

DAILY CURRENT AFFAIRS (DCA)

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ELECTED WOMEN REPRESENTATIVES OF PRI PARTICIPATED IN CPD57 SIDE EVENT

Context

- **Elected Women Representatives of Panchayati Raj Institutions** participated in the **United Nations Commission on Population and Development (CPD57) Side Event: “Localizing the SDGs: Women in Local Governance in India Lead the Way”** at New York.

Status of Reservation for Women in Panchayati Raj Institutions in India

- The Constitution 73rd and 74th Amendment Acts, mandated the reservation of **one-third of seats for women** in Panchayati Raj institutions and offices of the chairperson at all levels of Panchayati Raj institutions, and in urban local bodies respectively.
- Out of the total 1/3rd seats reserved for women, **33% had to be reserved for the Scheduled Castes and Scheduled Tribes.**
- One-third of the seats of office-bearers and chairpersons at all levels had to be reserved for women as well.

Role of Women in Local Governance

- Over a million women across India are elected members of around 2.6 lakh gram panchayats in the country.
- **Advocacy for Women’s Issues:** Women representatives often advocate for gender-sensitive policies and programs, addressing issues such as women’s health, education, sanitation, and livelihood opportunities.
 - ♦ Their presence ensures that the concerns of women and marginalized communities are prioritized in local development agendas.
- **Decision-making:** Women’s participation in local governance has facilitated decision-making processes that are more inclusive and reflective of diverse community needs.
 - ♦ They contribute to policy formulation, budget allocation, and implementation of welfare schemes at the grassroots level.
- **Community Development:** Women in local governance play a crucial role in driving community development initiatives, including infrastructure development, environmental conservation, and social welfare programs.

- **Empowerment and Social Change:** Through their participation in local governance, women gain leadership skills, confidence, and a platform to challenge traditional gender roles and stereotypes.
 - ♦ Their presence inspires other women and girls to actively engage in civic and political processes, leading to broader social empowerment and gender equality.
 - ♦ Women members of gram panchayats can address the problem of exclusion of the poorest women – by reaching services to women working in brick kilns, poultry farms, plantations, sugarcane harvesting groups, and other migrant groups.

Suggestions

- One important way to improve women’s participation in gram sabhas is with the **involvement of women’s self-help groups (SHGs).**
 - ♦ Some States, such as Karnataka, have special gram sabhas for women in addition to regular gram sabhas.
 - ♦ At such assemblies, women can raise their issues to the elected panchayat members as well as to the field officials.
- Further, contemporary tools like data visualisation, text to speech, and smartphone applications can greatly **simplify and make accessible key information**, without dilution, especially for women members who may be semi-literate or illiterate.

Conclusion

- Overall, women’s participation in local governance in India has led to more inclusive and responsive decision-making, enhanced accountability, and improved development outcomes at the grassroots level.
- However, challenges such as patriarchal attitudes, limited resources, and capacity-building constraints continue to impact the full realization of women’s potential in local governance.

Panchayati Raj System in India

- In the early 1950s, the **first National Development Council (Balwant Rai Mehta Committee report)** recommended the **formation of a democratic system of governance** at the **grassroot level.**

- In 1993, by the **73rd Constitutional Amendment Act**, the Panchayat system came to be implemented in the rural areas to allow for development to happen at grassroot level.
- **There are three levels:**
 - ♦ **Gram Panchayat:** This is the village council, the most basic level.
 - ♦ **Block Panchayat:** This council looks after a group of villages.
 - ♦ **Zila Panchayat:** This is the district council, overseeing a larger area.
- Panchayati Raj is important because **it brings democracy down to the village level.**

Source: PIB

SPICES INDUSTRY OF INDIA

In News

- Every day new countries are raising concerns about the quality of Indian spices.

About the Issue

- Hong Kong and Singapore banned the sale of popular brands MDH and Everest after detecting **carcinogenic chemical ethylene oxide** in their products.
 - ♦ This led to a mandatory recall from shelves.
- The **Spices Board of India** in response has initiated mandatory testing of products shipped abroad and is reportedly working with exporters to identify the root cause of contamination.
- Controversies have also engulfed other items like protein drinks, fruit juices, health drinks and imported Nestle baby products, drawing attention to regulatory lapses and heightening health concerns.

About Spices industry in Industry

- India is the world's largest spice producer and It is also the largest consumer and exporter of spices.
- **Production:** The production of different spices has been growing rapidly over the last few years.
 - ♦ Production in 2022-23 stood at 11.14 million tonnes compared to 11.12 million tonnes in 2021-22. During 2022-23, the export of spices from India stood at US\$ 3.73 billion from US\$ 3.46 billion in 2021-22.

