals.
- **Law Enforcement:** AI enables predictive policing, real-time surveillance, and cyber threat detection.
    - Delhi Police uses an AI-driven Facial Recognition System (FRS) to solve crimes and find missing persons.
    - AI accelerates case research, aids in drafting judgments, and helps reduce backlogs, improving justice delivery and legal efficiency.
        - For example, **SUPACE (Supreme Court Portal for Assistance in Court's Efficiency)** helps judges with legal research.
- **Optimizing Agriculture and Ensuring Food Security:** **Project Farm Vibes,** developed by **Microsoft Research** and the Agricultural Development Trust, Baramati, is transforming farming with data-driven insights.
    - It uses AI tools to analyze field conditions, optimize irrigation, and provide real-time, localized farming recommendations.
        - The project has led to a **40% increase in crop production, reduced water and fertilizer usage, and minimized post-harvest wastage.**
    - The AI in agriculture market is projected to grow from USD 1.7 billion in 2023 to USD 4.7 billion by 2028, boosting economic sustainability in farming.
- **Tackling Climate Change and Environmental Monitoring:** AI models support flood prediction, air quality tracking, and climate modelling.
    - Platforms like **Google DeepMind's GenCast** enable citizens to contribute localized weather data, improving real-time predictions.
    - **Mission Mausam**, which aims to make India **"Weather Ready" and "Climate Smart,"** uses AI and satellite data from the **Indian Meteorological Department** and flood monitoring systems to improve **disaster preparedness and flood forecasting.**
        - The **Mausam App** delivers weather updates and warnings in a user-friendly format.
- **Education and Personalized Learning:** AI-powered EdTech enables adaptive learning based on student needs. AI integration being explored in the government's **Digital Infrastructure for Knowledge Sharing (DIKSHA) platform.**
    - In **Tripura**, IAS officer Chandni Chandran launched an **AI-based initiative** to tackle a 70% school dropout rate. Students' career dreams were turned into AI-generated images and

displayed on **"Aspirational Boards"** in classrooms.
- The move has boosted motivation and emotional engagement, with plans to expand it to more schools.
- **Strengthening Urban Governance and Smart Cities:** AI improves traffic flow, waste management, and public service delivery.Bengaluru's **AI-driven Adaptive Traffic Control System (ATCS)** cuts congestion at junctions.
- **Improving Financial Governance and Taxation:** AI helps detect fraud, prevent subsidy leakages, and automate auditing.
  - **MuleHunter.ai,** developed by RBI, detects mule accounts used in financial scams.
- **Better Healthcare**: **Centres of Excellence (CoEs)** in AI for healthcare are developing solutions like disease prediction, which will holistically benefit the health of rural and urban populations across the country.

Artificial intelligence(AI)

AI is the simulation of human intelligence in machines programmed to think and learn like humans, capable of problem-solving, reasoning, and adapting to new information.

AI Timeline - Major Milestones

1950s — Turing Test Proposed; First AI Programs Developed

1956 — Dartmouth Conference Coins "Artificial Intelligence"

1960s — Eliza Chatbot Created; Early Neural Networks Emerge

1996 — Deep Blue - a Chess-Playing Program

2012 — Deep Learning Breakthrough in Image Recognition

2014 — Generative Adversarial Networks (GANs) Introduced

2020 — GPT-3 Demonstrates Advanced Language Generation

2022 — Chatgpt Launches, Bringing Conversational AI to Masses

2023 — Generative AI Boom; Major Tech Companies Release AI Models

KEY COMPONENTS OF AI

- Machine Learning
- Deep Learning
- Cognitive Computing
- Neural Network
- Computer Vision
- Natural Language Processing (NLP)

Drishti IAS

Applications of AI

- **Healthcare:** Personalised medicine
- **Finance:** Algorithmic trading
- **Transportation:** Autonomous vehicles
- **Marketing & Customer Service:** Targeted advertising, chatbots
- **Education:** Adaptive learning systems, personalised tutoring
- **Agriculture:** Crop monitoring
- **Cybersecurity:** Threat detection
- **Energy:** Smart grid management, consumption forecasting

Concerns

- Deepfakes & misinformation
- Privacy issues
- Algorithmic bias
- Data ownership & liability issue
- Automation & job displacement
- Ethical decision-making complexes

Regulating AI

- **Global Partnership on AI (GPAI)** launched in 2020
- **Bletchley Declaration (2023):** Enhance Global Collaboration on AI
- **G20 New Delhi Leaders' Declaration (2023):** Harnessing AI responsibly for good and for all
- **Hiroshima AI Process (2023)** by G7

India and AI

- **National Strategy For AI 2018**
- **AI For All:** Self-learning online program
- **GPAI Summit 2023** hosted by India
- **IndiaAI Mission 2024**
- **US India Artificial Intelligence (USIAI) Initiative:** AI cooperation in critical areas
- **AIRAWAT** (AI Research, Analytics and Knowledge Assimilation Platform): Supercomputer
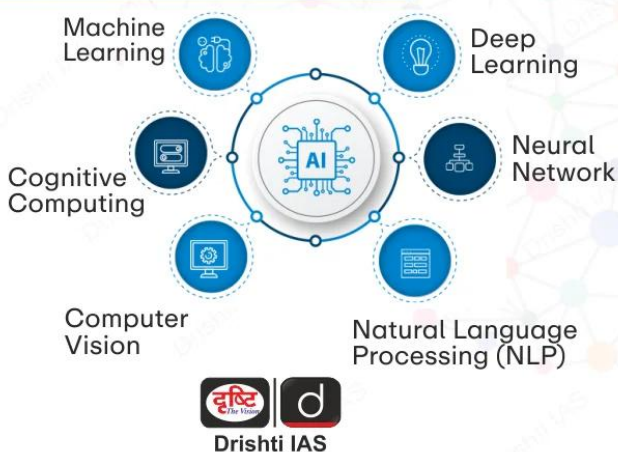
Conclusion

AI's integration into India's public service delivery enhances **efficiency, inclusivity, and accessibility, improving governance.** Through initiatives like the **IndiaAI Mission**, India is advancing towards a **more**

transparent, citizen-centric system, positioning itself as a global leader in AI-powered governance.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Mains

Q. e-governance, as a critical tool of governance, has ushered in effectiveness, transparency and accountability in governments. What inadequacies hamper the enhancement of these features? **(2023)**

Q. E-Governance is not only about utilization of the power of new technology, but also much about critical importance of the 'use value' of information Explain. **(2018)**

Skill Impact Bonds

Source: TOI

Why in News?

