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Institute of Research Based Learning & Competition

Current Affairs - 13 April 2025

INDIA-MIDDLE EAST-EUROPE ECONOMIC CORRIDOR (IMEEC)



Recently, India and Italy have agreed to deepen their strategic cooperation across key sectors, including trade, defence, clean energy, and high technology.

- This commitment was reaffirmed during a meeting between **External Affairs Minister S. Jaishankar** and **Italian Deputy Prime Minister Antonio Tajani** held in **April 2025**.
- The discussions prominently focused on advancing ties under the **Joint Strategic Action Plan (JSAP) 2025–2029**, which serves as a structured roadmap to diversify bilateral cooperation.
- The JSAP was jointly announced by **Prime Minister Narendra Modi** and **Italian Prime Minister Giorgia Meloni** during their meeting in **November 2024** in **Rio de Janeiro**.

About the India-Middle East-Europe Economic Corridor (IMEEC)

- IMEEC is a **multimodal connectivity initiative** aiming to improve infrastructure for **trade and transport** between **India, the Middle East, and Europe**.
- It was officially launched through a **Memorandum of Understanding (MoU)** signed by **India, the European Union, France, Germany, Italy, Saudi Arabia, UAE, and the US** during the **G20 Summit in New Delhi (2023)**.
- IMEEC is a part of the broader **Partnership for Global Infrastructure and Investment (PGII)**, which was initially announced at the **G7 Summit 2021 in the UK**.
- It is widely regarded as a **strategic counter to China's Belt and Road Initiative (BRI)**.
- **Structure of IMEEC:** IMEEC will comprise **two main corridors**:
 - **Eastern Corridor:** Connecting **India to the Gulf region**.
 - **Northern Corridor:** Connecting the **Gulf to Europe**.

MICROPLASTICS



A multinational study led by scientists from Nankai University, University of Massachusetts Amherst, and other institutions revealed that plant leaves can absorb microplastics and nanoplastics directly from the air.

- **Definition:** They are defined as **plastic particles up to 5 millimetres in diameter**, while **nanoplastics** are even smaller, measuring **less than 1,000 nanometres**.
- **Types:** **Primary microplastics** (e.g., cosmetics, microfibers) and **secondary microplastics** (formed from the breakdown of larger plastics).
- **Environmental entry:** Through **product use**, **abrasion**, or **breakdown** in natural settings.
- **Persistence:** Microplastics are **non-biodegradable**, **mobile**, and **accumulate** in ecosystems.
- **Impact on Organisms:** It can be **ingested** by marine and terrestrial organisms, causing **toxicity** and **bioaccumulation**.
- **Chemical risk:** Microplastics can carry **pollutants** and **toxic chemicals**, further endangering **ecological and human health**.

How Microplastics Enter Plants

- The study demonstrated that **plastic particles entered leaves via multiple pathways**, primarily through surface structures such as **stomata** and the **cuticle**.
 - **Stomata** are **tiny pores** formed by **specialised cells** on leaves that regulate gas exchange.
 - The **cuticle** is a **wax-coated protective membrane** on leaf surfaces that is particularly conducive to absorbing airborne particles like microplastics.

- Once inside, **microplastics** moved between plant cells and could accumulate in tiny, hair-like structures called **trichomes** on the surface of leaves.
- These particles were also found to **travel through the plant's water and nutrient transport systems**, reaching **other tissues**, although **trichomes** acted as “sinks” by trapping many external particles and thereby **limiting their movement to roots**.

Ecological and Health Implications

- The study highlights **significant ecological and public health risks** due to **atmospheric plastic pollution**, as micro- and nanoplastics **bioaccumulate through the food chain**.
- Despite these findings, the **long-term impact on human health remains unclear**, prompting a **call for further investigation** into:
 - The extent of **dietary exposure**,
 - The **absorption efficiency** of microplastics in the **human digestive system**,
 - And the potential for **plastic particles to reach internal organs**.

CARBON TAX



Recently, India, along with 62 other countries, voted in favour of the first global carbon tax on the shipping industry, adopted by the International Maritime Organisation (IMO) in London.