- ♦ India produces about 75 of the 109 varieties which are listed by the International Organization for Standardization (ISO).

- **The most produced and exported spices** : Pepper, cardamom, chilli, ginger, turmeric, coriander, cumin, celery, fennel, fenugreek, garlic, nutmeg & mace, curry powder, spice oils and oleoresins. Out of these spices, chilli, cumin, turmeric, ginger and coriander makeup about 76% of the total production.

- **The largest spice-producing states in India** : Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh, Telangana, Karnataka, Maharashtra, Assam, Orissa, Uttar Pradesh, West Bengal, Tamil Nadu and Kerala.

- **Export:** In 2023-24, India's spice exports totalled \$4.25 billion, accounting for a 12% share of the global spice exports.

- ♦ India exported spices and spice products to 159 destinations worldwide as of 2023-24 (until February 2024). The top destinations among them were China, the USA, Bangladesh, the UAE, Thailand, Malaysia, Indonesia, the UK, and Sri Lanka. These nine destinations comprised more than 70% of the total export earnings in 2023-24 (until February 2024).

Government's Initiatives

- **Spices Board of India:** It is the flagship organization for the development and worldwide promotion of Indian spices. It was established by the Spices Board Act, 1986.
 - ♦ It acts as a link between Indian exporters and importers abroad.
- **Export Development and Promotion of Spices** : It aims to support the exporter to adopt high-tech processing technologies and upgrade the existing level of technology for the development of industry and to meet the changing food safety standards of the importing countries.
- Setting up and maintenance of infrastructure for common processing (Spices Parks)
 - ♦ Spices Board has launched eight crop-specific Spices Parks in key production/market centres intending to facilitate the farmers to get an improved price realization and wider reach for their produce.

Issues and Concerns

- Indian spice traders and producers are facing challenges like **food safety, sustainability and traceability**.
- **Operational:** India's diverse food landscape, the **lack of standardised recordkeeping and intentional food fraud** may prevent manufacturers from efficiently tracing ingredients and assessing potential risks, compromising the safety of the entire food supply chain.
- **Logistic barriers:** At least 10 States/Union Territories lack government or private notified food testing labs, as mandated under the FSS Act.
 - ◆ These labs are distributed unevenly across regions; have insufficient number of food safety officers; and were found to operate ineffectively due to resource constraints.
- The absent **accountability and consequences** often mean enforcement agencies fail to penalise unscrupulous food operators
 - ◆ Under Section 59 of the FSS Act, food businesses found guilty of selling, storing or manufacturing sub-standard foods can be penalised with a 3 lakh penalty and a three-month jail term.
- **FSSAI's operations often lack transparency**, which "hinders efforts to meet safety standards", build accountability and trust
 - ◆ Surveys that flagged contamination in products like milk and jaggery "have not resulted in positively addressing the rampant practice of adulteration".

Suggestions and conclusion

- India needs to address the quality issue with regard to its spice exports with urgency and transparency as the ongoing quality concerns could threaten over half of the country's spice shipments.
- There is a need for stricter regulatory measures and transparency in food production and safety industry standards.
- Swift investigations and the publication of findings are essential to re-establish global trust in Indian spices
- There should be a commitment to proactive monitoring and enforcement, rather than reactive responses to individual incidents."

Source:TH

NEWLY DISCOVERED ORGANELLE TO FIX NITROGEN

Context

- Recently researchers have discovered the "nitroplast" where a prokaryotic cell is engulfed by a eukaryotic cell and evolves into an nitrogen-fixing organelle.

Endosymbiotic theory

- A symbiotic relationship where one organism lives inside the other is known as endosymbiosis.
- **The endosymbiotic theory** states that organelles like mitochondria and chloroplasts, the sites of cellular respiration and photosynthesis, were once free-living bacteria that were later ingested by the recipient cells.
 - ◆ **Organelles** are small, specialized structures in cells which operate like organs by carrying out specific tasks.
- Unlike mitochondria and chloroplast endosymbiosis, which happened nearly two billion years back, nitroplast's evolution as an organelle is relatively recent (about 100 million years).

What is Nitrogen Fixation?

