DAILY CURRENT AFFAIRS ANALYSIS

18 APRIL 2024

1 - World Air Quality Report 2023:

GS III

Environmental Conservation

- **Context:**

- India has been identified as the world's third most polluted country, as per the World Air Quality Report 2023 by Swiss organisation IQAir.

- **What are the Key Highlights of the World Air Quality Report 2023?**

- **India's Air Quality Ranking:**

- Ranked as the world's third most polluted country, with an average annual PM2.5 concentration of 54.4 micrograms per cubic meter.
- Bangladesh and Pakistan surpassed India in pollution levels, becoming the most and second most polluted countries, respectively.
- 9 out of the top 10 most polluted cities in the world are from India.
- India's air quality deteriorated compared to the previous year, with Delhi emerging as the world's most polluted capital city for the fourth consecutive time.
- Begusarai in Bihar is labelled as the world's most polluted metropolitan area, with an average PM2.5 concentration of 118.9 micrograms per cubic meter.

- **Health Impacts and WHO Guidelines:**

- Around 136 million Indians (96% of the Indian population) face PM2.5 concentrations (seven times) higher than the World Health Organization's recommended levels of 5 micrograms per cubic meter.
- Over 66% of Indian cities have reported annual averages higher than 35 micrograms per cubic metre (µg/m3).
- PM2.5 pollution, primarily from burning fossil fuels, is linked to increased rates of heart attack, stroke, and oxidative stress, with severe health implications.

- **Global Air Quality:**

- Seven countries that met the WHO annual PM2.5 guideline (annual average of 5 µg/m3 or less) included Australia, Estonia, Finland, Grenada, Iceland, Mauritius, and New Zealand.
- The report states that Africa continues to be the most underrepresented continent, with a third of its population lacking access to air quality data.

- Some countries, including China and Chile, reported decreases in PM2.5 pollution levels, indicating progress in combating air pollution.
- Pollution does not stay confined to its source, with prevailing winds distributing it across regions, emphasising the need for international cooperation in addressing air quality issues.
- **Global Impact of Air Pollution:**

- Air pollution causes approximately seven million premature deaths worldwide annually. It contributes to approximately one in every nine deaths worldwide.
- PM2.5 exposure leads to health issues like asthma, cancer, stroke, and mental health complications.
- Exposure to elevated levels of fine particles can impair cognitive development in children, lead to mental health issues, and complicate existing illnesses, including diabetes.

- **What are the WHO Air Quality Guidelines?**

- **Pollutants Covered:**

- The World Health Organization (WHO) regularly updates its evidence-based air quality guidelines to safeguard public health from the ongoing threat of air pollution. The most recent update occurred in 2021, revising the guidelines that were originally published in 2005.
- The guidelines cover both particulate matter (PM) and gaseous pollutants, including PM2.5, PM10, ozone (O3), nitrogen dioxide (NO2), sulfur dioxide (SO2), and carbon monoxide (CO).

- **Particulate Matter (PM):**

- Particulate matter, or PM, refers to a complex mixture of extremely small particles and liquid droplets suspended in the air. These particles come in a wide range of sizes and can be made up of hundreds of different compounds.
- PM10 (coarse particles) - Particles with a diameter of 10 micrometres or less.
- PM2.5 (fine particles) - Particles with a diameter of 2.5 micrometres or less.

- **Air pollution:**

- It is the contamination of the environment by chemicals, physical or biological agents. Sources include household devices, vehicles, industrial facilities, and forest fires.
- Major pollutants include particulate matter, carbon monoxide, ozone, nitrogen dioxide, and sulfur dioxide, causing respiratory diseases and high mortality rates.
- WHO data shows that 99% of the global population breathes air exceeding guideline limits, with low- and middle-income countries suffering the most.
- Air quality is closely linked to the earth's climate and ecosystems, and policies to reduce air pollution offer a win-win strategy for both climate and health.
- All of India's 1.4 billion people (100% of the country's population) are exposed to unhealthy levels of ambient PM2.5.

