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National Turmeric Board

Context: The Indian government announced the formation of the National Turmeric Board, which will prioritize the advancement of turmeric and its related products within the country.

Key Roles of the National Turmeric Board

- **Leadership and Coordination:** The board will provide leadership on turmeric-related matters, enhance coordination with agencies like the Spices Board, and facilitate sector development.
- **Promoting Health Benefits:** Leveraging the global interest in turmeric's health benefits to increase awareness, consumption, and international market expansion.
- **Research and Development:** Promoting research and development for new turmeric products and utilizing traditional knowledge for value-added items.
- **Capacity Building:** Focusing on capacity building and skill development for turmeric growers to enhance value addition.
- **Quality and Food Safety:** Promoting quality and food safety standards for turmeric products.
- **Global Potential:** Safeguarding and fully exploiting turmeric's potential for the benefit of humanity.

Benefits of the Board's Activities

- **Grower Prosperity:** Dedicated attention to the sector and value addition will improve income for turmeric growers.
- **Global Leadership:** Research, market development, and value addition activities will maintain India's position as a leading exporter of high-quality turmeric.

Composition of the Board

- **Chairperson:** Appointed by the Central Government.
- **Members:** Representatives from the Ministry of AYUSH, Departments of Pharmaceuticals, Agriculture & Farmers Welfare, Commerce & Industry of the Union Government, senior State Government representatives (on a rotational basis), select national/state research institutions, turmeric farmers, and exporters.
- **Secretary:** Appointed by the Department of Commerce.

Turmeric Production in India (2022-23)

- India is the largest producer, consumer, and exporter of turmeric globally.
- Over 75% of the world's turmeric production comes from India.
- Grown in over 20 Indian states, with Maharashtra, Telangana, Karnataka, and Tamil Nadu as the largest producing states.

Turmeric Exports

- India holds more than a 62% share of the world's turmeric trade.
- In 2022-23, India exported 1.534 lakh tonnes of turmeric and turmeric products valued at \$207.45 million USD through over 380 exporters.
- Leading export markets: Bangladesh, UAE, USA, and Malaysia.
- With the Board's focused activities, turmeric exports are expected to reach \$1 billion USD by 2030.

Properties of Turmeric

- A perennial herbaceous plant in the ginger family.
- Its rhizomes have a long history of use as a spice, dye, medicine, and religious symbol.
- The vibrant colour of turmeric is primarily due to curcumin, a bright yellow phenolic compound.
- Curcumin has garnered attention for its potential cancer-fighting properties, leading to increased demand for high-curcumin turmeric.
- Thrives in regions with temperatures between 20 and 30 °C (68 and 86 °F).
- Requires ample annual rainfall for optimal growth.
- Turmeric cultivation occupies approximately 6% of India's total area for spices and condiments.
- Telangana was the top turmeric-producing state in India.
- Maharashtra and Tamil Nadu ranked second and third, respectively.

India-Japan Fund

Context: NIIF launches \$600M India-Japan Fund with Indian Government and JBIC as anchor investors.

- NIIF and JBIC have joined forces to establish a \$600 million India-Japan Fund (IJF).
- The Government of India and JBIC are the primary investors, with GoI contributing 49% and JBIC 51%.
- NIIF Limited (NIIFL) will manage the fund, with support from JBIC IG, a subsidiary of JBIC, to encourage Japanese investments in India.
- The India-Japan Fund's core focus is on investments promoting environmental sustainability and low carbon emissions.
- It aims to become the preferred partner for increasing Japanese investments in India.
- This initiative signifies a significant aspect of collaboration between India and Japan, aligning with their shared priorities in climate and environmental concerns.
- Establishing the India-Japan Fund is a notable milestone in the strategic and economic partnership between the two governments.

Japan Bank for International Cooperation

- **Background of JBIC:**
 - JBIC (Japan Bank for International Cooperation) is a Japanese public financial institution and export credit agency.

