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MK Yadav Sir

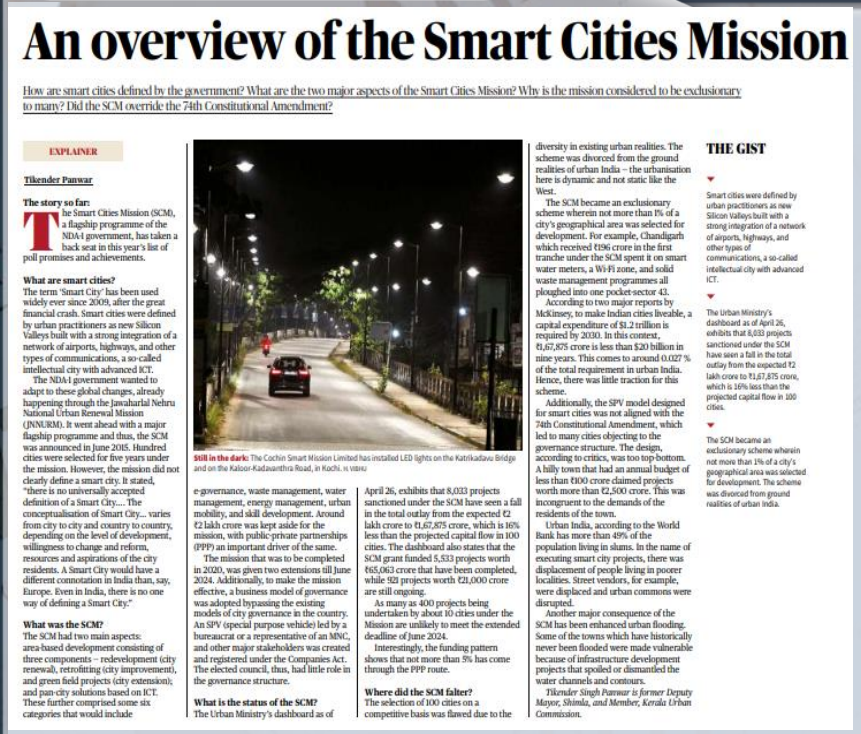
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SMART CITIES MISSION (SCM)

(Syllabus: GS Paper 2 – Govt Policies/Schemes)



An overview of the Smart Cities Mission

How are smart cities defined by the government? What are the two major aspects of the Smart Cities Mission? Why is the mission considered to be exclusionary to many? Did the SCM override the 74th Constitutional Amendment?

EXPLAINER

Tikender Panwar

The story so far:

The Smart Cities Mission (SCM), a flagship programme of the NDA-I government, has taken a back seat in this year's list of poll promises and achievements.

What are smart cities?

The term 'Smart City' has been used widely ever since 2009, after the great financial crash. Smart cities were defined by urban practitioners as new Silicon Valleys built with a strong integration of a network of airports, highways, and other types of communications, a so-called intellectual city with advanced ICT.

The NDA-I government wanted to adapt to these global changes, already happening through the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). It went ahead with a major flagship programme and thus, the SCM was announced in June 2015. Hundred cities were selected for five years under the mission. However, the mission did not clearly define a smart city. It stated, "there is no universally accepted definition of a Smart City.... The conceptualisation of Smart City... varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents. A Smart City would have a different connotation in India than, say, Europe. Even in India, there is no one way of defining a Smart City."

What was the SCM?

The SCM had two main aspects: area-based development consisting of three components – redevelopment (city renewal), retrofitting (city improvement), and green field projects (city extension); and pan-city solutions based on ICT. These further comprised some six categories that would include e-governance, waste management, water management, energy management, urban mobility, and skill development. Around ₹2 lakh crore was kept aside for the mission, with public-private partnerships (PPP) an important driver of the same.

The mission that was to be completed in 2020, was given two extensions till June 2024. Additionally, to make the mission effective, a business model of governance was adopted bypassing the existing models of city governance in the country. An SPV (special purpose vehicle) led by a bureaucrat or a representative of an MNC, and other major stakeholders was created and registered under the Companies Act. The elected council, thus, had little role in the governance structure.

What is the status of the SCM?

The Urban Ministry's dashboard as of April 26, exhibits that 8,033 projects sanctioned under the SCM have seen a fall in the total outlay from the expected ₹2 lakh crore to ₹1,67,875 crore, which is 16% less than the projected capital flow in 100 cities. The dashboard also states that the SCM grant funded 5,533 projects worth ₹65,063 crore that have been completed, while 921 projects worth ₹21,000 crore are still ongoing.

As many as 400 projects being undertaken by about 10 cities under the Mission are unlikely to meet the extended deadline of June 2024.

Interestingly, the funding pattern shows that not more than 5% has come through the PPP route.

Where did the SCM falter?

The selection of 100 cities on a competitive basis was flawed due to the diversity in existing urban realities. The scheme was divorced from the ground realities of urban India – the urbanisation here is dynamic and not static like the West.

The SCM became an exclusionary scheme wherein not more than 1% of a city's geographical area was selected for development. For example, Chandigarh which received ₹196 crore in the first tranche under the SCM spent it on smart water meters, a Wi-Fi zone, and solid waste management programmes all ploughed into one pocket-sector 43.

According to two major reports by McKinsey, to make Indian cities liveable, a capital expenditure of $1.2 trillion is required by 2030. In this context, ₹1,67,875 crore is less than $20 billion in nine years. This comes to around 0.027 % of the total requirement in urban India. Hence, there was little traction for this scheme.