As India strives for **economic growth** and **inclusive development**, innovative models like the **Skill Impact Bond (SIB)** are emerging to address **key challenges in skilling and employment**, especially among **marginalized communities and women**.
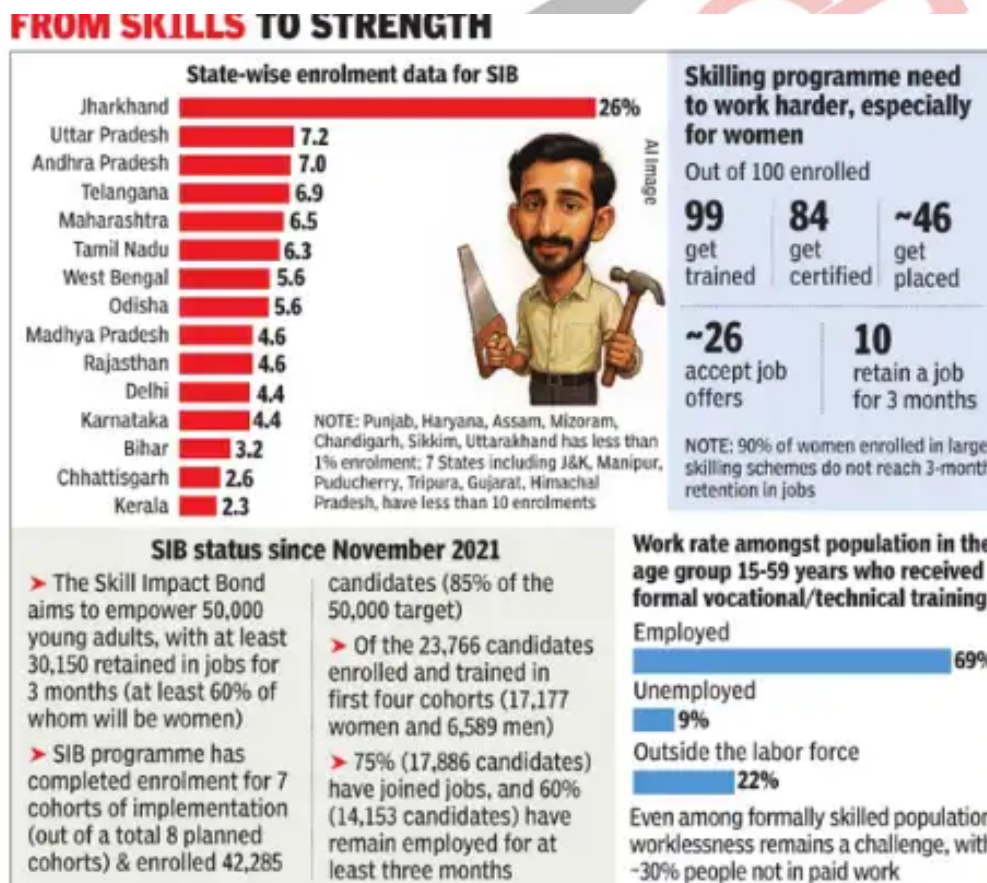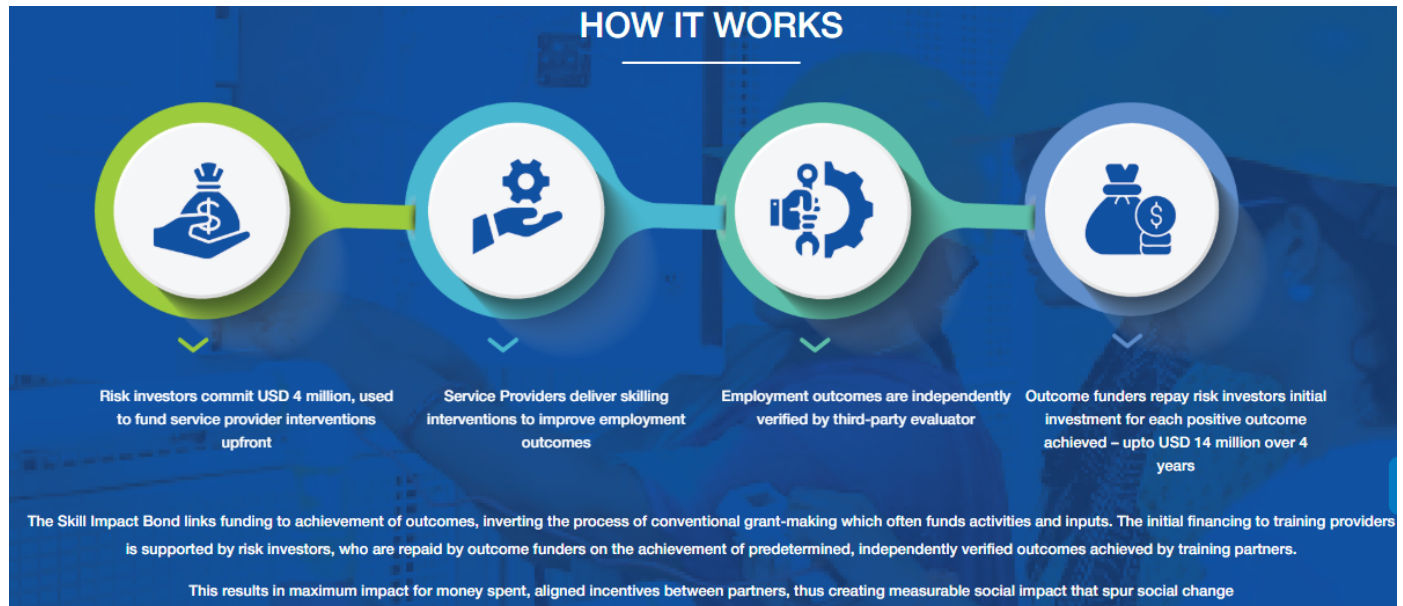
- The **Skill Impact Bond (SIB) 2025 report** reveals that Jharkhand has the highest share of enrolled trainees, with women continuing to dominate enrolment in the apparel sector; however, gender-based pay disparities persist, despite improvements in female retention and placement rates.