- Nitrogen gas makes up about **78% of the Earth's atmosphere** by volume. It is a key component in proteins and DNA of all living organisms.
- **Nitrogen fixation** is the process by which nitrogen is taken from its molecular form (N₂) in the atmosphere and converted into nitrogen compounds useful for other biochemical processes.
- **Bacteria and archaea** help convert atmospheric nitrogen gas to ammonia by nitrogen fixation (or ammonification) to make nitrogen usable for plants.
- **Legumes**, a class of plants in the family **Fabaceae**, bear the nitrogen-fixing bacteria in their root nodules.
- **Ammonia** is converted to **nitrites and nitrates** (nitrification) and then back into atmospheric nitrogen (**denitrification**) with the help of bacteria to complete the cycle.
- In marine environments, bacteria and archaea are also involved in ammonification, nitrification, and denitrification.

Discovery of Nitroplast

- In **1998**, a **cyanobacterium Candidatus Atelocyanobacterium thalassa or UCYN-A** was discovered in the water of the Pacific Ocean capable of fixing nitrogen.
- Later, the marine algae **Braarudosphaera Bigelowii** was found as the host for UCYN-A.
- The current discovery extends the earlier reports of a nitrogen-fixing cyanobacterium in marine algae and establishes it as a new organelle.
- During a symbiont's transformation into an organelle within a eukaryotic cell, its genome becomes frugal, encoding fewer proteins and utilizing the host cell's proteins to perform some of its essential functions.
 - ♦ It was established as a symbiotic cyanobacterium for marine single-cell eukaryotic algae.

Criteria of Bonafide organelles

- The organelle must be integrated into the function and overall architecture of the host cell.
- Proteins must be imported to the organelle from the host cell to carry out some of its functions.
- Organelles must be in sync with the host cell's growth.
- Organelles must be inherited in the newly dividing cells during host cell division.
 - ♦ All these above criteria were satisfied by Nitroplast.

Implications on Agriculture

- **The Haber-Bosch method** for synthesizing ammonia from nitrogen and hydrogen has revolutionized agriculture by introducing ammonia as a fertilizer.
- However, it contributes to water and air pollution and climate change with its carbon dioxide emissions.
- The current discovery has the potential to use the Nitroplasts as independent nitrogen-fixing organelles.

Prokaryotic and Eukaryotic Cells

- The cell is the basic unit of life and forms the building blocks of all living organisms. It was discovered by **Robert Hooke In 1665**.
- Some cells have **membrane-bound organelles** and some do not. Depending upon the internal structure of the cell, two types of cells are found in an organism namely **Eukaryotic and Prokaryotic**.
- **Prokaryotic cells** are simpler and smaller in size, while **eukaryotic cells** are more complex and larger.

Source: TH

NEWS IN SHORT

CHLOROPICRIN

In News

- The U.S. The State Department accused Russia of having **used chloropicrin** as a chemical weapon against Ukrainian forces in violation of the **Chemical Weapons Convention**.

More in News

- The U.S. The State Department also accused Russia of using tear gas on the battlefield as a method of warfare in Ukraine, also in violation of the CWC
 - ♦ Tear gas is a collective name for any lachrymatory — or tears-inducing — agent; popular examples include pepper spray, and bromoacetone.

About chloropicrin

- The chemical compound chloropicrin is **used both as a warfare agent and pesticide**.
 - ♦ If inhaled, it poses a health risk.
- It is also known as nitrochloroform and is also employed as an antimicrobial agent, and as a herbicide and nematicide.
- It's **manufactured** today in a **chemical reaction involving sodium hypochlorite** (which in dilute form is called bleach) and **nitromethane (a common industrial solvent)**.
- It can also be made by **combining chloroform with nitric acid**, which yields chloropicrin and water.
- **Instances of Usage** : It was made as a poison gas in the First World War, by both the **Allied and the Central Powers**.
- **Health concerns**
 - ♦ Chloropicrin has documented irritating and tears-inducing effects on humans, and is also known to be highly toxic and carcinogenic.
 - ♦ It can also induce vomiting, which was known to prompt soldiers to remove their masks, when they would inhale more of the gas, or other gaseous agents dispersed in the air.

Chemical Weapons Convention

- The Chemical Weapons Convention (CWC) is an **international treaty** aimed at eliminating the production, stockpiling, and use of chemical weapons and their precursors.

- The Treaty was adopted on September 3, 1992, and entered into force on April 29, 1997. It currently has 193 member states.
- It makes it **mandatory to destroy old** and abandoned chemical weapons.
- **India signed** the treaty in January 1993.

Source: TH

CATATUMBO LIGHTNING

Context

- Lake Maracaibo's status as the world's most lightning-struck location is a testament to the intricate interplay of geographical, meteorological, and environmental factors.

What is Catatumbo Lightning?