- The health impacts of pollution also represent a heavy cost to the economy. Lost output from premature deaths and morbidity attributable to air pollution accounted for economic losses of USD 36.8 billion was 1.36% of India's gross domestic product (GDP).

Source → The Hindu

2 - New Electric Vehicle Policy 2024:

GS II

Government Policies and Interventions

- **Context:**

- In a significant development, the Government of India has greenlit a strategic policy aimed at positioning India as a prime manufacturing hub for electronic vehicles (e-vehicles).

- This initiative is not only geared towards bolstering the nation's technological prowess but also aligns with the overarching goal of fortifying the 'Make in India' campaign.

- **What is the Centre's New Electric Vehicle Policy?**

- **Highlights of the Policy:**

- **Duty Reduction for EV Imports:**

- The policy slashes customs duty rate to 15% (applicable to Completely Knocked Down - CKD units) will be imposed on EVs with a minimum CIF (Cost, Insurance, and Freight) value of USD 35,000 or above for a total period of 5 years.

- **Import Cap and Investment Prerequisites:**

- While allowing reduced-duty imports, the policy caps the number of imported EVs at 8,000 per year.
- Manufacturers must invest a minimum of Rs 4,150 crore (~USD 500 Mn) to avail duty concessions.
- There's no ceiling on the maximum investment, incentivising substantial capital infusion into the sector.

- **Manufacturing and Value Addition Requirements:**

- To promote local manufacturing, companies must set up operational facilities within 3 years and achieve a minimum domestic value addition (DVA) of 25% within the same period, escalating to 50% within 5 years from the date of issuance of approval letter by the Ministry of Heavy Industries.
- DVA is a percentage share of value that represents the value an economy adds to goods and services produced for export.

- **Maximum Import Allowance:**

- If the investment exceeds USD 800 Mn, up to 40,000 EVs can be imported, not exceeding 8,000 per year.
- Companies can carry over any unused annual import limits.

- **Duty Limit:**

- The total duty waived on imported EVs will be capped at the investment made or Rs 6484 Cr (equal to incentive under the Production Linked Incentive (PLI) scheme for Automobile and Auto Components), whichever is lower.

- **Bank Guarantees:**

- The bank guarantee will only be returned upon achieving 50% DVA and making an investment of at least Rs 4,150 crore or to the extent of duty foregone in 5 years, whichever is higher.

- **Key Benefits:**

- The policy stimulates innovation and progress in electric vehicle technology.
- It promotes indigenous manufacturing, aligning with the government's Make in India campaign.
- By promoting EV adoption, the policy helps reduce crude oil imports and narrows the trade deficit.
- The shift to electric vehicles contributes to mitigating air pollution, particularly in urban areas.
- The new EV policy aligns with India's climate goals of reducing emissions intensity by 45% by 2030 and achieving net-zero emissions by 2070.

- **Positive Impact on Health and Environment.**

- **Impact:**

- The policy aims to attract global players like Tesla by offering investment incentives and import duty reductions.
- Global EV manufacturers, including Tesla, Inc., had been advocating for tariff concessions as a prerequisite for establishing manufacturing plants in India.
- The new policy effectively fulfils this demand, signalling India's commitment to attracting foreign investment in the EV sector.
- With India currently being the world's third-largest automobile market and one of the fastest-growing, the EV sector is poised to emerge as a major category within the automotive industry.
- The automotive sector's substantial contribution to India's GDP underscores its strategic importance.

- **The EV market in India:**

- The Indian EV market is witnessing rapid growth, with EV sales surging by over 45% in 2024 despite regulatory changes.
- Total EV registrations surpassed 1.5 million units by the end of 2023, a significant increase from just over 1 million in the previous year.
- The growth in EV registrations has elevated India's overall EV market penetration to 6.3%, indicating significant progress in EV adoption.
- Indian automakers are making substantial investments in electrification, encouraged by the government's plan to eventually phase out subsidies.