What is the Skill Impact Bond (SIB)?

- **About:** SIB is India's first **Development Impact Bond (DIB),** launched in **2021** focused on **skills training and job placement.**
    - It shifts focus from **enrollment to outcomes** like placement and retention. It uses **private-sector funding** to address social and development challenges.
- **Objective:** To skill **50,000 youth**, with **60% women**, especially from **marginalised and rural backgrounds**, and ensure **at least 30,150 retain jobs for 3+ months**.
- **Key Highlights of the SIB Report 2025:**
    - **Top States:** Jharkhand (27%), UP, Maharashtra, Odisha, and Telangana had highest enrollments.
    - **Popular Sectors:**
        - **Women:** Mainly trained in apparel, with rising numbers in retail, **IT-enabled services (ITeS),** and **BFSI (banking, financial services, and insurance)**
        - **Men:** Moving from construction to sectors like automotive and telecom.
    - **Women-Led Skilling:** Over 72% of 23,700+ trainees were women from vulnerable backgrounds. Female certification rate reached 92%, and job placement was 81%. Self-employment among women rose from 6% to 14%.
    - **Better Job Outcomes:** 75% of all trainees got jobs, and 60% stayed employed for over 3

months—above national average. Female employment increased from 35% to 48%.
- ◦ **Gender Pay Gap:** Men earned more (Rs 12,400–15,700) than women (Rs 11,500–13,000) despite similar job outcomes.

HOW IT WORKS

Risk investors commit USD 4 million, used to fund service provider interventions upfront

Service Providers deliver skilling interventions to improve employment outcomes

Employment outcomes are independently verified by third-party evaluator

Outcome funders repay risk investors initial investment for each positive outcome achieved – upto USD 14 million over 4 years

The Skill Impact Bond links funding to achievement of outcomes, inverting the process of conventional grant-making which often funds activities and inputs. The initial financing to training providers is supported by risk investors, who are repaid by outcome funders on the achievement of predetermined, independently verified outcomes achieved by training partners.

This results in maximum impact for money spent, aligned incentives between partners, thus creating measurable social impact that spur social change

FROM SKILLS TO STRENGTH

State-wise enrolment data for SIB

Jharkhand	26%
Uttar Pradesh	7.2
Andhra Pradesh	7.0
Telangana	6.9
Maharashtra	6.5
Tamil Nadu	6.3
West Bengal	5.6
Odisha	5.6
Madhya Pradesh	4.6
Rajasthan	4.6
Delhi	4.4
Karnataka	4.4
Bihar	3.2
Chhattisgarh	2.6
Kerala	2.3

NOTE: Punjab, Haryana, Assam, Mizoram, Chandigarh, Sikkim, Uttarakhand has less than 1% enrolment; 7 States including J&K, Manipur, Puducherry, Tripura, Gujarat, Himachal Pradesh, have less than 10 enrolments

Skilling programme need to work harder, especially for women

Out of 100 enrolled

| 99 get trained | 84 get certified | ~46 get placed |

| ~26 accept job offers | 10 retain a job for 3 months |

NOTE: 90% of women enrolled in large skilling schemes do not reach 3-month retention in jobs

SIB status since November 2021

➤ The Skill Impact Bond aims to empower 50,000 young adults, with at least 30,150 retained in jobs for 3 months (at least 60% of whom will be women)

➤ SIB programme has completed enrolment for 7 cohorts of implementation (out of a total 8 planned cohorts) & enrolled 42,285

candidates (85% of the 50,000 target)

➤ Of the 23,766 candidates enrolled and trained in first four cohorts (17,177 women and 6,589 men)

➤ 75% (17,886 candidates) have joined jobs, and 60% (14,153 candidates) have remain employed for at least three months

Work rate amongst population in the age group 15-59 years who received formal vocational/technical training

Employed — 69%
Unemployed — 9%
Outside the labor force — 22%

Even among formally skilled population, worklessness remains a challenge, with ~30% people not in paid work

What is the Status of Skill Development in India?

- **Low Employability:** As per **India Skills Report 2024,** only **51.25%** of assessed young people in India possessed the **necessary skills to be employable.**
- **Low Formal Training:** As per the **Economic Survey 2023-24**, only **4.4% of youth** are formally skilled, and **16.6%** are informally trained.
- **Skill Gaps in Industry:** According to ManpowerGroup's (US-based MNC) 2025 Global Talent Shortage Survey, **75% of global employer**s are struggling to **find skilled workers**.