- Catatumbo lightning is a natural phenomenon that occurs over the Catatumbo River in Venezuela.
- This phenomenon primarily happens at the mouth of the **Catatumbo River**, where it meets **Lake Maracaibo**, the largest lake in Venezuela.
- Catatumbo lightning is distinguished by its frequency and duration: the strikes occur for up to **160 nights in a year**, with an average of **28 lightning strikes per minute** at its peak.
- The area has earned the title of "**the lightning capital of the world**".

Reasons for Catatumbo Lightning

- A convergence of several factors give rise to the conditions required for Catatumbo lightning.
- Warm, moist air from the **Caribbean Sea** is pushed towards the **Andes mountains**, where it collides with cooler air descending from the peaks.
 - ♦ And as it does, it cools and condenses, forming towering **cumulonimbus clouds**.
- Meanwhile, the combination of strong winds and temperature differentials generates electrical charges within these clouds.
- The cumulonimbus clouds load up on static electricity. When the electrical potential within the clouds becomes too great, it discharges in the form of lightning.

Source: TH

BOEING STARLINER

Context

- Indian-origin astronaut Captain Sunita Williams and her colleague are set to embark on a mission to the International Space Station (ISS) Boeing Starliner spacecraft.

About

- **Starliner** is a spacecraft that **transports astronauts in space**, after being launched there by a rocket.
- It consists of a **crew capsule and a service module**.
- **The crew capsule** houses the astronauts and will be able to survive reentry and return to the ground.
- **The service module** consists of the equipment and systems the astronauts need to survive in space, including air and temperature control, water supply, sanitation, etc.
 - ♦ It also consists of engines and fuel required to maneuver the spacecraft. The service module won't be reusable.

Source: TH

PERCOLATION WELLS

In News

- The Bangalore Water Supply and Sewerage Board has constructed more than 900 percolation/recharge wells across the city within a span of one month.

Percolation wells



- Percolation wells are designed to capture rainwater so that the groundwater table is restored, conserved and recharged as the created percolation and filtration environment triggers natural aquifers.

- Percolation wells are 12 feet deep and 4 feet wide earthen dams padded with concrete rings inside and filled with gravel so that rainwater gets trapped into it and percolates down to natural aquifers.
 - ♦ Rain falls into the percolation well, water leaks into the soil in multiple layers and it goes down to the ground and natural aquifers get activated, instead of allowing rainwater to run off or form a cesspool and evaporate.

Source:TH

BLUE CORNER NOTICE OF INTERPOL

Context

- Recently, it was found that the **Central Bureau of Investigation (CBI)** likely to issue a **Blue Corner Notice** against a Member of Parliament, who fled to Germany on a diplomatic passport after allegations of sexual abuse.

About the Blue Corner Notice

- It is a powerful tool in international law enforcement and a part of **Interpol's elaborate system of colour-coded notices**.
- It is issued **to collect additional information** about a person's identity, location, or activities in relation to a criminal investigation.
- It enables countries to share alerts and requests for information on wanted persons or crimes worldwide.
- **CBI** refers to Blue Notices as '**B Series (Blue) Notices**' or '**Enquiry Notices**' which are issued 'to have someone's identity verified; to obtain particulars of a person's criminal record; to locate someone who is missing or is an identified or unidentified international criminal or is wanted for a violation of ordinary criminal law and whose extradition may be requested.'

Other Types of Notice of Interpol

- **Red Notice:** To seek the location and arrest of persons wanted for prosecution or to serve a sentence.
- **Yellow Notice:** To help locate missing persons, often minors, or to help identify persons who are unable to identify themselves.
- **Blue Notice:** To collect additional information about a person's identity, location or activities in relation to a criminal investigation.

- **Black Notice:** To seek information on unidentified bodies.
- **Green Notice:** To provide warning about a person's criminal activities, where the person is considered to be a possible threat to public safety.
- **Orange Notice:** To warn of an event, a person, an object or a process representing a serious and imminent threat to public safety.
- **Purple Notice:** To seek or provide information on modus operandi, objects, devices and concealment methods used by criminals.
- **INTERPOL–United Nations Security Council Special Notice:** Issued for entities and individuals who are the targets of UN Security Council Sanctions Committees.

Source: IE

ARTIFICIAL GENERAL INTELLIGENCE (AGI)

Context:

- Recently, Sam Altman, CEO of OpenAI, expressed to invest billions of dollars towards the development of Artificial General Intelligence (AGI).

About the Artificial General Intelligence (AGI)

- It is a concept that represents a **futuristic vision** where **machines possess cognitive abilities at par with humans**, capable of reasoning, problem-solving, perception, learning, and language comprehension.
- It is defined as **AI that is at least as good as humans at nearly all of the cognitive things that humans do**.
- It is often confused with generative AI, which includes AI systems that generate new documents, images, and sounds. However, AGI is a more **nebulous and profound concept**.

