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News: Study quantifies benefit in AQI from fixing potholes, clearing garbage in Delhi

- Filling potholes, fixing unpaved roads, and clearing garbage dumps can potentially reduce particulate matter (PM) pollution from 15% to 26%, says a study by researchers at the Indian Institute of Technology, Delhi.

Air Quality Index

- Air Quality Index is an index for **reporting daily air quality**.
- **Central Pollution Control Board** (statutory board established under Water Prevention and Control of Pollution Act, 1974 & Air Prevention and Control of pollution Act, 1981) is the authority to check the Air Quality Index.
- AQI **focuses on health effects one might experience within a few hours or days after breathing polluted air**.

AQI is calculated for eight major air pollutants:

- **Ground – level ozone, PM 10, PM 2.5, Carbon monoxide, Sulfur dioxide, Nitrogen dioxide, Ammonia and Lead**.
- Most importantly **Carbon Dioxide (CO₂) has been neglected** while calculating AQI.

- Recently, CPCB has launched an app named "Sameer" that provides information about Air Quality Index (AQI) levels for more than 100 cities across the country.
- The listed cities are colour-coded, based on their AQI levels. Other than monitoring pollution levels, the app can also be used to file or track complaints related to garbage dumping, road dust, vehicular emission or other pollution issues in a particular area.

World Air Quality Index (WAQI)

- The World Air Quality Index project is a non-profit project started in 2007.
- Its mission is to promote air pollution awareness for citizens and provide a unified and world-wide air quality information.
- The project is providing transparent air quality information for more than 100 countries, covering more than 12,000 stations in 1000 major cities via those two websites: aqicn.org and waqi.info.
- The founding team, located in Beijing China, is composed of several contributors in the domain environmental sciences, system engineering, data science, as well as visual design.

- The Air Quality Index is based on measurement of **particulate matter (PM 2.5 and PM 10), Ozone (O₃), Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂) and Carbon Monoxide (CO) emissions.**
- Most of the stations on the map are monitoring both PM 2.5 and PM 10 data, but there are few exceptions where only PM 10 is available.
- All measurements are based on **hourly readings**: For instance, an AQI reported at 8AM means that the measurement was done from 7AM to 8AM.

System of Air Quality and Weather Forecasting

(SAFAR)

- **System of Air Quality and Weather Forecasting and Research (SAFAR)** is a national initiative introduced by **Ministry of Earth Sciences (MoES)** to **measure the air quality index of cities**, by measuring the overall pollution level & the location specific air-quality of the city.
- The system is indigenously developed by **Indian Institute of Tropical Meteorology, Pune** & is operationalized by **India Meteorological Department**.
- It has a **giant true color LED display** that gives out real-time Air-quality Index based on color code along with **72 hour advanced forecast**.

- The ultimate objective of the project is to increase awareness among the general public regarding the air quality in their city so that appropriate mitigation measures and systematic action can be taken up.
- It organizes awareness drive by educating the public (prompting self-mitigation), and it also helps the policy-makers to develop mitigation strategies keeping in mind the nation's economic development.
- SAFAR is an integral part of India's first Air Quality Early Warning System operational in Delhi.
- In addition to regular air quality parameters like **PM 2.5, PM 10, Sulphur Dioxide, Ozone, Nitrogen Oxides, Carbon Monoxide**, the system will also **monitor the existence of Benzene, Toluene and Xylene.**
- It monitors all weather parameters like **temperature, rainfall, humidity, wind speed and wind direction.**

News: Leopard population

- Odisha's leopard population has increased by 22%, rising from 568 to 696 in two years between 2022 and 2024, despite ongoing concerns about poaching and the illegal trade of leopard skins in the State.
- The All Odisha Leopard Estimation 2024, released recently, estimates the State's leopard population to range between 668 and 724, with a median count of 696.
- However, the present leopard population lags behind the 2018 census carried out by National Tiger Conservation Authority (NTCA), which put Odisha's big cats' number at 760. In 2022, the population dropped to 568.

Leopard

- Leopards can be found in Sub-Saharan Africa, in small parts of Western and Central Asia, on Indian Subcontinent to Southeast Asia.
- Leopards are distinguished by their slender and long body and yellowish-brown coats with black spots. They are solitary hunters and nightstalkers and are well known for their ambush attacks when hunting.
- Leopards are excellent climbers. The slender body with short, stocky legs and long tail make them excellent and agile hunters and swimmers.

- Leopards are the **smallest of all the big cats** it approximately **weighs 90 kilograms**.
- IUCN Status: **Vulnerable**.
- Wildlife Protection act: **Schedule I**.
- CITES: **Appendix I**.
- According to a study published in the journal *Global Ecology and Biogeography*, the leopard faces an 83% increased risk of extinction in North India due to roadkill.

Status of Leopards in India 2022

- Status of Leopards in India 2022 is a **report published by National Tiger Conservation Authority** recently.
- Leopards are found in **13 states in India**. Andhra Pradesh, Bihar, Chhattisgarh, Goa, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu, Uttar Pradesh and Uttarakhand are states where Leopard is found.
- India's **leopard population rose by 8% from 12,852 in 2018 to 13,874 in 2022**.
- About **65% of the leopard population is present outside protected areas in the Shivalik landscape**. Only about a third of the leopards are within protected areas.

- Madhya Pradesh has the highest number of leopards with 3907 big cats, followed by Maharashtra and Karnataka respectively.
- In Odisha the number of leopards dropped from 760 in 2018 to 562 in 2022, and in Uttarakhand, the population declined from 839 in 2018 to 652 in 2022.
- Recently, as per the All Odisha Leopard Estimation 2024, the population of Leopard in the state stood at a range between 668 and 724, with a median count 696.
- As high as 45% of the leopard population in Odisha is located outside the protected area network and thus the territorial forest divisions have considerable leopard presence.
- Kerala, Telangana, Chhattisgarh, Bihar, and Goa too reported population declines.
- Around 1,485 leopards were poached in the country in the last 10 year.
- As many as 59 leopard skins were seized from wildlife smugglers between 2018 and 2023. Similarly, a Special Task Force (STF) of the State police has recovered 57 leopard skins from poachers and wildlife article dealers from 2019 to 2024. Overall, 116 leopards were killed and their skins taken. Wildlife experts said in dozens of cases, leopard skins might have reached their destinations unnoticed and unintercepted.

News: Classical Languages

- The Union Cabinet on Thursday approved classical language status to Marathi, Bengali, Assamese, Pali, and Prakrit.

Classical Language Status

- In 2004, the Government of India decided to create a new category of languages called “classical languages”.
- In 2006, it laid down the criteria for conferring classical language status. So far, the 11 languages are granted classical language status.
- Tamil became the first language to receive Classical language status in 2004, followed by Sanskrit (2005), Telugu, Kannada (both in 2008), Malayalam (2013) and Odia (2014). 5 languages: Marathi, Bengali, Assamese, Pali and Prakrit were accorded the status in 2024.

Criteria

- High antiquity of early texts/recorded history spanning 1,500–2,000 years.
- Possession of a body of ancient literature/texts considered valuable heritage by generations.
- Presence of an original literary tradition not borrowed from another speech community.

- The classical language and literature being distinct from modern, there can also be a discontinuity between the classical language and its later forms or its offshoots.

Benefits

- Once a language is declared classical, it gets financial assistance for setting up a centre of excellence for the study of that language and also opens up an avenue for two major awards for scholars of eminence.
- Additionally, the University Grants Commission can be requested to establish professional chairs for scholars of classical languages, starting with central universities.