- India has a **60%-73% demand-supply gap** in key roles such as **ML engineer, data scientist, DevOps engineer, and data architect.**
  - **Underemployment:** As per **Economic Survey 2024–25**, over **50% of graduates** and **44% of postgraduates** are in **low-skill jobs**, indicating inefficient workforce utilisation.
  - **Limited Women Participation:** In India, women constitute **40% of STEM** students but only **14-27%** of **STEM professionals**, according to the **Ministry of Science and Technology**.

What are the Key Challenges Hindering Skill Development in India?

- **Inconsistent Quality & Infrastructure Gaps**: Many **ITIs**, especially in **rural areas,** lack **trained instructors and modern equipment**, leading to **low training quality and employability.**
- **Industry Disconnect & Skill Mismatch**: Skilling schemes like **PMKVY & Skill India** focus on **syllabus completion** over practical relevance.
  - Key sectors like **AI, cybersecurity, and green energy are often underserved.**
- **Low Private Sector Role & Rural Exclusion**: Limited **private sector participation** due to red tape, low incentives, and weak academia-industry links.
  - Despite **Skill India Digital Hub (SIDH)**, skilling remains **urban-focused**, sidelining the **90% informal workforce**. Just **10% of rural workers** receive **formal skill training** (WEF).

Key Skill Development Schemes and Initiatives

- **Skill India Mission**
- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**
- **Pradhan Mantri National Apprenticeship Promotion Scheme (PM-NAPS)**
- **India Skills Accelerator (ISA)**
- **Pradhan Mantri Kaushal Kendras (PMKK)**
- **PM Vishwakarma Yojana**
- **SANKALP (Skills Acquisition and Knowledge Awareness for Livelihood Promotion)**
- **STRIVE (Skill Strengthening for Industrial Value Enhancement)**
- **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)**
- **Recognition of Prior Learning (RPL)**

What Measures Should be Taken to Reform India's Skilling Ecosystem?

- **Inclusive Rural Skilling:** Launch a **Rural Skilling and Livelihood Mission** focused on **agri-tech, food processing, and crafts**. Use **mobile centers, village hubs, and digital literacy programs.**
- **Future-Ready & Digital Skilling:** Align curriculum with **Industry 4.0, green jobs,** and **digital economy**.
  - **Sector Skill Councils (SSCs)** to **co-design courses with MSMEs** and **gig platforms.**
  - **Expand Skill India Digital Hub** with **AI-based multilingual content** and **5G-enabled hubs in Tier-2/3 cities**.
- **Education Integration & Women's Skilling:** Introduce **vocational training from school level** under **NEP 2020** and link with **National Credit Framework**.
  - Promote **women's skilling in STEM, finance, and gig roles** through f**lexible training, digital access, childcare, grants, and mentorship.**
- **Monitoring, Soft Skills & Accountability:** Use **AI-driven dashboards, outcome-based funding, geo-tagging, biometric attendance**, and **third-party audits to ensure accountability.**

Drishti Mains Question:

Discuss the significance of the Skill Impact Bond (SIB) initiative in reimagining India's skilling ecosystem. How does it promote gender empowerment and innovation in outcome-based financing?

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. With reference to Pradhan Mantri Kaushal Vikas Yojana, consider the following statements: (2018)

1. It is the flagship scheme of the Ministry of Labour and Employment.
2. It, among other things, will also impart training in soft skills, entrepreneurship, and financial and digital literacy.
3. It aims to align the competencies of the unregulated workforce of the country to the National Skill Qualification Framework.

Which of the statements given above is/are correct?

(a) 1 and 3 only

(b) 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

Ans: (c)

Mains

Q. "Demographic Dividend in India will remain only theoretical unless our manpower becomes more educated, aware, skilled and creative." What measures have been taken by the government to enhance the capacity of our population to be more productive and employable? (2016)

Q: "Earn while you learn" scheme needs to be strengthened to make vocational education and skill training meaningful." Comment (2021)

NBWL Approval to Sharavathi Hydroelectric Project

Source: TH

Sharavathi Pumped Storage Hydroelectric Project in **Karnataka** has got **in-principle approval from the National Board for Wildlife (NBWL)**, despite **ecological concerns** over its impact on the **Sharavathi Valley Lion-tailed Macaque Sanctuary** in the **Western Ghats**.

- The project will now seek approval under the **Forest Conservation Act, 1980,** before returning for final NBWL approval.

Sharavathi Valley Wildlife Sanctuary

- It is located in the **Sharavathi River Valley** in Shivamogga District of **Karnataka**, spans 431.23 sq. km in the **Western Ghats.**
- Rich in flora and fauna, it houses flora species like **Dhoopa, Gulmavu, and Nandi etc.**
  - Wildlife includes **bison, spotted deer, tigers, panthers, and lion-tailed macaques.**
- Attractions include **Jog Falls, Linganamakki Reservoir,** and diverse animal and bird species.

Sharavathi Pumped Storage Hydroelectric Project

- It is a proposed **2,000 MW project** in **Sharavathi Valley Lion-tailed Macaque Sanctuary**, using pumped storage between **Gerusoppa** (lower) & **Talakalale Dams** (upper) via **underground turbines** for **grid stability** and **renewable energy.**

