



Status of India's Smart Cities Mission

Source: IE

Why in News?

The Ministry of Housing and Urban Affairs's latest data, as of 3rd November 2023, provides insights into the **status of [India's Smart Cities Mission](#)**.

- With the mission's deadline approaching in June 2024, the analysis showcases top-performing cities, financial milestones, and regional variations in project completion.

What are the Key Findings Regarding the Status of India's Smart Cities Mission?

- **Leading Cities in Completion of Projects:**
 - **Surat (Gujarat) emerges as the top-performing city**, leading in the completion of projects, fund utilization, and overall criteria.
 - **Agra (Uttar Pradesh(UP)), Ahmedabad (Gujarat), Varanasi (UP), and Bhopal (Madhya Pradesh)** secure positions in the top five cities, showcasing commendable progress.
 - The rest of the top 10 include Tumakuru (Karnataka), Udaipur (Rajasthan), Madurai (Tamil Nadu), Kota (Rajasthan) and Shivamogga (Karnataka).
- **Regional Disparities:**
 - **[Union Territories \(UTs\)](#)** and cities in **[Northeastern states](#)** find themselves in the bottom 10.
 - The bottom 10 cities are Kavaratti (Lakshadweep), Puducherry, Port Blair (Andaman and Nicobar Islands), Imphal (Manipur), Shillong (Meghalaya), Diu, Guwahati (Assam), Aizawl (Mizoram), Gangtok (Sikkim) and Pasighat (Arunachal Pradesh).
 - Sources attribute the slower progress in smaller **cities to capacity constraints**, emphasizing the need for tailored strategies to address the unique challenges faced by these urban centers.
- **Overall Project Landscape:**
 - About **22% of total projects (1,745 of 7,947)** that account for **33% out of Rs 1.70 lakh crore** of the total cost are still ongoing. The **majority of projects (6,202) have been completed**, emphasizing the scale and financial investment involved.

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SMART CITIES MISSION

About

- **Launched:** 2015
- **Nature:** Centrally Sponsored
- **Nodal Ministry:** Ministry of Housing & Urban Affairs
- **Implemented through:** Special Purpose Vehicles (SPVs) at city level
- **Mission Deadline:** Extended to June 2023
- **Coverage:** Developing 100 selected cities as Smart Cities

Six Fundamental Principles

- Citizen at the core
- More from Less
- Cooperative and competitive federalism
- Integration, innovation & sustainability
- Technology as means, not the goal
- Convergence

SMART SOLUTIONS

E-Governance and Citizen Services

- Public Information, Grievance Redressal
- Electronic Service Delivery
- Citizen Engagement
- Citizens-City's Eyes and Ears
- Video Crime Monitoring



Energy Management

- Smart Meters & Management
- Renewable Sources of Energy
- Energy Efficient & Green Buildings



Waste Management

- Waste to Energy & fuel
- Waste to Compost
- Waste Water Treatment
- Recycling and Reduction of Waste



Water Management

- Smart Meters & Management
- Leakage Identification, Preventive Maintenance
- Water Quality Monitoring



Urban Mobility

- Smart Parking
- Intelligent Traffic Management
- Integrated Multi-Modal Transport



Others

- Tele-Medicine & Tele Education
- Incubation/Trade Facilitation Centers
- Skill Development Centers



▪ 60% projects have been completed so far

Challenges

- **Managing Finance:** Difficulty in mobilising funds, transferring them to SPVs, and using them efficiently
- **Urban Problems:** Like air pollution, road congestion & decline in public transport
- **Policy Issues:** Like hindrances in getting environment clearances
- **Data privacy and security**
- **Lack of Center-State Co-ordination**

Way Ahead

- **Decentralisation:** Planning at Municipal & state level for better implementation
- **Policy Issues:** Like red-tapism, environmental clearances need to be taken care of
- **PPP Model:** For better administrative & technological capabilities
- **Integrated Approach:** For holistic development of transportation, energy, housing
- **Promote Citizen Engagement**



Note: The Government has decided to extend the Smart Cities Mission deadline by one year, from June 2023 to June 2024.

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. With a brief background of the quality of urban life in India, introduce the objectives and strategy of the 'Smart City Programme.' (2016)

Rising Scientific Misconduct in India

For Prelims: Scientific Misconduct, India Research Watchdog, Retractions in Indian research, [Plagiarism](#), Misconduct involving experimental techniques, and Fraud.

For Mains: Scientific Misconduct, Ethics and Human Interface: Essence, determinants, and consequences of Ethics in human actions.

[Source: TH](#)

Why in News?

