Prelim Bits 11-03-2022 | Daily UPSC Current Affairs

Study on Urban Heat Island Effect

A study has found that the decadal changes in land use and urban sprawl of the Chennai Metropolitan Area has led to warmer temperature and increasing urban heat island effect spreading to peri-urban landscape.

- According to the study, the vegetation cover of the CMA was 14.9% in 1988, which has drastically shrunk to only 6.1% of the area in 2017.
- Similarly, water bodies that occupied nearly 6.7% of the area in 1988, has decreased to 4.6% of the CMA.
- While the extent of agricultural lands had reduced from 42.2% in 1988 to 19.2% in 2017, it has been replaced by urban built-up area.
- The rapid urbanisation, particularly along East Coast Road and Rajiv Gandhi Salai and GST Road, led to increase in built-up area to 48.7% in 2017 from just 17.7% in 1988.
- As peri-urban areas are developed denser urban sprawl, they are experiencing a warmer temperature due to urban heat island effect.
- Loss of waterbodies and wetlands and greenery that have been replaced by built-up area has increased the land surface temperature (LST) since 1988.
- [LST is the radiative temperature of the earth surface or how hot the earth would be after solar radiation as measured by remote sensor.]
- **Solution** - Efforts need to be taken to increase green cover and protect wetlands in peri-urban areas to sustain a LST of below 30 degree Celsius.
- Creating an inventory of waterbodies and ecologically sensitive zones would help curtail construction activities and reduce negative impact of urbanisation.

Peri-urban Areas

- They are zones of transition from rural to urban land uses located between the outer limits of urban and regional centres and the rural environment.
- The boundaries of peri-urban areas are porous and transitory as urban development extends into rural and industrial land.
- Irrespective of how the boundaries move there will always be peri-urban zones.

Urban Heat Island Effect

- ‘Urban heat islands’ occur when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat.
- This effect increases energy costs (e.g., for air conditioning), air pollution levels, and heat-related illness and mortality.
- Climate changes will likely lead to more frequent, more severe, and longer heat waves during summer months.
- Rapid urbanisation combined with changes in land use pattern leads warming of urban spaces compared with surrounding non-urban areas this is called the urban heat island effect.
- Urban migration, concrete jungles, decrease in dense vegetation and cultivable land area,

encroachments in water bodies will influence urban heat islands.
- To reduce the urban heat island effect:
    - Build green infrastructure improvements into regular street upgrades and capital improvement projects to ensure continued investment in heat-reducing practices throughout the community.
    - Plant trees and other vegetation
    - Build green roofs

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Benin Bronzes

Months after launching an institution-wide review of its practices and ethical code, the Smithsonian museum of the Washington D.C.has announced it will return most of its collection of Benin Bronzes to their homeland Nigeria.

- 'Benin Bronzes' (made of brass and bronze) are formally known as the 'Benin Kingdom Court Style artworks'.
- Benin Bronzes are a group of over 3,000 sculptures and artworks from the ancient Kingdom of Benin in present-day Nigeria, which dates back to at least the 16th century.
- They include intricately decorated cast plaques, commemorative heads, animal and human figurines, items of royal regalia, and personal ornaments.
- **Making** - Benin Bronzes are made using lost-wax casting process - a process of making copies from a model.
- This method had been used in Indus Valley Civilisation as well.
- Benin Bronzes were looted by British colonial forces during the raid on Benin City in 1897.
- Several of these pieces were specially commissioned for the kings or Obas, and Queen Mothers of the kingdom in Benin City.
- These artefacts provide insight into the culture of the Benin Kingdom as well as its relationships with neighbouring states. Some of these pieces also point to the kingdom's relationship with Europeans.

Smithsonian Institution

- It is the world's largest museum, education, and research complex, with 21 museums and the National Zoo.
- It was founded in 1846 with funds from the Englishman James Smithson (1765–1829) according to his wishes "under the name of the Smithsonian Institution."
- Purpose and Vision - The increase and diffusion of knowledge.

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UPI123Pay

The Reserve Bank of India (RBI) has launched the UPI123Pay.

- The UPI123Pay will make the Unified Payments Interface (UPI) service, which was limited to smartphones to date, to be available for the feature phones **without internet**.
- The UPI123Pay service is likely to increase digital adoption and financial inclusion, especially in the rural parts of the country.
- **Working** - UPI123Pay is a three-step method to initiate and execute services for users.
- UPI 123Pay will allow customers to use feature phones for almost all transactions except scan-and-pay function of UPI.
- It doesn't need an internet connection for transactions.
- Customers have to link their bank account with feature phones to use this facility.
- Feature phone users will now be able to undertake a host of transactions based on four technology alternatives. It includes,
    1. Calling an Interactive Voice Response (IVR) number,
    2. App functionality in feature phones,
    3. Missed call-based approach and
    4. Proximity sound-based payments.
- The missed call feature would allow phones to access their bank accounts and perform routine transactions, such as receiving or transferring funds, regular purchases, bill payments, etc.
- A user just has to give a missed call on the number displayed at the merchant outlet. The customer will then receive an incoming call to authenticate the transaction by entering the UPI pin.
- Such users can initiate payments to friends and family, pay utility bills, recharge the FAST Tags of their vehicles, pay mobile bills and also allow users to check account balances.
- **Impact** - UPI has become one of the most popular methods of payment, comprising more than half the retail payments in the country.
- But, the **UPI programme offered by the NPCI** is limited to internet-enabled smartphones.
- As the UPI is being mostly used for smaller retail transactions, the introduction of the **UPI123Pay service by the RBI** on feature phones without an internet connection could be a game changer.

Even though UPI can alternatively be accessed through the National Unified USSD Platform using the code *99#, the process has not seen an uptick in adoption or popularity. But, with UPI123Pay, it would reach 40 crore feature phone users in the country.

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Conscripts

Russia admits for first time that it has sent conscripts to fight in Ukraine.

> Russia has a mandatory 12-month military service for all men between 19 and 27 years of age.

- Conscription, also called **draft**, is the mandatory enlistment of people in a national service, most often a military service.
- This forces all those physically capable between certain ages to serve in an army or one of a country's armed forces.
- Conscription has existed at least from the time of the Egyptian Old Kingdom (27th century BCE) and it continues in some countries to the present day under various names.
- The first comprehensive nationwide system was instituted by the French Republic in the wars following the French Revolution and was institutionalized by Napoleon after he became emperor in 1803.
- Britain introduced it in May 1939 (the first peacetime conscription in that country's history) and the United States in 1940.

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Global Water System Project

The Global Water System Project says that there is a need for a hydro-social approach for water management.

- The Global Water System Project (GWSP) was launched in 2003 as a core project of Earth System Science Partnership (ESSP)
- [ESSP was formed in 2001 by joining the four Global Environmental Change Programmes (DIVERSITAS, IGBP, IHDP, and WCRP).]
- The GWSP aims to understand the complex global water systems with its interactions between natural and human components and their feedback.
- **Water Future** has evolved from GWSP, based on the recommendations outlined in the Bonn Water Declaration.
- It has an objective of promoting the adoption of science-based evidence into the formulation, implementation and monitoring of goals for sustainable development.

> Bonn Declaration on Global Water Security addressed the institutions and individuals focused on science, governance, management and decision-making relevant to water resources.
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> The declaration called for joint global action to develop a broad community consensus for a multi-perspective and multi-scale knowledge-to-action water agenda based on these recommendations.

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