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- It was formed on October 1, 1999, by merging the Japan Export-Import Bank (JEXIM) and the Overseas Economic Cooperation Fund (OECF).
- **Evolution and Independence:**
 - JBIC became the international arm of the Japan Finance Corporation (JFC) on October 1, 2008.
 - It regained independence from JFC on April 1, 2012.
 - JBIC is wholly owned by the Japanese government and operates under JBIC law.
- **Operational Details:**
 - Headquartered in Tokyo, JBIC operates in 18 countries with 21 offices.
 - Its primary purpose is to enhance economic cooperation between Japan and foreign nations by facilitating foreign investments and international trade.
 - JBIC plays a significant role in promoting Japanese exports and imports globally.
- **Global Presence:**
 - JBIC operates in both developed and developing countries.
 - It prioritizes contributing to the stability of the international financial system and avoids competing with regular financial institutions.
- **Official Development Assistance (ODA):**
 - JBIC was a part of Japan's official development assistance (ODA), aligning with the country's foreign policy.
 - It claims to prioritize sustainable development and considers social and environmental issues.
 - Environmental impact assessments are required for project funding.
 - According to the OECD, Japan's total ODA increased in 2022, reaching USD 17.5 billion, with ODA representing 0.39% of gross national income (GNI).

National Investment and Infrastructure Fund (NIIF)

- **Founded:** February 2015
- **Headquarters:** Mumbai, India
- **Government Ministry:** Ministry of Finance
- **Key Objectives:**
 - **Fundraising:** Raise funds using various instruments.
 - **Anchor Investors:** Attract partner investors.
 - **Investor Services:** Serve fund investors.
 - **Project Selection:** Approve projects and investments.
 - **Private Equity:** Invest in AMCs for private equity.
 - **Advisory Services:** Offer infrastructure project advisory.
- **Types of NIIF Funds:**
 - **Master Fund:** Invests in established regulated enterprises and infrastructure projects.
 - **Fund of Funds:** Invests in funds managed by experienced managers and acts as an anchor investor.
 - **Strategic Fund:** Focuses on equity investments, registered as Alternative Fund II under SEBI.]

Quantum Dots

Context: The 2023 Nobel Prize in Chemistry was awarded to Mounji G. Bawendi, Louis E. Brus, and Alexei I. Ekimov for their discovery and synthesis of quantum dots.

- The properties of elements are typically determined by the number of electrons they have.
- However, at the nano-scale, properties are influenced by particle size, leading to the concept of quantum dots.
- Quantum dots are particles whose behavior depends on their size.
- Alexei I. Ekimov in the Soviet Union, in 1981, was one of the first to observe size-dependent quantum effects in glass.
- He found that smaller particles absorbed bluer light due to quantum mechanics principles.
- Louis E. Brus in the US independently discovered size-dependent properties while working with cadmium sulphide particles and solar energy.
- He observed that smaller particles absorbed light differently than larger ones.
- Mounji G. Bawendi further improved the creation of quantum dots by using different techniques and solvents, leading to nanocrystals with distinct quantum effects.
- Bawendi's easy-to-use production method revolutionized nanotechnology, attracting more chemists to explore the unique properties of quantum dots.

What are Quantum Dots?

- Quantum dots (QDs) are tiny semiconductor particles, a few nanometers in size, with unique optical and electronic properties due to quantum mechanical effects.
- They are a significant focus in nanotechnology and materials science.
- When illuminated by UV light, an electron in a quantum dot can be excited to a higher energy state, leading to photoluminescence when it drops back to a lower energy state.
- Quantum dots are often referred to as "artificial atoms" because of their discrete and bound electronic states resembling those of natural atoms.

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- They can be coupled to form artificial molecules and assembled into superlattices with distinctive optical and electronic properties.
- Quantum dots exhibit properties between bulk semiconductors and discrete atoms or molecules, with their optoelectronic characteristics depending on size and shape.
- Larger quantum dots emit longer wavelengths, like orange or red, while smaller ones emit shorter wavelengths, producing colors like blue and green.
- Quantum dots can be suspended in solution, making them suitable for inkjet printing and spin coating, offering cost-effective semiconductor fabrication methods.