Western Ghats

One of the four biodiversity hotspots of India; recognised as a UNESCO WHS (2012)
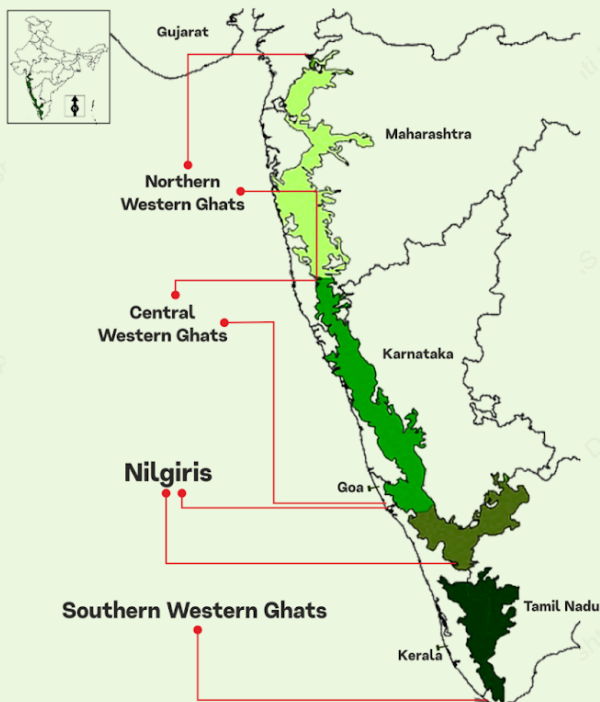
Rivers (originating)
- West-flowing: Periyar, Bharathappuzha, Netravati, Sharavathi, Mandovi
- East-flowing: Godavari, Krishna, Kaveri, Tunga, Bhadra, Bhima, Malaprabha, Ghataprabha, Hemavathi, Kabini

Endemic Species
- Nilgiri tahr (IUCN Status - EN)
- Lion-tailed macaque (IUCN Status - EN)

Imp Protected Areas
- Biosphere Reserves - Agasthyamala and Nilgiri
- NP - Silent Valley, Bandipur, Eravikulam, Wayanad-Mudumalai, Nagarhole
- TR - Kalakad-Mundanthurai, Periyar

Imp Passes
- Thal Ghat Pass (Kasara Ghat)
- Bhor Ghat Pass
- Palakkad Gap (Pal Ghat)
- Amba Ghat Pass
- Naneghat Pass
- Amboli Ghat Pass

Significance
- Hydroelectricity production
- Influences Indian monsoon weather patterns
- Carbon sequestration (neutralise ~4 MT of carbon every year)
- One of the 8 global hottest hotspots of biodiversity (due to richness in species and endemism)
- Rich in iron, manganese and bauxite ores, timber, pepper, cardamom, oil palm and rubber
- Sizeable indigenous population (including PVTGs)
- Important tourism/pilgrimage centres

Major Threats
- Mining, Industrialisation
- Massive extraction of forest produce
- Human-wildlife conflict, encroachment, illegal hunting
- Livestock grazing, deforestation
- Large hydropower projects
- Climate change

Imp Committees
- Gadgil Committee (2011) (Western Ghats Ecology Expert Panel)
  - Recommendation: All of WG be declared as Ecological Sensitive Area (ESA) with only limited development allowed in graded zones.
- Kasturirangan Committee (2013)
  - Recommendation: Instead of whole, only 37% of the total area of WG be brought under ESA + complete ban on mining, quarrying and sand mining be imposed in ESA.

Names
- Sahyadri - northern Maharashtra; Sahya Parvatham - Kerala

Diverted views about Mt. type
- View 1: Block Mt. formed due to down warping of a part of land into Arabian Sea
- View 2: Not true mt. rather the faulted edge of Deccan Plateau

Major Rocks
- Basalt, granite gneiss, khondalites, metamorphic gneisses, crystalline limestone, iron ore

Geographical Extent
- Satpura (in north) to the end of TN at Kanyakumari (in south)

Mt. Ranges
- Niligiri ranges, Shevaroys and Tirumala range
- Highest peak - Anamudi (Kerala)

Gujarat
Maharashtra
Northern Western Ghats
Central Western Ghats
Karnataka
Nilgiris
Goa
Southern Western Ghats
Tamil Nadu
Kerala

What is the National Board for Wildlife (NBWL)?

- **About: NBWL** is a **statutory body** constituted in **2003** under **Section 5A** of [**Wild Life (Protection) Act, 1972**](), replacing the **Indian Board for Wildlife (1952)** as an **apex advisory body** on **wildlife conservation** and **forest development.**
- **Composition:** The **NBWL is a 47-member statutory board**, chaired by the **Prime Minister**, with the **Minister of Environment, Forest and Climate Change** as the **Vice Chairperson**.
  - Members include officials like the **Chief of Army Staff**, **Defence Secretary**, **Expenditure Secretary**, and **10 eminent conservationists** nominated by the Central Government. The **Additional Director General of Forests (Wildlife)** serves as the **Member-Secretary**.
- **Key Functions**: It is an **advisory body** to the Central Government, responsible for **guiding wildlife conservation policies**, reviewing matters related to **wildlife protection**.
  - It approves projects in and around **protected areas (PAs)** and **eco-sensitive zones** (within 10 km).
- **Standing Committee**: The **Standing Committee** is a smaller body under NBWL with **up to 10 members**, chaired by the **Minister of Environment, Forest and Climate Change**.
  - It serves as a **project clearance body**, responsible for evaluating and approving proposals in **protected areas and eco-sensitive zones**, while the full NBWL focuses on **broader policy decisions**.

WILDLIFE CONSERVATION INITIATIVES

Constitutional Provisions for Wildlife

42nd Amendment Act, 1976: Forests & Protection of Wild Animals and Birds (moved from State to Concurrent List)

Article 48 A: State shall endeavor to protect & improve environment and safeguard forests and wildlife of country

Article 51 A (g): Fundamental duty to protect & improve natural environment including forests and Wildlife

Legal Frameworks

Wildlife (Protection) Act, 1972

Biological Diversity Act, 2002

Major Conservation Initiatives

Integrated Development of Wildlife Habitats (IDWH):
- Financial assistance provided to State/UT Governments for protection and conservation of wildlife
- A Centrally Sponsored Scheme

National Wildlife Action Plan (2017-2031)

Guidelines for Eco-tourism in Protected Areas

Human-Wildlife Conflict Mitigation

Wildlife Crime Control Bureau: To combat wildlife-related crimes

Wildlife Division (MoEFCC):
- Policy and law for conservation of biodiversity and Protected Area network
- Technical and financial support to the State/ UTs under IDHW, Central Zoo Authority and Wildlife Institute of India

Wildlife Crime Control Bureau (WCCB): Collection, collation of intelligence & its dissemination, establishment of centralized Wild Life crime databank, coordination etc.