- A **Carbon Tax** is an **environmental tax** levied on the **carbon content of fossil fuels** such as **coal, oil, and natural gas**.
- The objective is to **reduce greenhouse gas emissions** by creating a **financial disincentive for pollution** and encouraging **clean energy alternatives**.
- It is calculated based on the **amount of CO₂ or other GHGs emitted** and promotes a **market-based climate solution**.

Types of Carbon Tax

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- **Emissions tax:** Tax on **total GHG emissions**, based on the **carbon content of fuels** used.
- **Energy tax:** Levied on **fossil fuel consumption**, calculated from **carbon or energy** usage.
- **Cap-and-Trade System:** Sets a cap on emissions; **permits traded** in a carbon market to incentivise reduction.
- **Border tax adjustment:** Applies carbon tax on **imported goods** based on emissions during production to **prevent carbon leakage**.

Carbon Tax in India

- India currently **does not have a nationwide carbon tax**, but there have been **proposals** to introduce one.
- In **2015**, India proposed a carbon tax of **INR 50 per metric ton** on **coal production/import**, but it remains **unimplemented**.
- Some states, like **Tamil Nadu**, have introduced **state-level carbon levies**, particularly on coal used in electricity generation.
- India promotes clean energy and emission reductions through initiatives like:
 - **National Clean Energy Fund**
 - **National Solar Mission**
 - **Energy Conservation Building Code (ECBC)**

About the International Maritime Organization (IMO)

- The **IMO** is a **United Nations specialised agency** responsible for the **safety, security, and environmental performance** of international shipping.
- It contributes to **SDG 14: Conserve and sustainably use oceans, seas, and marine resources**.
- While the IMO sets **global maritime rules**, their **enforcement depends on member states** converting them into **national laws**.
- The IMO also deals with **legal matters** like **liability, compensation, and maritime traffic facilitation**.

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SARAS MK2



The Saras Mk2, an updated version of an India-designed civilian aircraft, is set to test-fly in December 2027, Director, CSIR-National Aerospace Laboratories (CSIR-NAL) told recently.

- It is a **19-seater, multi-purpose civilian aircraft**.
- It is the **first Indian multi-purpose civilian aircraft** in the **light transport aircraft** category.
- It is being **developed by National Aerospace Laboratories (NAL), Bengaluru**, in **collaboration with** the Council of Scientific and Industrial Research (CSIR).
- It is an upgraded version of the Saras Mk 1.
- It can be used for multiple purposes, including for medical emergencies or in the event of natural disasters.
- It can also help in transporting passengers from Tier-1 cities to Tier-2 and Tier-3 cities.

Features:

- It will be a 7.5-ton aircraft and will have an **endurance of 6 hours** with a service ceiling of 29,000 ft.
- It will have a maximum **range of 775 km with a max load of 19 passengers** and 2450 km with 7 passengers.
- Its maximum cruise speed will be 500 kmph and stall speed 185 kmph.
- The take-off distance for SARAS MK2 is going to be 790m, landing distance of 740m.
- The aircraft will be **powered by 2 Pratt & Whitney Canada PT6A-67A turboprop engines**.

RAMGARH LAKE



Work has started for revival of the historic Ramgarh lake near Jaipur, which was once a lifeline for water supply to the Rajasthan Capital.

- It is situated near the Jamwa Ramgarh subdivision of the **Jaipur district** in the Indian state **Rajasthan**.
- It is a **man-made** water body created by forming an embankment on the forested hills.
- Erstwhile **Jaipur ruler Sawai Ram Singh II had built** the Ramgarh lake in 1876 to provide relief to the inhabitants of the region.
- It lies at a distance of 32 kilometres from Jaipur city and encompasses an area of about 15.5 sq.km.
- It measures 2 kilometres in width and 4 kilometres in length.
- Once, the lake **served as the main source of water supply for the city of Jaipur**.
- **In the present time**, the four rivers, Roda, Banganga, Tala, and Madhoveni, **which used to bring water to the lake, have gone dry** due to the deforestation and mining activity carried out in the catchment area.
- Ramgarh Lake has a **historical record of hosting a rowing event during Asian Games of 1982**.
- **Jamwa Mata temple** is situated at a downward course of Ramgarh Lake.
- The **Polo Ground** at Ramgarh, that sits in the **middle of the Ramgarh Lake and the Aravalli Hills**, is regarded as one of the best of its kind in the country.
- The **thick forest near Ramgarh Lake** is the abode to many wildlife species such as nilgai, chital, and lion.
- The region was **notified as a wildlife sanctuary** in the year 1982 by the Government of India.