Applications of QDs

- Quantum dots (QDs) are promising for optical applications due to their high extinction coefficient and fast optical nonlinearities.
- They operate like single-electron transistors and exhibit the Coulomb blockade effect.
- QDs are considered for quantum information processing and thermoelectrics.
- Tuning QD size is attractive for various applications; larger QDs shift toward red, smaller ones exhibit more pronounced quantum properties.
- Zero-dimensional QDs have a sharper density of states, making them superior for transport and optical properties.
- QDs are used in diode lasers, amplifiers, and biological sensors.
- They can be excited in the presence of gold nanoparticles, expanding their applications.
- QDs are used for optical encoding, multiplexing, high-resolution cellular imaging, and tracking molecules and cells in real time.
- They have antibacterial properties and can kill various bacteria.
- In biology, QDs are superior to traditional organic dyes in terms of brightness and stability.
- QDs are used in cellular imaging, single-cell migration studies, and more.
- They have potential applications in tumor targeting and fluorescence spectroscopy.
- QDs are explored for photovoltaic devices, with the potential for increased efficiency and reduced costs.
- They are used in quantum dot solar cells, hybrid solar cells, and nanowire-based solar cells.
- QDs can be incorporated into LED designs, enhancing efficiency and color accuracy.
- Quantum dot displays offer more accurate colors and improved brightness.
- QDs can be used in photodetector devices, especially in visible and infrared-light cameras and spectroscopy.
- They have photocatalytic properties for chemical conversion reactions, including water splitting for hydrogen production.

Removal of Speaker

Context: On October 4, a faction of Republican leaders removed Speaker Kevin McCarthy, causing chaos in the United States House of Representatives.

Speaker

- The Lok Sabha, India's highest legislative body, selects its Speaker to oversee daily operations.
- Electing the Speaker is among the first tasks of the newly constituted House.
- The Speaker's role is constitutional and governed by constitutional provisions and Lok Sabha's rules.
- The Speaker holds a high position in the country's Warrant of Precedence, ranking 6th.
- The Speaker has significant powers to ensure the smooth functioning of parliamentary proceedings.
- The Constitution mandates that the Speaker's salary and allowances are not subject to parliamentary voting and are funded by the Consolidated Fund of India.
- The Speaker's chair in the Lok Sabha chamber offers a commanding view of the entire House.
- The Speaker receives assistance from the Secretary-General of the Lok Sabha and senior officers on parliamentary matters.
- In the Speaker's absence, the Deputy Speaker assumes responsibilities, and if both are absent, a member from the Panel of Chairmen presides over the House.

Removal

- The Speaker's term aligns with that of the Lok Sabha, which is typically 5 years.
- The Indian Constitution grants the Lower House the authority to remove the Speaker if necessary. Removal can occur through a resolution passed by an effective majority (more than 50% of the total strength of the house present and voting), per Articles 94 and 96.
- The Speaker can also be ousted by disqualification as a Lok Sabha member under sections 7 and 8 of the Representation of the People Act, 1951.
- A Speaker has the option to resign, which would typically be tendered to the Deputy Speaker.

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NEWS IN BETWEEN THE LINES

Platypus



Recent DNA research has revealed the surprising vulnerability of Platypuses to bushfires in eastern Australia.

About Platypus:

- The platypus (**Ornithorhynchus Anatinus**) is a unique and iconic **Australian mammal**.
- It is a **monotreme**, a group of **egg-laying mammals**.
- It has a distinctive appearance with a **duckbill**, **webbed feet** and a **beaver-like tail**.
- It is well-adapted for both **swimming** and **burrowing**.
- It has **electroreceptors** in its bill, which it uses to detect the electric fields generated by the muscles and nerves of its prey in water.

Habitat: The platypus is a **semi-aquatic** creature and is typically found in freshwater habitats like **rivers, streams** and **lakes** along the eastern coast of Australia.

IUCN Status: The Platypus is considered a **near-threatened** species.

Lhonak Lake



The South Lhonak Lake in Sikkim experienced a catastrophic burst on **October 3-4, 2023**.

Location: South Lhonak Lake is situated in **Sikkim's** far northwestern region.

Lake Type: South Lhonak Lake is a **glacial-moraine-dammed lake**, formed due to the melting of the **Lhonak glacier**.

Historical Data: Declassified **CORONA** data from **1962**, collected by the Central Intelligence Agency and the United States Air Force, revealed the lake's first appearance as a **supraglacial lake** at the glacier's snout on **November 24, 1962**.