Journey Towards AGI

- While AI has made significant strides in recent years, no AI tool to date has passed the **Turing test** (a benchmark proposed by 20th-century computer scientist Alan Turing).
 - ♦ It measures an AI's ability to exhibit intelligent behaviour equivalent to, or indistinguishable from, that of a human.

- The **current state-of-the-art AI technologies**, including ChatGPT, DALL-E, and others, are essentially **prediction machines**. They can predict, with a high degree of accuracy, the answer to a specific prompt because they've been trained on vast amounts of data.
 - ♦ However, **they lack the human level of performance** in terms of creativity, logical reasoning, sensory perception, and other capabilities.
- It aims to provide regular troops with scenarios closely resembling actual wartime conditions.
- Traditionally, military exercises divide participating troops into **'blue land'** and **'red/yellow land'** with the latter representing adversarial forces.
- The introduction of OPFOR is **expected to democratise this training**, allowing all participating troops to gain firsthand experience during on-ground exercises.

Source: IE

Future of AGI

- The timeline for the realisation of AGI is uncertain.
- Some researchers believe that we are decades away from realising AGI, and a few even predict that we won't see AGI this century.
- When AGI does arrive, it's going to be a significant milestone for every aspect of our lives, businesses, and societies.

Source: IE

OPPOSING FORCES (OPFOR) UNIT

Context:

- The Indian Army is reportedly in the process of establishing a new unit called Opposing Forces (OPFOR) aimed at simulating adversarial roles during military exercises and wargame training.

Do You Know?

- There is a **REDFOR (red forces) unit** representing adversarial forces under the **Army's training command**, which is responsible for vetting exercises and plans for wargames on **paper and sand model exercises**.

About the Opposing Forces (OPFOR)

- It is a military unit tasked with representing an enemy, usually for training purposes in war game scenarios.
- The concept of OPFOR is not new and is already in use in countries like the United States.

Role of OPFOR

- The proposed OPFOR unit will be formed from existing military units and will mirror the weapons, operating methods, and tactics of potential adversaries.

SAHYADRI TIGER RESERVE

Context

- The Maharashtra forest department is gearing up for **translocation of a few tigers from the Tadoba-Andhari Tiger Reserve (TATR)** in Chandrapur to **Sahyadri**.

About

- The Sahyadri Tiger Reserve (STR) is located in the **Sahyadri Ranges of Western Ghats in Maharashtra**.
 - ♦ These ranges form a common boundary between **Maharashtra, Karnataka and Goa**, and consist of rich evergreen, semi-evergreen and moist deciduous forests.
- It is the **first Tiger Reserve of Western Maharashtra** and the **fourth Tiger Reserve of the State** spreading over two Protected Areas of Koyana Sanctuary (KWLS) and Chandoli National Park (CNP).
- It was declared as a tiger reserve in the year of **2007** by the National Tiger Conservation Authority that is the Project Tiger.
- It is one of only five tiger reserves in the country — Kaval in Telangana, Kamlang in Arunachal Pradesh, Dampa in Mizoram and Satkosia in Odisha being the other four — **with zero tigers within the reserve**.
- The translocation is part of a long-term plan to **revive the population of the big cats in the northern Western Ghats forests**.
 - ♦ The translocation project is an important step in conservation of tigers in the forests of the northern Western Ghats, which form a key wildlife **corridor between Maharashtra and Karnataka**.

Source: IE

HIPPOPOTAMUSES

Context

- Hundreds of hippopotamuses have been stuck in a dry channel in the Okavango Delta, Botswana.

About

- Hippopotamuses, also called **hippos or the river horse**, are large semi-aquatic mammals with an enormous head and body, and short legs and tail.
- The hippo is considered to be the **heaviest land animal after the elephant**.
- The ears, eyes, and nostrils are located high on the head so that the rest of the body may remain submerged.
- There are two species of hippopotamuses, the common river hippopotamus (*Hippopotamus amphibious*) and the smaller pygmy hippopotamus (*Choeropsis liberiensis*).

Habitat and Distribution:

- Common river hippopotamuses are native to sub-Saharan Africa.
- Pygmy hippos are found in the tropical rainforests and swamps of four West African countries: Guinea, Liberia, and Sierra Leone.

Threats:

- Hunting (for meat or ivory) and habitat loss.

Protection status:

- The common hippopotamus is classified on the IUCN Red List as **vulnerable**.
- The pygmy hippopotamus is classified on the IUCN Red List as **endangered**.

Source: TH