- **What are the Other Initiatives Related to Electric Vehicles in India?**

- **Electric Mobility Promotion Scheme (EMPS) 2024:**

- The Indian government has introduced the EMPS 2024 to promote the purchase of electric two-wheelers (e2W) and three-wheelers (e3W). With a budget of Rs 5 billion, it will replace the FAME-2 scheme and will be effective from April to July 2024, with the possibility of being replaced or extended thereafter.
- The main goal is to increase the adoption of e2Ws and e3Ws while gradually reducing industry reliance on subsidies.
- The subsidy is now reduced to Rs 5,000 per kilowatt-hour of battery capacity, down from Rs 10,000, and capped at Rs 10,000 per e-2W, which is a reduction of 15% from the price under FAME-II and is expected to cover 3,33,387 e-2Ws.
- The scheme does not cover electric four-wheelers (e4Ws) and e-buses.

- **Phased Manufacturing Programme (PMP):**

- The Ministry of Heavy Industries has introduced a PMP to promote indigenous manufacturing of Electric Vehicles and their components over time.
- A graded duty structure is envisioned to incentivise local manufacturing.

- **National Mission on Transformative Mobility and Storage:**

- The aim of the mission is to drive strategies for transformative mobility and Phased Manufacturing Programmes for electric vehicles, electric vehicle Components and Batteries.

- **EV30@30 campaign:**

- India is among a handful of countries that support the global EV30@30 campaign, which aims for at least 30% of new vehicle sales to be electric by 2030.
- Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles (FAME) – I and II.
- Production Linked Incentive (PLI) scheme for Automobile and Auto Components.
- National Electric Mobility Mission Plan (NEMMP).

- **What are the Challenges for the EV market in India?**

- **Charging Infrastructure:**

- **Limited Availability:**

- There aren't enough charging stations, especially outside major cities.
- This creates a lack of accessibility and makes long-distance travel impractical for many EV owners.

- **High Installation and Maintenance Costs:**

- Setting up charging stations requires significant investment, and maintaining them adds to the operational cost.
- This can limit the number of operators willing to invest, hindering infrastructure growth.

- **Range Anxiety and Long Charging Times:**

- The limited availability of charging stations, coupled with the relatively short driving range of EVs compared to gasoline vehicles, creates anxiety for potential buyers. Filling a gas tank is quick while charging an EV can take hours.

- **Cost:**

- **High Upfront Cost of EVs:**

- Electric vehicles themselves are more expensive than comparable gasoline models, due to battery and technology costs. This is a major hurdle for budget-conscious Indian consumers.

- **High Battery Costs:**

- Battery technology is still evolving, and production costs remain high. This significantly impacts the overall price of EVs.

- **Customer Support and Awareness:**

- **Lack of Service Options:**

- The service network for EVs is still developing. Finding trained technicians and service centres equipped for EVs can be challenging for some owners.

- **Lack of Consumer Awareness:**

- Some potential EV buyers may not be familiar with the benefits of electric vehicles, or they may have misconceptions about them.
- This can make it difficult to convince them to switch from gasoline.
- **Supply Chain and Policy:**

- **Supply Chain Challenges:**

- India relies on imports for critical EV components like lithium and cobalt. Disruptions in the global supply chain can affect EV production and costs.

- **Policy Uncertainty:**

- Government policies and regulations are not constant. This can make it difficult for automakers and consumers to plan for the future.
- However, recent initiatives like EMPS aim to provide some stability and incentivize EV adoption, though the long-term impact remains to be seen.

- **Subsidy Dependence:**

- While initiatives like EMPS 2024 can help reduce the upfront cost of EVs, over-reliance on subsidies can create uncertainty in the market if they are reduced or phased out in the future.