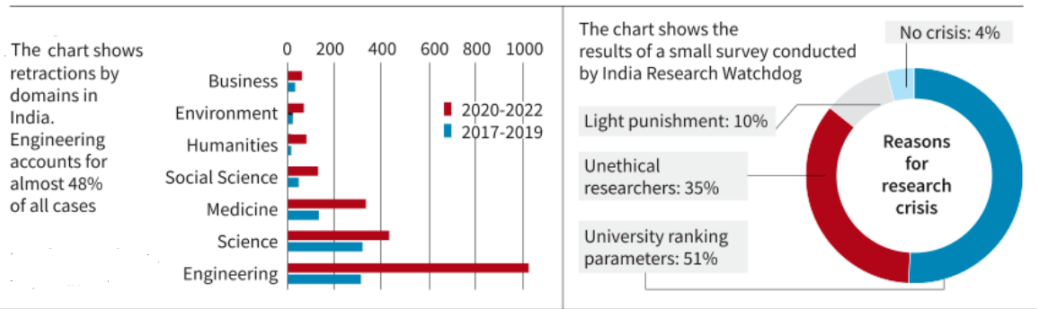
- According to a survey by **India Research Watchdog** the escalating number of **retractions in Indian research**, raising substantial concerns related to **Scientific Misconduct in India**.

What is Scientific Misconduct?

- **About:**
 - Scientific misconduct can be **described as a deviation from the accepted standards** of scientific research, study and publication ethics.
 - There can be **many forms of scientific misconduct** such as Plagiarism, Misconduct involving experimental techniques, and Fraud.
 - Retractions occur when **published papers are withdrawn from the scientific literature** due to various reasons, including mistakes, data fabrication, plagiarism, and other forms of misconduct.
- **Examples:**
 - When the results of a scientific investigation are reported **without giving credit to the principal investigators** whose work has been involved.
 - Scientific fraud, where authors create an article with fabricated images or data, which is then submitted to a peer-reviewed publication without approval from an independent oversight board.

What are the Statistics of Scientific Misconduct in India?

- **Increases Scientific Retractions:**
 - Retractions from India have increased 2.5-times between 2020 and 2022 over the number recorded between 2017 and 2019.
 - The primary reason for retractions is identified as misconduct, where authors **knowingly engage in unethical practices**.
- **Quality Decline Indicators:**
 - The ratio of research output to retractions is **used as a proxy for quality, revealing an alarming drop in India**, almost halving the ratio. This indicates a **potential decline in the overall quality of research**.
- **Domains of Retractions:**
 - Engineering sees a significant increase, accounting for almost 48% of all retractions, up from 36% in the period 2017-2019.
 - Additionally, the humanities **experience an extraordinary growth of 567% in retractions**.
- **Reasons for Rise in Scientific Misconduct:**
 - A little more than half of the respondents believe that university **ranking parameters are behind the rise**.
 - Another 35% attributed it to **unethical researchers**, while 10% pointed to the minimal action taken when an allegation is reported or **when an offender is 'caught'**.
 - Additional factors contributing to the rise in retractions include the **compulsory publication requirement for PhD students** instituted in 2017, potentially leading to low-quality publications, and the proliferation of predatory journals.



▪ Urgent Call to Action:

- The data is presented as an urgent call to action, emphasizing the need to **scrutinize research malpractice in Indian academia**.
- The potential consequences on both research and teaching are highlighted, urging immediate intervention to prevent the production of substandard or bogus research.

What are the Ethical Implications of Scientific Misconduct?

▪ Long term Consequences:

- Scientific misconduct, regardless of its scale, **can have far-reaching consequences**, especially when influential figures in a field are involved.

▪ Breach of Academic Integrity:

- Scientific misconduct, including plagiarism, data fabrication, and **manipulation**, constitutes a **serious breach of academic and scientific integrity**. It undermines the **foundation of honest and transparent scholarly inquiry**.

▪ Impact on Trust and Credibility:

- Unethical practices erode the trustworthiness of scientific findings, diminishing the credibility of research. This not only affects the reputation of individual researchers but also tarnishes the image of the entire scientific community.

▪ Compromised Quality and Academic Rigor:

- The alarming drop in the ratio of research output to retractions signifies compromised quality.
- This compromises **academic rigor, hindering the progress and advancement of knowledge**.

Way Forward

- In response to the absence of institutional efforts, some scientists have taken it upon themselves to **scrutinize collaborative work**, distinguishing between credible and flawed research to avoid tarnishing all their work.
 - However, a broader reevaluation is necessary, particularly among influential figures in science. The idealized notion that science is inherently rigorous and self-correcting needs to be revised, recognizing its complexity and the need for enhanced methods and norms.
- This requires **incorporating technology and incentives to promote continuous self-assessment** and improvement, making it a standard practice rather than a response to 'special' circumstances.

Colours of Domesticated Silkworm Cocoons

For Prelims: Silk, Carotenoids and Flavonoids, [Silk Samagra](#), Central Silk Board

For Mains: Sericulture in India, Economics of Animal-Rearing

[Source: TH](#)

Why in News?