Wildlife Crime Control:
- Operation Save Kurma
- Operation Thunderbird

Species-Specific Initiatives

- Protection and conservation of Greater Adjutant in Gangetic riverine tract
- Dolphin Conservation in Non-Protected Area Segment of Ganga River
- Conservation Breeding Centre for Wild water buffalo (2020)
- Recovery programme for Snow leopard (2009)
- Recovery programme for Vultures (2006)
- Project Elephant (1992)
- Project Tiger/National Tiger Conservation Authority (NTCA) (1973)

India's Collaboration with Global Wildlife Conservation Efforts

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- Convention on Biological Diversity (CBD)
- World Heritage Convention
- Ramsar Convention
- The Wildlife Trade Monitoring Network (TRAFFIC)
- United Nations Forum on Forests (UNFF)
- International Whaling Commission (IWC)
- International Union for Conservation of Nature (IUCN)
- Global Tiger Forum (GTF)

Drishti IAS

What are the Key Facts Related to Lion-Tailed Macaques?

- **About:** The **Lion-tailed Macaque (Macaca silenus)** is an **old-world monkey** species **endemic to the Western Ghats of India**.

- Also called the **"wanderoo" or "beard ape"**, it is known for its **distinctive light-coloured mane** surrounding its **black face and chin**.
  - **Key Features:**
    - **Size:** Among the **smallest macaques**; weighs **2–10 kg**, body length **42–61 cm**, tail length **~25 cm** with a **black tuft** (larger in males).
    - **Appearance: Black fur** with **light-grey/silver mane** around head and chin.
    - **Social Behaviour:** Lives in **hierarchical groups (10–20)**; **shy and territorial**. **Dominant males** produce loud **'whoop' calls** to warn intruders.
    - **Activity Zone: Arboreal**, spending time in the **upper canopy** of **tropical moist evergreen forests**.
  - **Habitat & Distribution:**
    - **Endemic to Western Ghats**, found in **Karnataka, Kerala, Tamil Nadu**; prefers **undisturbed, continuous evergreen forest**; **highly sensitive to fragmentation**.
      - Found in regions like **Anamalai Hills**, **Nelliyampathy**, **Nilambur Ghats**, **Sholayar**, **Gavi**, **Sabarimala**, **Vallimalai Hills**, **Agumbe**, and **Valparai plateau** (**Anamalai Tiger Reserve**).
  - **Diet & Ecological Role: Primarily frugivorous**, eats **fruits, seeds, leaves, buds, insects, small vertebrates**. It plays a **key role in seed dispersal** and **forest ecosystem health**.
  - **Threats: Over 99% habitat loss** due to **deforestation, agriculture, urbanisation** which led to **fragmentation**, restricted **movement and genetic flow**.
    - **Human-wildlife conflict** is increasing due to **habitat degradation** and **food scarcity**, causing **behavioural changes**.
    - As per **Kerala Forest Research Institute (KFRI) and University of Mysore (2024)** report, only **around 4,200 remain**, just **25% of the original population**.
  - **Conservation Status:**
    - **IUCN Red List: Endangered**
    - **CITES: Appendix I**
    - **Wildlife (Protection) Act, 1972: Schedule I**

Note: Strategic Habitat Use amid Human Pressure

- A study by the **Centre for Wildlife Studies (CWS)** in **Silent Valley National Park**, Kerala found that l**ion-tailed macaques** adapt their **behavior based on human presence.**
  - A troop in the **buffer zone** (more disturbed) used a **smaller range** and stayed mostly in the **mid-canopy** (94.2%), avoiding the ground.
  - In contrast, a troop in the **core zone** (less disturbed) used a **larger area** and also used the **forest floor**, showing the species' **ecological flexibility**.

LION-TAILED MACAQUE

POPULATION
UNDER **4000**

LIFE SPAN
ABOUT **20** YEARS

WEIGHT
Males 7 kg
Females 5 kg

GEOGRAPHICAL RANGE
Southern and Central Western Ghats. States of Kerala, Karnataka, and Tamil Nadu

HABITAT
UPPER CANOPY OF MATURE RAINFORESTS

COOO...
one of 17 sounds and facial gestures an LTM makes to communicate

WHAT WE CAN ALL DO
• If you spot them, don't feed them. • Don't speed on roads through forests • Be mindful of wildlife crossing • Don't litter, dispose all waste in proper bins.

LTMS ARE FRUGIVORES
FEED ON: jackfruit, Cullenia exarillata (Indian wild durian) seeds, and sometimes insects, small reptiles, and mammals.

ROLE IN THE FOREST
Seed dispersal agents.
Carry food stored in their cheek pouches over significant distances in the forest. Seeds are also spread through droppings.