Additionally, the SPV model designed for smart cities was not aligned with the 74th Constitutional Amendment, which led to many cities objecting to the governance structure. The design, according to critics, was too top-bottom. A hilly town that had an annual budget of less than ₹100 crore claimed projects worth more than ₹2,500 crore. This was incongruent to the demands of the residents of the town.

Urban India, according to the World Bank has more than 49% of the population living in slums. In the name of executing smart city projects, there was displacement of people living in poorer localities. Street vendors, for example, were displaced and urban commons were disrupted.

Another major consequence of the SCM has been enhanced urban flooding. Some of the towns which have historically never been flooded were made vulnerable because of infrastructure development projects that spoiled or dismantled the water channels and contours.

Tikender Singh Panwar is former Deputy Mayor, Shimla, and Member, Kerala Urban Commission.

Still in the dark: The Cochin Smart Mission Limited has installed LED lights on the Katrikadavu Bridge and on the Kaloor-Kadavanthra Road, in Kochi. H. VIBHU

THE GIST

- Smart cities were defined by urban practitioners as new Silicon Valleys built with a strong integration of a network of airports, highways, and other types of communications, a so-called intellectual city with advanced ICT.
- The Urban Ministry's dashboard as of April 26, exhibits that 8,033 projects sanctioned under the SCM have seen a fall in the total outlay from the expected ₹2 lakh crore to ₹1,67,875 crore, which is 16% less than the projected capital flow in 100 cities.
- The SCM became an exclusionary scheme wherein not more than 1% of a city's geographical area was selected for development. The scheme was divorced from ground realities of urban India.

Context: The Smart Cities Mission (SCM) has taken a back seat in this year's list of poll promises and achievements.

Smart Cities Mission (SCM)

- **Launched by**: June, 2015.
- **Ministry**: Union Housing and Urban Affairs Ministry.
- **Objective**: To promote cities that provide core infrastructure, clean and sustainable environment, and give a decent quality of life to their citizens through the application of 'smart solutions'.
- **Focus Area**: Sustainable and inclusive development by the creation of replicable models that act as lighthouses to other aspiring cities.
- **Two main aspects**: Area-based development consisting of three components — redevelopment (city renewal), retrofitting (city improvement), and green field projects (city extension); and pan-city solutions based on ICT.
- **Coverage**: 100 cities
- **Funding**: This Mission is operated as a Centrally Sponsored Scheme.
- **Extension**: June 2023 to June 2024.

Other Key Initiatives of the Smart Cities Mission include:

- **Assessment Frameworks** created under the Smart Cities Mission include Ease of Living Index, Municipal Performance Index, Data Maturity Assessment Framework and Climate Smart Cities Assessment Framework.
- **National Challenges:** Such as 'Placemaking Marathons', 'Nurturing Neighbourhoods Challenge', 'Transport4All' and 'EatSmart cities' etc.
- **National Urban Digital Mission**: pilot launched in February 2021 to foster a national urban digital ecosystem that delivers accessible, inclusive, efficient and citizen centric governance.
- **Urban Learning Internship Program (TULIP):** MoHUA and MHRD launched 'TULIP to match opportunities in ULBs and Smart Cities with learning needs of recent graduates. The program intends to fulfil the twin goals of providing hands-on learning experience to recent graduates as well as benefitting States, ULBs and Smart Cities with infusion of fresh energy and ideas to solve critical challenges.

XENOTRANSPLANTATION

Transplantation of living cells, tissues or organs from one species to another

THE FIRST person to receive a pig kidney has died two months after his surgery. His family and doctors from the Massachusetts General Hospital, where the procedure took place, did not link his death to the transplant.



Richard Slayman, 62, passed away on Saturday. *Reuters*

What is xenotransplantation?

'Xeno' is the Latin term for 'foreign' — xenotransplantation, thus, is the transplantation of living cells, tissues or organs from one species to another. In context of humans, "xenotransplantation is any procedure that involves the transplantation, implantation or infusion into a human recipient of either (a) live cells, tissues, or organs from a nonhuman animal source, or (b) human body fluids, cells, tissues or organs that have had *ex vivo* contact with live non-human animal cells, tissues or organs," according to the US Food and Drug Administration (FDA). This includes transplantation of animal organs (like a pig kidney), or use of a pig liver for temporary perfusion during acute liver failure.

How does it work?

In practice, the actual surgery may not be very different from a regular organ transplant. But, the animal organ selected has to undergo genetic modifications, so that the human body does not reject it. A report from the Harvard Medical School, whose physicians were involved in Slayman's operation, said 69 genomic edits were made to the pig kidney in his case. Gene editing technology CRISPR-Cas9 was employed to "remove certain pig genes that produce sugars with antibodies our immune systems react to" and "add certain human genes to improve the kidney's compatibility with humans".

Why are pigs used for this procedure?

Pig heart valves have been used to replace damaged human heart valves for over 50 years now. This is because pigs' anatomical and physiological parameters are similar to that of humans. They can be easily, and in a cost-effective manner, bred in farms. A vast variety in pig breeds, which come in different sizes, also means that harvested organs can be matched with the specific needs of the human recipient. The first xenotransplantation of a genetically-modified pig heart was carried out in 2022, but the patient died within two months.

What are the complications?

The biggest challenge with a xenotransplant (like a regular transplant) is to ensure that the human body does not reject the transplanted organ. Like in regular transplants, the patient is put on immunosuppressants, which leaves them vulnerable to other diseases and complications. Transplanted organs themselves may carry "recognised and unrecognised infectious agents", according to the FDA. This can then lead to subsequent transmission of diseases among humans, with certain latent retroviruses potentially causing disease "years after infection".