- **Other Challenges:**

- Uncertain Consumer Behaviour: The long-term economic and environmental benefits of EVs are clear, but it's uncertain how quickly consumers will adopt this new technology.
- Lack of Standardisation: The lack of standardised charging protocols can create confusion for consumers and limit interoperability between different EV models and charging stations.

- **Way Forward:**

- Expand the charging infrastructure network in urban and rural areas to address underdeveloped infrastructure challenges. Encourage private investments in high-speed, commercial-grade chargers to meet increasing EV demand.
- The government plans to implement the battery swapping policy announced in the Union Budget in 2022 can enhance the charging infrastructure.
- This policy involves exchanging discharged batteries for fully charged ones, making EV charging as fast as refuelling conventional vehicles.
- Promote private sector innovation in lightweight and high energy density batteries for improving EV driving range. Offer incentives and tax credits for battery technology research and development.

- Conduct educational campaigns to inform the public about the benefits of electric vehicles and the importance of transitioning to sustainable transportation options.
- Offer attractive leasing and rental schemes to facilitate easy access to EVs and mitigate resistance to change.
- Implement regulatory frameworks and standards to ensure the safety and quality of EVs and charging infrastructure.
- Promote the adoption of smart digital solutions to enhance the EV ecosystem, including fleet management systems and charger management platforms.

Source → The Hindu

3 - Use of Snake Venom for Intoxication:

GS II

Health related issues

- **Context:**

- Recently, a few people have been arrested by the police on charges of allegedly providing snake venom for a rave party under the Wild Life (Protection) Act, 1972, and the Indian Penal Code (Bharatiya Nyay Sanhita, 2023).

- **What are Key Facts About Snake Venom and its Use?**

- **About:**

- Out of nearly 3400 snake species globally, India hosts around 300 snake species inhabiting varying habitats across the country.
- Types of Snake: The species falls under 4 families namely - Colubridae, Elapidae, Hydrophiidae, and Viperidae.
- Venomous Snake: Out of 300 species found in India, more than 60 are venomous, 40+ mildly venomous, and about 180 non-venomous.
- Snake venoms (highly toxic saliva) are the secretions of venomous snakes, which are synthesised and stored in special glands.
- Properties of Venom: Snake venom is a complex mixture of enzymes, peptides and proteins of low molecular mass with specific chemical and biological activities.
- Snake venom contains several neurotoxic, cardiotoxic, and cytotoxic nerve growth factors, lectins, disintegrins, haemorrhaging and many other different enzymes.

- **Use of Snake Venom:**

- Certain particular snake species like cobras, kraits and Black mambas are used for medicinal and intoxication purposes.

- **Medicinal use:**

- The use of snake venom in different pathophysiological conditions has been mentioned in Ayurveda, homoeopathy and folk medicine.
- It is also used for the treatment of thrombosis, arthritis, cancer and many other diseases.
- One of the most well-known examples is the use of snake venom in antivenom production.

- **Recreation Use:**

- Snake venom is often used as a recreational drug, despite less scientific research. Its smuggling is a multi-million dollar illicit industry.
- Various forms of neurotoxin found in cobra venom, particularly, bind on nicotinic acetylcholine receptors (nAChRs) that are widely distributed in the human brain area and are involved in the euphoric or rewarding experience.
- People also experience "muscular paralysis and analgesia" (loss of the ability to feel pain while still conscious), and drowsiness.

- **Regulation:**

- The use and trade of most psychoactive 'substances of abuse' come under the Narcotic Drugs and Psychotropic Substances (NDPS) Act, but not snake venom.
- The NDPS Act, 1985, prohibits a person from producing, possessing, selling, purchasing, transporting, storing, and/or consuming any narcotic drug or psychotropic substances.
- The matters related to snakes and their venom come under the purview of the Wildlife Protection Act.
- Section 120A (criminal conspiracy) of the IPC also covers crimes related to snake venom for recreational use.

Source → The Hindu