ALL IN THE FAMILY
• Live in troops of 10-25 members, who roam, occupy, and patrol a home area of about 5 square kilometres.
• Troops have a dominant male.
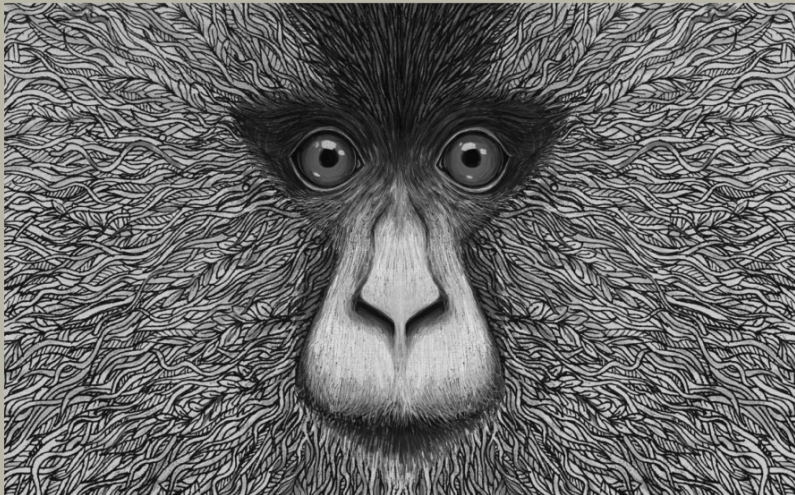
BABIES
Female LTMs achieve sexual maturity at age 5, males at 6.
A female will have one baby once in three years.
Maximum 3 babies in her lifetime.

WHAT'S IN A NAME?

The lion-tailed macaque is *Macaca silenus*. The Latin name means "monkey deity of the woodlands". In some areas they are also called wanderoos.

MALAYALAM
nella manthi

TAMIL
singavaal kurangu

KANNADA
singalika

THREATS
• Fragmentation of forests. • Roads cutting through forests, breaking the canopy. • Expansion of human settlements and agriculture has shrunk their spaces.
• Contact with human beings and livestock causes risk of disease.

This Old World monkey is an arboreal creature, usually found high up in the canopy

large silvery mane
brown eyes
stores food in large cheek pouches
bluish-black shiny hair
prominent tuft of hair at end of tail
long fingers and dextrous opposable thumbs

CONSERVATION STATUS THEIR FUTURE IS BLEAK. THOUGH NUMBERS HAVE IMPROVED SLIGHTLY IN THE LAST DECADE, THEY REMAIN ENDANGERED.

SAVING LTMS There is hope. Dedicated organisations like the Nature Conservation Foundation (with a field base in Valparai) are working to find solutions to the threats LTMs face.

CANOPY BRIDGES have been created across some roads that cut through the forests. LTMs can use these to cross forest patches without coming to ground level.

ILLUSTRATION: ROHAN DAHOTRE PHOTO: DHRITIMAN MUKHERJEE. TEXT: VRUSHAL PENDHARKAR; DESIGN: DIVIYA MEHRA

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. Which one of the following groups of animals belongs to the category of endangered species? (2012)

(a) Great Indian Bustard, Musk Deer, Red Panda and Asiatic Wild Ass

(b) Kashmir Stag, Cheetal, Blue Bull and Great Indian Bustard

(c) Snow Leopard, Swamp Deer, Rhesus Monkey and Saras (Crane)

(d) Lion-tailed Macaque, Blue Bull, Hanuman Langur and Cheetal

Ans: (a)

Q. If a particular plant species is placed under Schedule VI of the Wildlife Protection Act, 1972, what is the implication? (2020)

(a) A licence is required to cultivate that plant.

(b) Such a plant cannot be cultivated under any circumstances.
(c) It is a Genetically Modified crop plant.
(d) Such a plant is invasive and harmful to the ecosystem.

Ans: (a)

Nilgiri Tahr

A **joint census** across **Kerala and Tamil Nadu** recorded **2,668 Nilgiri Tahrs**, with **1,365 in Kerala** and **1,303 in Tamil Nadu**.

Nilgiri Tahr (Nilgiritragus hylocrius)