What is the need for this procedure?

There is a significant gap between the number of transplantations needed by patients and the availability of donor organs. A 2024 article in *Nature* noted: "In the United States alone, there are nearly 90,000 people waiting for a kidney transplant, and more than 3,000 people die every year while still waiting." There is also some evidence suggesting that animal cells and tissues may be used to treat certain neurodegenerative disorders and diabetes.

EXPRESS NEWS SERVICE

XENOTRANSPLANTATION
(Syllabus GS Paper 3 – Sci and Tech)

Context: The first recipient of a pig kidney recently passed away two months after the surgery, with his family and doctors at Massachusetts General Hospital not associating his death with the transplant.

Xenotransplantation

- **About:** It involves transplanting living cells, tissues, or organs from one species to another.
- **Origin**: Derived from the Latin term 'xeno,' meaning 'foreign.'
- **Scope:** Encompasses procedures involving nonhuman animal sources into human recipients, as defined by the US FDA.
- **Working technology**:
  - **Surgical Procedure**: Resembles standard organ transplant procedures.
  - **Genetic Modification**: Animal organs undergo genetic alterations to prevent rejection in humans.
  - **Technological Intervention**: CRISPR-Cas9 technology used for gene editing.
  - **Modification**: It involves removal of pig genes producing immune-reactive sugars and addition of human genes for improved compatibility.

Why are pigs often used for xenotransplantation?

- Due to their anatomical and physiological similarity to humans.
- The widespread and cost-effective breeding of pigs makes them an accessible source of organs, and the variety of pig breeds allows for matching organ sizes with human recipients' needs.

THE HINDU Page 10

COUPLES RIGHTS UNDER ARTICLE 21

(Syllabus: GS Paper 2 – Polity)



What is the legal position on live-in relationships?

What did the Allahabad High Court state with respect to Muslims and live-in relationships?

Ziya Us Salam

The story so far:

The Lucknow bench of the Allahabad High Court stated earlier this month that a Muslim cannot claim rights in a live-in relationship when he or she has a living spouse. A two judge Bench of Justices A.R. Masoodi and A.K. Srivastava called such a relationship against the tenets of Islam while hearing a writ petition by Sneha Devi and Mohammed Shadab Khan. Ms. Devi and Mr. Khan had sought protection from police action after the woman's parents filed a kidnapping case against Mr. Khan.

What happened?

The couple had told the court they were adults in a live-in relationship and that they sought protection under Article 21 of the Constitution (protection of life and personal liberty). The judges, however, stated, "Islamic tenets do not permit live-in relationships during the subsisting marriage. The position may be different if the two persons are unmarried and the parties being major choose to lead their lives in a way of their own." Incidentally, Mr. Khan was married to one Farida Khatoon since 2020.

"The constitutional morality may come to the rescue of such a couple and the social morality settled through the customs and usages over ages may give way to the constitutional morality and protection under Article 21 of the Constitution of India may step in to protect the cause. The case before us is, however, different," the court said, adding, "The constitutional protection under Article 21 of the Constitution of India would not lend an un-canalised support to such a right."

What have been previous orders?

Live-in relationships with variables of marital status of the partners, their possibly different faiths, birth of children and even separation have occupied the attention of the judiciary at various levels in recent years. If in the case of Ms. Devi and Mr. Khan, only the latter was married, in another case last year, both partners were married but involved in a live-in relationship away from wedlock.

In November last year, the Supreme Court stayed orders passed by lower courts and the Gujarat High Court awarding maintenance to a woman from the man she had been living with. The top court order came after a Surat-based man challenged the High Court order arguing that their relationship could not be termed a domestic relationship as they were both married to other people at the time of cohabitation. While their respective marriages subsisted, they lived together in 2012 and had a daughter too a couple of years later. The woman had approached the judiciary as the live-in relationship did not work out, and sought relief under the Protection of Women from Domestic Violence Act, 2005. She sought maintenance too.

Interestingly in the same month, the Punjab and Haryana High Court stated that a couple living together without obtaining a divorce from their previous spouse cannot be classified as being in a "live-in relationship" or being in a union similar to marriage. The court even felt that such an arrangement would amount to the offence of bigamy under Sections 494/495 of the Indian Penal Code. In this case, the man was already married. The court refused to provide protection to the couple, stating, "The male partner is engaging in a lustful and adulterous life with the female partner without obtaining a valid divorce from his previous spouse."

What have the Courts said about live-in relationships?

India does not have any laws that directly address a live-in partnership. As per the top Court, for a man and a woman to live together is part of 'the right to life'; therefore, a live-in relationship is no longer an offence. The Supreme Court in its various judgments has stated that a man and a woman living like a husband and a wife in a long-term relationship, and even have children, the judiciary will presume that the two were married and that the same laws would be applicable to them and their relationship. The concept of a live-in relationship was recognised in *Payal Sharma versus Nari Niketan* by the Allahabad High Court, where the judges felt, "A man and a woman, even without getting married, can live together if they wish to. This may be regarded as immoral by society, but it is not illegal. There is a difference between law and morality."

THE GIST

- The Lucknow bench of the Allahabad High Court stated earlier this month that a Muslim cannot claim rights in a live-in relationship when they have a living spouse.
- The Punjab and Haryana High Court stated that a couple living together without obtaining a divorce from their previous spouse cannot be classified as being in a "live-in relationship" or being in a union similar to marriage.
- India does not have any laws that directly address a live-in partnership.