Potentially Dangerous Lake: South Lhonak Lake is categorized as one of the **14** potentially dangerous lakes in the region, susceptible to **Glacial Lake Outburst Floods (GLOFs)**.

Central Drugs Standard Control Organization



The Central Drugs Standard Control Organization (**CDSCO**) has recently discovered **two Indian syrups** contaminated with **hazardous levels of toxic chemicals**.

What is CDSCO?

- CDSCO is the Central Drug Authority responsible for enforcing the provisions of the **Drugs and Cosmetics Act of 1940**.
- It operates under the **Ministry of Health & Family Welfare**, Government of India.
- It serves as the **National Regulatory Authority (NRA)** for pharmaceuticals and medical devices in India.
- It is responsible for granting approval for the marketing of **pharmaceutical drugs** in India.
- It sets and enforces **quality standards** for drugs.
- **DCGI** (Drugs Controller General of India) is the head of CDSCO and is responsible for approving **licenses for specified categories** of drugs like **blood products, IV fluids, vaccines** and **sera**.

Ichamati River



Recently, the **Ministry of State for Ports, Shipping and Waterways** inaugurated the dredging work at **National Waterways 44 (Ichamati River)** in **West Bengal**.

About Ichamati River:

The Ichamati River is a **trans-boundary river** that flows through both **India** and **Bangladesh**.

The Ichamati River has **three parts**:

- It originates from the **Mathabhanga River**, a distributary of the **Padma** and joins the **Kalindi River** near **Hasnabad** in North **24 Parganas** and **Debhata** in **Satkhira District**.
- Second part flows west of **Dhaka**.
- The third part is Ichamati of **Dinajpur**.

It enters Bangladesh near **Mubarakpur** and re-enters India at **Habaspur Village**.

BlueWalker 3



What is BlueWalker 3?

BlueWalker 3 is a **prototype satellite** designed for a planned satellite constellation by AST **SpaceMobile**.

Aim: The constellation aims to provide **mobile** and **broadband services** globally.

Impact on Astronomy: Observations of BlueWalker 3 revealed that it significantly impacts **astronomy** by becoming **one of the brightest objects** in the night sky, potentially outshining even stars.

Concerns Raised: Astronomers and researchers have raised concerns about satellite constellations like BlueWalker 3 due to their **proximity** to Earth and **large size**, which increase the risk of disrupting **astronomical observations**.

Global Observations: Data on BlueWalker 3's brightness and trajectory was collected from various locations worldwide, including **Chile**, the **US**, **Mexico** and **New Zealand**.

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Uterus Transplant



About Uterus transplant:

- Uterus transplant is a **medical procedure** involving the **transplantation of a uterus (womb)** from a donor to a recipient who lacks a uterus.
- It is **not a life-saving transplant** but improves the recipient's **quality of life**.
- Uterus transplants are primarily aimed at **assisting women** who cannot conceive or carry a **pregnancy** due to the absence or **dysfunction** of their uterus.
- The **world's first** successful live birth after a uterus transplant took place in **Sweden** in **2014**, marking a significant breakthrough in treating uterine factor infertility.

Place in News

Slovakia

Slovakia (Capital: Bratislava)

Location: Slovakia is a **landlocked** country, situated in the heart of **Europe**.

Political Boundaries:

Slovakia shares its borders with several countries: to the north with **Poland**, to the east with **Ukraine**, to the south with **Hungary**, to the southwest with **Austria**, and to the west with the **Czech Republic**.

Geographical Features:

- **Highest Peak:** **Gerlach Peak** stands as the highest point in Slovakia.
- **Major Rivers:** The country is traversed by important rivers, including the **Váh River** and the **Danube River**.
- **Major Lakes:** Some important lakes include **Lake Orava** and **Velke Hincovo Pleso**.



POINTS TO PONDER

- ❖ Which institution released a report titled 'India Ageing Report 2023'? - UNFPA
- ❖ Kongthong, which bagged 'Best Tourism Village (Bronze) Award 2023', is located in which state? - Meghalaya
- ❖ Which country hosted the 'Annual IAEA General Conference' in 2023? - Austria
- ❖ Which is the second north-east state after Arunachal Pradesh to introduce an e-cabinet system? - Tripura
- ❖ Where is the Toto language primarily spoken? - West Bengal

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