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BULLET CURTAIN



- It is the **world's first close-in anti-drone barrage weapon**.
- It is **capable of countering** a broad range of low-flying aerial threats including rockets, helicopters, missiles, and most notably, **drone swarms**.
- It has been made by **China's state-run defence firm Norinco**.
- The system was **inspired by Metal Storm**, which is a rapid-fire weapon concept jointly **developed by Australia and the United States** in the late 1990s.

Bullet Curtain Features:

- The system uses a **"plane-to-point" interception model**, which forms a **wall of projectiles to blanket incoming targets** with overlapping firepower.
- The system reportedly uses a **4x4 tight arrangement of 35mm gun barrels** for various types of ammunition to deliver a **high rate of fire** while maintaining quick reload capabilities.
- It **fires 35mm** advanced hit efficiency and destruction (**AHEAD**) **ammunition** that **spits hundreds of sub-projectiles each** to form a barrage against drones.
- The system reportedly **integrates radar**, an **optical detection system**, a **fire-control system**, an integrated management system, and ammunition with the platform.
- The system has been **fitted on a 6x6 truck** and configured as a **road-mobile** air-defence cover embedded in mechanised units.
- Its **modular design** means it can also be **integrated with various platforms**, including wheeled and tracked armoured vehicles, naval ships, and fixed installations, allowing rapid deployment across different combat scenarios while staying compatible with existing military infrastructure.

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GENETIC MAPPING FOR THE INDIAN POPULATION

Launch of Genome India project

- It was launched in **January 2020**, with funding from the **Department of Biotechnology**.
- **Scope and Sample Collection**
 - The study aimed to collect **blood samples and phenotype data** (e.g., weight, height, hip & waist circumference, blood pressure).
 - Participants represented 83 population groups: 30 tribal; 53 non-tribal.
 - These groups were spread across India.
- **Genome Sequencing**
 - Whole genome sequencing was performed on DNA samples from 10,074 individuals.
 - After excluding two populations, data from 9,772 individuals was analyzed.
- **Collaborating Institutions**
 - The project is a collaborative effort involving 20 institutions. Genome sequencing was carried out by:
 - Centre for Brain Research, IISc Bengaluru
 - Centre for Cellular and Molecular Biology, Hyderabad
 - Institute of Genomics & Integrative Biology, Delhi
 - National Institute of Biomedical Genomics, Kolkata
 - Gujarat Biotechnology Research Centre, Gandhinagar

Sampling Strategy

- Samples were collected from **83 population groups** across **100+ distinct geographical locations**.
- **Median samples collected:** 159 individuals per non-tribal group; 75 individuals per tribal group.
- Participants were unrelated to ensure accurate estimation of mutation frequencies.

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PRESIDENT MUST CONSULT SC WHEN GOVERNOR FLAGS BILL AS UNCONSTITUTIONAL

Role of the Supreme Court under Article 143

- The Court highlighted that when a Governor reserves a Bill for the President under **Article 200**, citing "perceived unconstitutionality", the President "ought to" seek the Supreme Court's opinion under Article 143.
- **Nature of SC's Opinion under Article 143**
 - The Court acknowledged that its advisory opinion under Article 143 is not binding.
 - However, it holds high persuasive value and should ordinarily be accepted by both the legislature and the executive.
 - The non-binding nature does not undermine the Court's reasoning or principles used to assess constitutionality.
- **Reference to Precedent: 1978 Special Courts Bill Case**
 - The Court referred to the 'In Re: The Special Courts Bill, 1978' case to reinforce the idea that:
 - **Pre-enactment judicial review** can help **avoid legal challenges**
 - Constitutional courts are not barred from **giving suggestions or opinions** before a Bill becomes law.
- **Importance of Judicial Scrutiny**
 - The judgement emphasizes:
 - Preventing **patently unconstitutional Bills** protects **public resources**.
 - It respects the **legislative process** by encouraging a constitutional review **before enactment**.
 - **Consultation with the SC** via Article 143 helps address **bias or mala fides** in the Centre's handling of reserved Bills.