Context: The Lucknow bench of the Allahabad High Court recently ruled that a Muslim cannot assert rights in a live-in relationship if they already have a living spouse.

Background of the Issue

- The couple claimed protection under Article 21 for their live-in relationship, but the court ruled against it, citing Islamic tenets.
- The judges emphasized that while constitutional morality may protect such couples in certain cases, it wouldn't automatically support their rights under Article 21.
- The court differentiated between unmarried couples and those already in a subsisting marriage, denying protection under Article 21 to the latter.

Legal Status of Live-in Relationships in India

- **Absence of Specific Laws**: India lacks laws directly addressing live-in partnerships, leaving them unregulated by legislation.
- **Judicial Perspective**: The Supreme Court recognizes the right to life includes the freedom for unmarried couples to cohabit without facing legal repercussions.
- **Court Rulings**: Courts presume cohabiting couples, even without formal marriage, as legally bound in long-term relationships.
    - In cases like **Payal Sharma versus Nari Niketan**, the judiciary distinguishes between societal morality and legal validity, affirming the legality of live-in relationships.
- **Badri Prasad v. Dy. Director of Consolidation (1978):** It underscores the legality of live-in relationships, subject to conditions like age, consent, and mental capacity.

Legal Provisions in Relation to Live in Relationships

- **Article 21 of the Constitution**: Guarantees the right to life and personal liberty.
- **Lata Singh v. State of UP (2006)**: Supreme Court ruled that cohabitation of two individuals of opposite sex is not illegal.
- **Velusamy v. D Patchaimal (2010):** Supreme Court established criteria for legal recognition of live-in relationships:
    - Couples must present themselves to society as akin to spouses.
    - Both individuals must be of legal marriage age and unmarried.
    - They must be otherwise qualified for marriage.
    - They must have cohabited and held themselves as spouses for a significant period.
- **Article 19:** It affirms every citizen's right to reside and settle anywhere within India's territory. Therefore, individuals, regardless of marital status, cannot be refused accommodation if they choose to live together as adults.

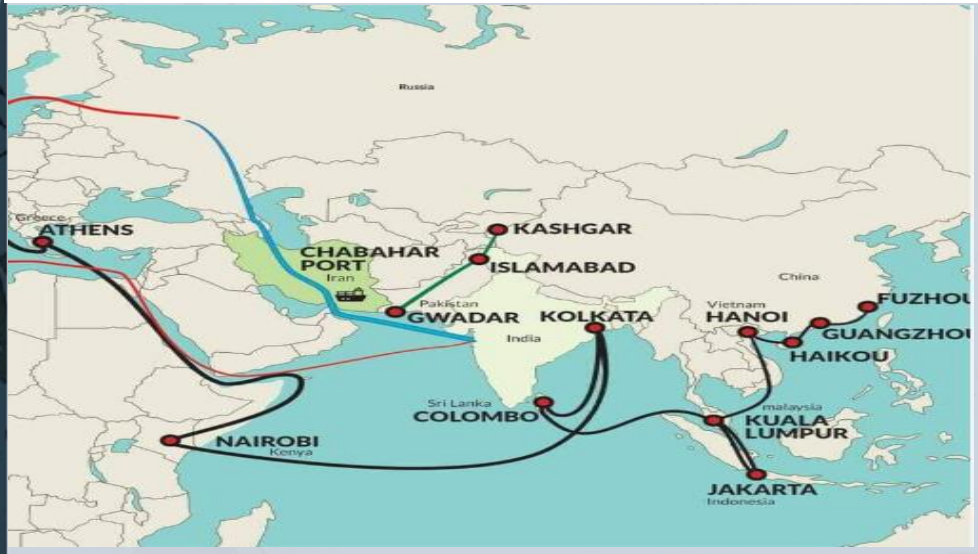
DECCAN HERALD

May 13

CHABAHAR PORT

(Syllabus: GS Paper 2 – IR)

India, Iran sign pact for long-term operation of terminal at Chabahar



Significance Of The Port

- **Bypass Pakistan:** India can bypass Pakistan in transporting goods to Afghanistan.
- **Connectivity:** Chabahar port will boost India's access to Iran, the key gateway to the INSTC that has sea, rail and road routes between India, Russia, Iran, Europe and Central Asia.
- **Countering China**: It will be beneficial to India in countering Chinese presence in the Arabian Sea which China is trying to ensure by helping Pakistan develop the Gwadar port.
- **Import:** There will be a significant boost in the import of iron ore, sugar and rice to India. The import cost of oil to India will also see a considerable decline.

Context: Recently, India and Iran signed a 10-year contract for the operation of the Chabahar port, eight years after finalizing the general cooperation framework.

Chabahar Port

- **Meaning**: Chabahar is made of the Persian words Chahar meaning four; and bahar meaning spring.
- **History**: Indo-Iranian collaboration on Chabahar port dates back to 2003. It is only during the PM visit in 2016, he pledged up to $500 million to develop and operate Iran's Chabahar port as part of a trilateral engagement between India, Iran and Afghanistan.
- **Location**: Chabahar port is located in Iran's south-eastern Sistan and Baluchestan province.
- **Consist of two ports**: Chabahar Port consists of two separate ports called Shahid Kalantari and Shahid Beheshti.
    - Its geographic proximity to countries such as Afghanistan, Pakistan, and India, as well as its status as a key transit centre on the burgeoning International North-South Transport Corridor (INSTC), gives it the potential to develop into one of the most important commercial hubs in the region.