Silk, often referred to as the “**queen of fibres**,” has been valued for its beauty and luxury for ages. Researchers have revealed the genetic factors behind the **cocoon colors** and adaptations of silk-producing insects, and how they have transformed the silk industry.

What is Cocoon in Silk?

- A cocoon in silk is a **protective layer of silk thread** that is spun by a silkworm around itself.
 - The silk thread is very fine, strong, and lustrous. The cocoon usually has an oval or round shape.
- The cocoon can be used to make silk fabric by unwinding the thread and weaving it.

What Genetic Insights Does Silk Moth Domestication Uncover?

- **Evolution of Silk Moth Domestication:**
 - It is produced by the cocoons of the domesticated **silk moth (Bombyx mori)**, which was derived from the **wild silk moth (Bombyx mandarina)** more than 5,000 years ago in China.
 - While the domesticated silk moth thrives worldwide, the ancestral moth still roams in regions like China, Korea, Japan, and far-eastern Russia.
- **Types of Silk:**
 - **Wild Silk (Non-mulberry Silks):**
 - Wild silks, which include the **muga, tasar, and eri silks** are obtained from other moth species: namely, *Antheraea assama*, ***Antheraea mylitta***, and ***Samia cynthia ricini***.
 - These moths survive relatively **independently of human care**, and their caterpillars forage on a wider variety of trees.
 - Non-mulberry silks comprise about **30% of all silk produced in India**.
 - These silks have shorter, coarser, and harder threads compared to the long, fine, and smooth threads of the mulberry silks.
 - **Mulberry Silk:**
 - The most common and widely produced type of silk, accounting for about **90% of global silk production**.
 - Derived from the cocoons of the domesticated mulberry silkworm (*Bombyx mori*), which feeds exclusively on **mulberry leaves**.
 - Has long, smooth, and lustrous fibers that can be woven or knitted into various fabrics with different textures and finishes.
 - Suitable for a wide range of applications, such as clothing, bedding, curtains, upholstery, and accessories.
- **Cocoon Colours:**
 - The ancestral mulberry moth makes (uniform) **brown-yellow cocoons**.
 - In contrast, domesticated silk moth cocoons come in an eye-catching palette of yellow-red, gold, flesh, pink, pale green, deep green or white.
 - The pigments that colour the silkworm cocoons are derived from chemical compounds called **carotenoids and flavonoids**, which are made by the mulberry leaves that the silkworms feed on.
 - The silkworms absorb the carotenoids and flavonoids and transport them to the silk glands, where they are taken up and bound to the silk protein.
 - The amount and type of pigments in the silk glands determine the colour and intensity of the silk threads, which are then extruded by the silkworms to form the

- cocoons.
- The pigments that coloured the cocoons are water-soluble, so they gradually fade away.
 - The coloured silks we see in the market are instead produced by using acid dyes.
- **Mutations in genes responsible for carotenoids and flavonoids** cause differently colored cocoons, providing insight into the molecular basis of silk diversity.

What is the Status of India's Silk Industry?

▪ **Silk Production:**

- India stands as the **world's second-largest producer of raw silk** after China.
- In the fiscal year 2020-21, the country produced a substantial 33,739 MT of raw silk.
 - India boasts a diverse range of silk types, including **Mulberry, Tasar, Muga, and Eri**. The variations arise from the distinct feeding habits of the silkworms.
- The silk industry stands as one of India's largest **foreign exchange earners**, contributing significantly to the country's economic landscape.

▪ **Leading States:**

- In the fiscal year 2021-22, Karnataka emerged as the leading state in India's silk production, making a substantial contribution of 32%.
 - Other significant contributors include Andhra Pradesh (25%), along with states like Assam, Bihar, Gujarat, and West Bengal, all playing pivotal roles in the thriving silk industry.

▪ **Top Importers:**

- The country exports to more than 30 countries in the world. Some of the top importers are the USA, UAE, China, UK, Australia, and Germany.

▪ **Workforce:**

- The country's sericulture industry employs around 9.76 million people in rural and semi-urban areas. The sericulture activities in India are spread across 52,360 villages.

▪ **Central Silk Board (CSB):**

- It is a statutory body, established in 1948 by an Act of Parliament, under the administrative control of the Ministry of Textiles, Government of India.
 - Its headquarters is located in **Bangalore**.
- The CSB is responsible for the overall development and promotion of the sericulture and silk industry in India, through research, extension, training, quality control, and marketing support.

▪ **Initiative:**

- **Silk Samagra.**
- **North East Region Textile Promotion Scheme (NERTPS):**
 - The objective of this scheme is the **revival, expansion, and diversification of sericulture** in the North Eastern States with a special focus on Eri and Muga silks.