- **About**: Also known as **Varayaadu** or **Nilgiri Ibex**, it is a **caprine ungulate** endemic to the **Western Ghats**, specifically in Tamil Nadu (where it is the state animal) and Kerala.
    - It inhabits **montane grasslands** and **shola forests** at **1,200–2,600 m** elevation, thriving on **grassy slopes** and **rocky cliffs** of the **Western Ghats**.
    - The **Eravikulam National Park (ENP)** in Kerala hosts the **largest population** with **smaller populations** in the **Palani Hills**, **Srivilliputtur**, **Meghamalai**, and **Agasthiyar Ranges**.
- **Behaviour & Life Cycle**: A **diurnal species**, with **average lifespan of around 3-3.5 years,** although the species can live up to **9 years in ideal conditions.**
- **Threats**: **Habitat loss** (deforestation, hydroelectric projects, monoculture), **livestock competition**, **poaching**, and **local extinction** (e.g., Karnataka highlands).
- **Ecological Significance**: **Key prey** for **tiger and leopard**, coexists with **endemic species** like the **Nilgiri langur** and **lion-tailed macaque**; an indicator of **montane grassland health**.
- **Conservation Status:**
    - **IUCN Status**: **Endangered**
    - **WPA, 1972:** **Schedule-I**
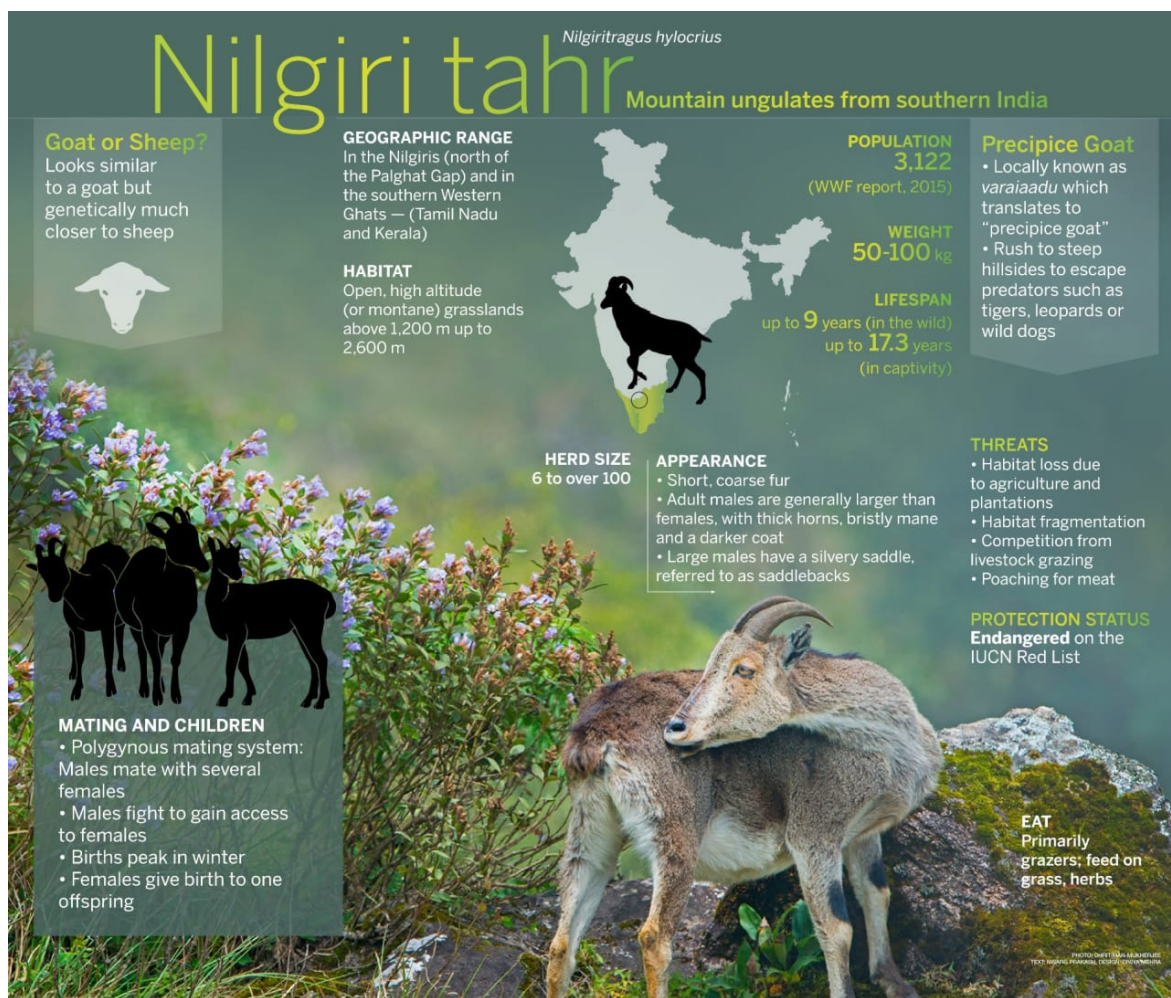
| Read More: **Nilgiri Tahr** |

Agnishodh and Project SAMBHAV

Source: PIB

Chief of the Army Staff (COAS), General Upendra Dwivedi, inaugurated **'Agnishodh',** the Indian Army Research Cell (IARC), at the IIT Madras campus. The COAS also highlighted **Project SAMBHAV (Secure Army Mobile Bharat Vision)** as a key tech initiative for secure communication.

Agnishodh

- Agnishodh serves as a bridge between **academic research and military needs, converting lab-scale innovations** into field-ready defence technologies.
    - It is aligned with **Indian Army Five Pillars of Transformation** encompassing **technology absorption, structural changes, human resource development** and increasing **cohesion between the three services.**
- Agnishodh focuses on areas like **Artificial Intelligence**, **Quantum computing**, **cybersecurity**, wireless communication, and unmanned systems.
    - It also aims to upskill military personnel in these emerging domains, building a tech-savvy defence workforce.
- Agnishodh reflects the Army's focus on **modern and psychological warfare,** and its push for self-reliance through national technology missions like **INDIAai** and **Chip-to-Startup.**

Project SAMBHAV

- Launched under the **Indian Army's 2024 Year of Technology Absorption**, SAMBHAV is a secure, **5G-based, network-agnostic mobile system.**
    - It enables instant and **encrypted communication** on the move, even in remote or high-risk operational areas.
- SAMBHAV is designed to **boost battlefield communication,** making it faster, more secure, and reliable.

Read more: [Strategic Defence Technologies in India](#)

Mera Gaon Meri Dharohar (MGMD)

[Source: PIB](#)

Under the **[Mera Gaon Meri Dharohar (MGMD) initiative,](#)** data for around **4.7 lakh villages** have been uploaded on the **MGMD portal.**

Mera Gaon Meri Dharohar (MGMD)

- **About:** It is a flagship initiative launched in **2023** under the **[National Mission on Cultural Mapping (NMCM),](#)** implemented by the **Ministry of Culture (MoC)** in collaboration with the **[Indira Gandhi National Centre for the Arts (IGNCA).](#)**
- **Objective:** It aims to **document and digitally map the cultural identity** of approximately **6.5 lakh villages** across India.
    - This data is made accessible to **virtual and physical visitors** through the **MGMD web portal**, which acts as the **National Cultural Workplace**.
- **Village Categorisation:** Villages are classified into 7 themes- **Arts and Crafts, Ecologically Oriented , Scholastic (textual/scriptural) and Epic (Ramayana, Mahabharata, Puranas), etc.**

National Mission on Cultural Mapping (NMCM):

- Implemented by **IGNCA**, NMCM aims to **identify and digitally map India's cultural assets** to revitalise rural economies and promote self-reliance.
- It focuses on **creating artist directories, digital inventories of art forms and tradition** bearers, and policies for preservation and welfare of practitioners.

Read More: [Mera Gaon, Meri Dharohar Programme](#)