TYPES OF BANKS IN INDIA

(Syllabus: GS Paper 3 – Economy)

Business Standard
VOLUME XXXI NUMBER 23
NEW DELHI | TUESDAY, 14 MAY 2024

Gaining strength

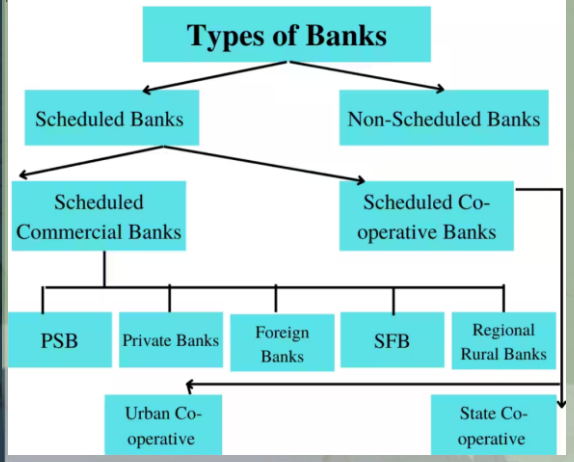
Improving bank balance sheet will support growth

The last financial year, 2023-24 (FY24), was good for private banks and excellent for public-sector banks (PSBs). Net interest income in aggregate expanded for all banks and net interest margins have been sustained for the most part. Non-interest income too has increased as banks have developed better cross-selling mechanisms and generated more fee income. Across the board, gross non-performing assets (GNPA) have reduced sharply. Net NPAs have also declined. Provisions have been reduced or reversed in many cases, as sticky loans have been recovered, resulting in higher profits and lower credit costs. Interest income has grown 38 per cent year-on-year (Y-o-Y) for private banks and 26 per cent Y-o-Y for PSBs in FY24 compared to FY23.

NPAs have reduced both nominally and as a percentage of advances. Aggregate GNPAs for PSBs stood at ₹3.4 trillion in March 2024, versus ₹5.4 trillion in March 2022. Net NPAs stood at ₹72,544 crore in March 2024, versus ₹1.54 trillion in March 2022. GNPAs stood at ₹1.24 trillion in March 2024 for private banks, versus ₹1.74 trillion two years ago. Net NPAs for private banks were around ₹29,000 crore in March 2024, versus ₹40,500 crore two years ago. Most banks have managed to keep net NPAs below 1 per cent while reducing provisions. As a result, most banks now boast stronger balance sheets. The stock market response in this context is worth analysing. The National Stock Exchange's private bank index has returned 6 per cent in the last year, underperforming the benchmark Nifty 50 (up 20 per cent). The Bank Nifty, which includes both private banks and PSBs, while being overweight in private banks, returned 8.3 per cent. The PSB index returned 78 per cent.

PSBs had much lower valuations and much more in the way of bad loans. Although private banks still receive higher valuation discounts and have better balance sheets, the dramatic improvement in PSB balance sheets has meant a positive re-rating for many of these. Outperformers with triple-digit returns include Bank of Maharashtra, Punjab National Bank, Indian Overseas Bank, Union Bank, and Central Bank. These were among the institutions with the largest GNPA and net NPA overhang. In contrast, State Bank of India, and Bank of Baroda, which are the two strongest and best-capitalised PSBs, have received less recognition from the stock market, though they have returned 40 per cent plus, which is objectively good.

Among the private majors, HDFC Bank, for instance, has seen negative returns in the past year, with the market still uncertain about the impact of its amalgamation with HDFC. In many ways, banks seem to be looking at a positive future. They are anticipating strong demand for corporate credit as growth accelerates and also hoping for easing of monetary policy and rate cuts as and when the inflation rate declines to the legally mandated target. However, the central bank has raised risk weighting for several categories of unsecured loans and proposed increasing provisioning for infrastructure-related loans in an apparent attempt to prevent overheating. Also, as credit-deposit ratios are tightening, banks are being forced to raise interest rates on deposits and this will impact interest margins. While tighter control by the Reserve Bank of India will affect profits in the near term, the sector is in good health. From the macroeconomic standpoint, the banking sector is now well placed to support the revival in private-sector capital expenditure.



Context: The last financial year, 2023-24 (FY24), was good for private banks and excellent for public-sector banks (PSBs).

Types of Banks in India:

- **Central Bank:** RBI serves as the Central Bank of India and is responsible for regulating and controlling the monetary and banking system in the country.
- **Commercial Banks:** These banks are organized under the Banking Companies Act 1956. The main objective of commercial banks is to make a profit and include public sector banks, private sector banks, and foreign banks. **Types:**
  - **Public Banks:** Owned and operated by the government, examples include State Bank of India (SBI), Punjab National Bank (PNB), and Bank of Baroda (BOB).
  - **Private Sector Banks:** These are privately owned and managed banks, such as HDFC Bank, ICICI Bank, and Axis Bank. IndusInd was the first pvt. bank in India.
  - **Foreign Banks:** These banks have branches in India and are headquartered in foreign countries. Some examples are Citibank, Standard Chartered, and HSBC.
- **Regional Rural Banks (RRBs):** These banks cater to rural and semi-urban areas and are owned by the government, commercial banks, and state governments.
- **Co-operative Bank** is registered under the Co-operative Societies Act of 1912 and is run by an elected managing committee. It works on a non-profit, no-loss basis and mainly serves entrepreneurs, small businesses, self-employment, and more in urban areas.
- **Payment banks:** They are a relatively new banking model in the country that has been conceptualized by the RBI. This bank is allowed to accept a restricted deposit with restricted functions.
- **Small Finance Banks:** These banks primarily serve the unserved and underserved sections of the population, including small businesses and low-income individuals.
  - This type of bank is licensed under Section 22 of the Banking Regulation Act 1949, and it is governed by the Provisions Act of 1934.

THE HINDU

Science

EXO-PLANET: 55 CANCRI E

(Syllabus: GS Paper 1 – Geography)



Finally, rocky planet with atmosphere found 41 light years away

Reuters

Astronomers have searched for years for rocky planets beyond our solar system with an atmosphere, a trait considered essential for any possibility of harbouring life. Well, they finally seem to have located one. But this hellish planet, apparently with a surface of molten rock, offers no hope for habitability.

Researchers said on Wednesday the planet is a "super-earth", a rocky world significantly larger than our planet but smaller than Neptune, and it orbits perilously close to a star dimmer and slightly less massive than our sun, rapidly completing an orbit every 18 hours or so.

Infrared observations using two instruments aboard the James Webb Space Telescope indicated the presence of a substantial, if inhospitable, atmosphere, perhaps continuously replenished by gases released from a vast ocean of magma.

"The atmosphere is likely rich in carbon dioxide or carbon monoxide, but can also have other gases such as water vapor and sulphur dioxide. The current observations cannot pinpoint the exact

All of the previous exoplanets found to have atmospheres were gaseous planets, not rocky ones. As Webb pushes the frontiers of exoplanet exploration, the discovery of a rocky one with an atmosphere represents progress

atmospheric composition," said planetary scientist Renyu Hu of NASA's Jet Propulsion Laboratory and Caltech, lead author of the study published in the journal *Nature*.

The Webb data also did not make clear the thickness of the atmosphere. Dr. Hu said it could be as thick as the earth's or even thicker than that of Venus, whose toxic atmosphere is the densest in our solar system.

The planet, called 55 Cancri e or Janssen, is about 8.8-times more massive than the earth, with a diameter about twice that of our planet. It orbits its star at one-25th the distance between our solar system's innermost planet Mercury and the sun. As a result, its surface temperature is about 1,725 degrees C.

The planet is probably tidally locked, meaning it perpetually has the same side facing its star, much like the moon does toward the earth. The planet is located in our Milky Way galaxy about 41 light-years from the earth, in the constellation Cancer. A light year is the distance light travels in a year, 9.5 trillion km. Four other planets, all gas giants, are known to orbit its host star.

That star is gravitationally bound to another star in a binary system. The other one is a red dwarf, the smallest kind of ordinary star. The distance between these companions is 1,000 times the distance between the earth and the sun, and light takes six days to get from one to the other.

All of the previous exoplanets found to have atmospheres were gaseous planets, not rocky ones. As Webb pushes the

Context: Astronomers have recently found a **"super-Earth" or say an exo-planet**, that orbits perilously close to a star dimmer and slightly less massive than our sun.

Rocky Planet

- **Name of the planet: 55 Cancri** e, also called **Janssen,** a so-called super-Earth, a rocky planet significantly larger than Earth but smaller than Neptune.
- **About rocky planets:** These planets are Earth-like planets.
  - Earth, Mars, Mercury and Venus are terrestrial, or rocky, planets.
  - **Also known as**: Terrestrial Planet.
- **Finding were done after an observation of:** James Webb Space Telescope.
- **Atmosphere of the exo-planet:** The atmosphere is likely rich in carbon dioxide or carbon monoxide, but can also have other gases such as water vapor and sulfur dioxide. The current observations cannot pinpoint the exact atmospheric composition.
- **Size:** 8.8 times more massive than Earth, with a diameter about twice that of our planet.
- **Its star and orbit:** It orbits its star at one-25th the distance between our solar system's innermost planet Mercury and the sun.
  - The planet is probably tidally locked, meaning it perpetually has the same side facing its star, much like the moon does toward Earth.
  - The planet is located in our Milky Way galaxy about 41 light-years from Earth, in the constellation Cancer.

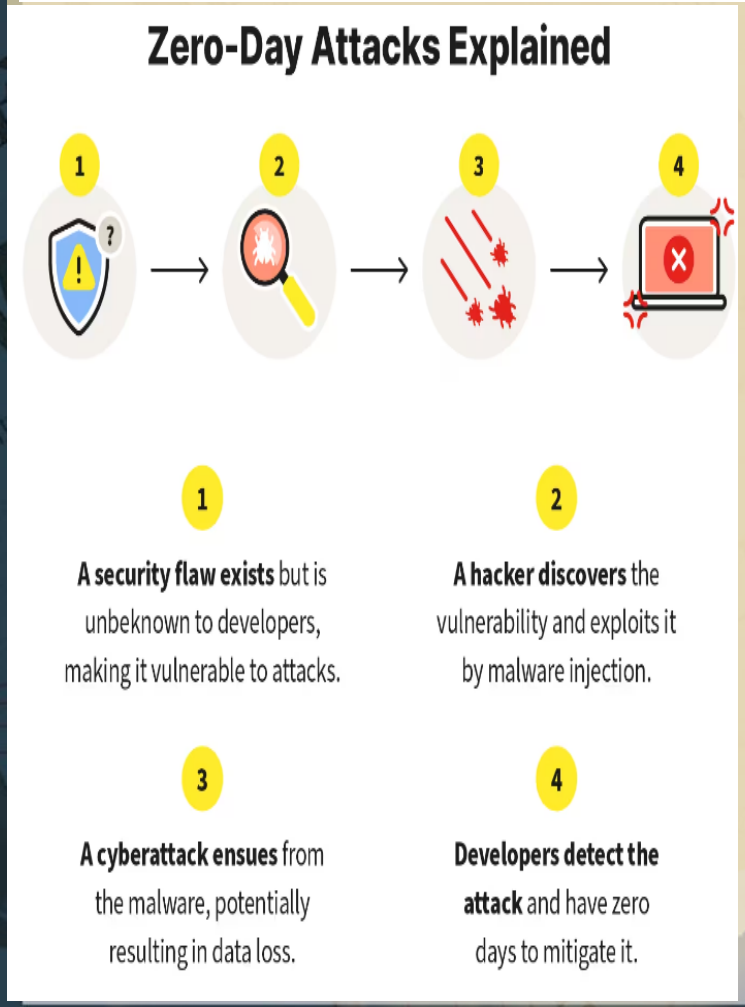
Exo-planets:

- **About:** An exoplanet is any planet beyond our solar system. Most orbit other stars, but free-floating exoplanets without any star is called rogue planets.
  - Almost all planets detected so far are within the Milky Way. However, there is evidence that extragalactic planets, exoplanets located in other galaxies, may exist.

NEWS 18 May 13

ZERO-DAY VULNERABILITY
(Syllabus: GS Paper 3– Cyber Security)

Indian Govt Warns About Major Google Chrome Security Alert: What You Need To Know



Context: Google Chrome has been hit with another zero-day vulnerability, which has set the alarm bells ringing among users and cyber experts.

Zero-day Vulnerability

- **About**: It refers to a system or software vulnerability that is unknown to the vendor and lacks any available patch or mitigation.
- **Zero-Day Attack**: This term denotes an attack occurring immediately after the vulnerability's discovery, leaving no time for mitigation.
- **Zero-Day Exploit**: It describes the method hackers employ to exploit the vulnerability, often via malware, to execute an attack.
- **Nature of Attacks**: Threat actors develop and release malware promptly to target ZDVs, initiating zero-day attacks before security professionals and developers can respond with patches.
- **zero-day vulnerabilities pose a higher risk to users for the following reasons:**
  - Cybercriminals race to exploit these vulnerabilities to cash in on their schemes
  - Vulnerable systems are exposed until a patch is issued by the vendor.
- **Example:** In April 2020, a zero-day vulnerability was discovered in Zoom that made it possible for attackers to gain remote access to users' computers under certain conditions.

TIMES OF INDIA

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SOLID WASTE

(Syllabus: GS Paper 3 – Env & Eco)

Solid Waste Crisis Will Send A Wrong Message To World: SC

Asks Govts To Act With 5,600 Tonnes Going Untreated Daily

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New Delhi: With more than 5,600 tonnes of solid waste going untreated every day in Delhi, Gurgaon, and Faridabad, and no plan in place to immediately process this huge amount of filth, the Supreme Court on Monday remarked that this was a horrible state of affairs in the nation's capital at a time when there was frequent talk about development and the environment. This will send a wrong message to the world, it added.

When the court was informed that additional capacity could be put in place only in 2027, to process 3,800 tonnes per day of Delhi's untreated waste, a bench of Justices Abhay S Oka and Ujjal Bhuyan said after three years the situation will be worse and such delay cannot be tolerated.

Observing that the issue needs to be immediately addressed and political differences should not come in the way, the bench directed the ministry of housing and urban affairs to convene a meeting of all municipal bodies in NCR to formulate a solution to tackle the menace which has been affecting the region and causing environment degradation.

Additional solicitor general Aishwarya Bhati, appearing for the ministry, told the bench that the central govt is providing funds for setting up processing plants and local bodies should be asked about the steps taken by them to deal with the problem. She said that the ministry had recently convened a meeting with all stakeholders and assured the court that another one will be called to look for solutions.

Bhati informed the bench that the Centre's share of Rs 1,117 crore for Delhi has been approved, of which Rs 410 crore has been released till date for the remediation of three legacy waste dump sites located at Bhalaswa, Okhla, and Ghazipur.

As per the Centre's affidavit, waste generation in Delhi is 11,000 tonnes per day (TPD) and the processing capacity is 8,073 TPD, and around 3,800 TPD of fresh waste is still being dumped at Ghazipur & Bhalswa dump sites. The proposed waste processing facilities at Narela, Ghazipur, Okhla, Tehkand and Gogha Dairy will increase the waste processing capacity from 8,073 TPD to 5,473 TPD capacity by 2027.

For Gurgaon, the daily waste generation is 1,200 TPD and the current processing capacity is 150 TPD. In Faridabad, daily waste generation is 1,000 TPD and processing capacity is 240 TPD. In Ghaziabad, 1,600 TPD waste is generated against the processing capacity is 2,000 TPD.

Noting the data in its order, the bench minced no words to point out the pathetic condition in NCR and said that the issue is very vital and "should travel beyond politics".

"This is the capital city. What will the whole world say when we talk about development and environment?... Everywhere the situation is horrible and no one is bothered about it. Some permanent solution has to be found... Union govt should hold a meeting to ensure this is not increased further and tackled," the court observed.

It said the issue directly affects the fundamental right to life of citizens to live in a clean environment and an immediate solution has to be found.

"Considering the development taking place in Delhi and surrounding areas, it is obvious that generation of solid waste everyday is bound to increase and MCD and other authorities are not in a position to deal with that. The immediate measures needed is to ensure that the present generation of untreated solid waste is not increased, authorities have to consider restraints on construction activities etc," the court said.



File photo

MOUNTAIN OF SHAME: As per the Centre's affidavit, 3,800 tonnes per day of fresh waste is still being dumped at Ghazipur and Bhalswa dumps

Waste Management Rules and Guidelines

- The Bio-Medical Waste (Management And Handling) Rules, 1998
- Municipal Solid Waste (Management And Handling) Rules 2000
- The Plastic Waste (Management And Handling) Rules, 2011
- E-Waste (Management And Handling) Rules, 2011

There are other court cases that find their importance in terms of Solid Waste Management in India:

- Almitra Patel vs. Union of India
- B.L Wadhera vs. Union of India.
- Judgement of Karnataka High Court towards Mandatory Segregation at Source.

Context: The Supreme Court recently criticized the absence of immediate plans to address over 5,600 tonnes of untreated solid waste daily in Delhi, Gurgaon, and Faridabad, calling it a dire situation amidst discussions of development and environmental concerns.

Solid Waste

- **About**: It refers to the undesired or nonessential solid materials produced from human activities in residential, industrial, or commercial zones.
- **Categorized in three ways:**
  - Origin (domestic, industrial, commercial, construction or institutional)
  - Contents (organic material, glass, metal, plastic paper etc)
  - Hazard potential (toxic, non-toxin, flammable, radioactive, infectious etc).
- **Types of Solid Waste**
  - **Municipal Solid Waste (MSW):** Includes household waste, construction debris, sanitation residue, and street waste from residential and commercial areas. It encompasses solid or semi-solid waste from municipal or notified areas, excluding industrial hazardous waste but including treated biomedical waste, according to the MoEF.
  - **Industrial Solid Waste (ISW)**: Often classified as hazardous due to containing toxic substances, being corrosive, highly flammable, or reactive.
  - **Biomedical Waste or Hospital Waste:** Comprises infectious waste like sharps, soiled disposables, anatomical waste, cultures, discarded medicines, and chemical waste, typically found in disposable syringes, bandages, body fluids, and human excreta. Improper management poses serious health risks.

THE PRINT May 13

PENCH TIGER RESERVE
(Syllabus: GS Paper 3 – Env and Eco)

Leopard cat sighted in Maharashtra's Pench Tiger Reserve for first time: Official

Context: A leopard cat has been spotted in Maharashtra's Pench Tiger Reserve for the first time, a senior forest official said recently.

Pench Tiger Reserve

- **Location:** situated in Maharashtra.
- **Geographical Features**: The sanctuary spans across Madhya Pradesh and Maharashtra.
  - The Madhya Pradesh portion lies in the Satpura ranges.
- **National Park**: Comprising the Indira Priyadarshini Pench National Park, Pench Mowgli Sanctuary, and a buffer zone.
  - Designated as an Important Bird Area (IBA) of India.
- **Rivers**: The Pench river flows through the middle of the park.
- **Flora**: Southern dry broadleaf teak forests and tropical mixed deciduous forests, shrubs, climbers, and medicinal trees, Bamboo plantations thrive near water banks.
- **Fauna**: Sloth bear, jackal, nilgai, peafowl, magpie robin, and myna.
- **Significance:**
  - Represents the wilderness of the Central Indian Highland.
  - Offers excellent habitat for the highly endangered Tiger species.
  - Critical for water storage in Totladoh reservoir, supplying Nagpur and generating electricity for Madhya Pradesh.

Leopard Cat

- **About:** It is a solitary species but has been observed in pairs or with dependent young. It is mainly described as nocturnal and crepuscular.
- **Found:** Itt occurs throughout most of India, west into Pakistan and Afghanistan, into the Himalayan foothills, across most of China, and north to the Korean peninsula and into the Russian Far East
- **Scientific name:** Prionailurus bengalensis
- **Habitat:** forests and jungles in both low country and in hilly, even mountainous areas up to 3,254 metres.
- **IUCN Status**: Least Concernz.

DTE May 13

UNODC
(Syllabus: GS Paper 3– Security)

Rhinos, elephants, pangolins, cedars, rosewoods & agarwood most affected by illegal wildlife trade: UNODC

Context: According to the 2024 World Wildlife Crime Report recently released by the United Nations Office on Drugs and Crime, the rhino and cedar were the species most impacted by global illegal wildlife trade between 2015 and 2021.

United Nations Office on Drugs and Crime (UNODC)

- **About**: It stands as a prominent global figure in combatting illegal drugs and international crime, while also overseeing the execution of the primary United Nations initiative on counterterrorism.
- **Establishment**: In 1997.
- **Headquarters**: Vienna, Austria.
- **Focus:** Helping to make the world safer from drugs, crime, corruption and terrorism.
  - The UNODC's efforts are in line with the Sustainable Development Goals (SDGs), especially Goal 16, which aims to advance peace, justice, and robust institutions.
- **Functions:**
  - **Drug Control:** The UNODC endeavors to combat illicit drug production, trafficking, and abuse. It fosters global collaboration, drug demand reduction, and alternative development initiatives.
  - **Crime Prevention**: The organization aids member states in preventing and tackling diverse criminal activities such as organized crime, human trafficking, smuggling, and cybercrime.
  - **Corruption**: The UNODC aids nations in combating corruption, money laundering, and financial offenses detrimental to economic progress and stability.
  - **Terrorism Prevention**: The agency contributes significantly to aiding member states in preventing and countering terrorism, including addressing terrorism financing.

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