



6 September, 2023

Jal Jeevan Mission

Context: The Jal Jeevan Mission (JJM) has reached a significant milestone by delivering tap water connections to 130 million rural households.

Achievements

- **Rapid Expansion:** The Jal Jeevan Mission has significantly increased rural tap connection coverage, going from 3.23 crore households in August 2019 to 13 crore households in just four years.
- **Inception:** The mission was announced by Prime Minister Narendra Modi on August 15, 2019, during India's 73rd Independence Day celebration.
- **100% Coverage:** Six states (Goa, Telangana, Haryana, Gujarat, Punjab, Himachal Pradesh) and three Union Territories (Puducherry, Daman & Diu, Dadra & Nagar Haveli, and Andaman & Nicobar Islands) have achieved 100% coverage. Bihar and Mizoram are also nearing saturation, with 96.39% and 92.12% coverage, respectively.
- **Har Ghar Jal Certification:** Several states and UTs are 'Har Ghar Jal certified,' meaning they have confirmed that all households and public institutions in the village receive adequate, safe, and regular water supply.
- **Nationwide Impact:** 145 districts and 1,86,818 villages across the country have reported 100% coverage.
- **Daily Progress:** Since January 1, 2023, an average of 87,500 tap connections have been installed daily, with Uttar Pradesh leading in progress by installing 61.05 lakh Functional Household Tap Connections (FHTC) during this period.
- **Education and Health:** Tap water supply has been extended to 88.73% of schools and 84.69% of anganwadi centers in the country, positively impacting education and healthcare.
- **Aspirational Districts:** In the 112 aspirational districts, access to tap water has increased from 7.86% to 66.48%, significantly improving living conditions.

Socio-economic Benefits

- **Time-saving:** Regular tap water supply reduces the burden on women and young girls who no longer have to carry heavy water loads, allowing them to engage in income-generating activities, acquire new skills, and support children's education.
- **Village Committees:** Over 5.27 lakh Village Water & Sanitation Committees (VWSC)/ Pani Samitis have been formed, and 5.12 lakh Village Action Plans (VAPs) have been prepared, focusing on water source augmentation, greywater treatment and reuse, and regular maintenance of in-village water supply systems.
- **Contamination Eradication:** Safe drinking water is now available in all arsenic and fluoride-affected habitations, addressing the issue of contamination.
- **Water Testing:** Regular testing of water samples at source and delivery points ensures the supply of quality water.
- **Recognition:** The Department of Personnel & Training has honored the mission with a Silver Award in the category of "Application of emerging technologies for promoting citizen-centric services."
- **Towards SDG 6:** The Jal Jeevan Mission aligns with the Sustainable Development Goal 6 (SDG 6) by working towards providing safe and affordable water to all, ensuring access to safe water through taps for households, schools, anganwadis, and other public institutions in rural areas.

Optically Active Flexible Biodegradable Polymer-Nanocomposite Films

Context: Researchers at IASST Guwahati have created a biodegradable nanocomposite film with strong mechanical properties and optical activity.

- IASST Guwahati researchers developed an optically active, biodegradable nanocomposite film with strong mechanical properties for flexible displays and organic LEDs.
- Polyvinyl alcohol (PVA), a well-studied biodegradable polymer, was used and enhanced with nanomaterials.
- The film was created through a simple solution casting method with copper salt leading to in-situ CuO nanoparticle formation during heat treatments.
- Various spectroscopic and microscopic techniques confirmed CuO nanoparticle formation within the polymer.
- The nanocomposite film displayed remarkable mechanical strength (up to 39 MPa) and flexibility (169%) with copper chloride.

Polymers

- Polymers are large molecules made up of many subunits, with the word "polymer" originating from the Greek term for "many parts."
- Polymers exist in nature (natural polymers, like DNA in living organisms) or can be created by humans (synthetic polymers, such as plastic).
- Polymers possess distinct physical and chemical properties, making them widely used in various everyday applications.
- **Physical Properties:**

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- Increasing chain length and cross-linking enhances a polymer's tensile strength.
- Polymers transition from crystalline to semi-crystalline rather than melting.
- **Chemical Properties:**
 - Polymers benefit from hydrogen and ionic bonding, providing strong cross-linking compared to conventional molecules with different side groups.
 - Dipole-dipole bonding in side chains imparts high flexibility.
 - Van der Waals forces between linked chains result in weak bonds and a low melting point for some polymers.
- **Optical Properties:**
 - Polymers like PMMA and HEMA exhibit changes in refractive index with temperature, making them useful in lasers for spectroscopy and analytical applications.
- **Polymers and Their Monomers:**
 - **Polypropene** (polypropylene) comprises propene monomers.
 - **Polystyrene**, a transparent aromatic polymer, is composed of styrene monomers.
 - **Polyvinyl chloride (PVC)** is a plastic polymer made from vinyl chloride monomers.
 - **Urea-formaldehyde resin**, a non-transparent plastic, forms by heating formaldehyde and urea.
 - **Glyptal** consists of ethylene glycol and phthalic acid monomers.
 - **Bakelite (polyoxybenzylmethyleneglycolanhydride)** is a plastic composed of phenol and aldehyde monomers.

History of Names of India

Context: A political dispute emerged when the government sent a G20 Summit dinner invitation addressed to the "President of Bharat" instead of the "President of India."

- **Ancient Times** - Bharat, Bharata, Bharatvarsha: The roots of the name "Bharat," "Bharata," or "Bharatvarsha" can be traced back to Puranic literature and the Mahabharata epic. It describes the land as the region between the sea in the south and the abode of snow in the north.
- **Saindhav Pradesh:** In ancient times, the region now known as India was sometimes referred to as "Saindhav Pradesh" due to its association with the Sindhu (Indus) River.
- **Supraregional and Subcontinental Territory:** Social scientist Catherine Clémentin-Ojha emphasized that "Bharat" refers to a religious and socio-cultural entity rather than a political or geographical one. It signifies the territory where the Brahmanical system of society prevails.
- **Ancient King Bharata:** "Bharata" is also associated with an ancient legendary king who was the ancestor of the Rig Vedic tribe of the Bharatas and, by extension, the progenitor of all peoples in the subcontinent.
- **Introduction of "Hindustan":** The term "Hindustan" is believed to have originated from "Hindu," the Persian form of the Sanskrit "Sindhu" (Indus). It gained currency during the Achaemenid Persian conquest of the Indus valley around the 6th century BC.
- **Transliteration to "India":** The Greeks transliterated "Hind" as "Indus." By the time of Alexander the Great's invasion of India in the 3rd century BC, "India" became associated with the region beyond the Indus.
- **Usage of "Hindustan" and Expansion:** During the early Mughal period in the 16th century, "Hindustan" referred to the entire Indo-Gangetic plain. This usage continued through the mid-to-late 18th century and even extended to the territories of the Mughal emperor.
- **Transition to "India":** British maps increasingly adopted the name "India" from the late 18th century onwards. "Hindustan" began losing its association with all of South Asia, and "India" became the prevalent term.
- **Inclusion in the Constitution:** When deciding on the name for India in the Constitution, "Hindustan" was dropped, and both "Bharat" and "India" were retained. During the Constituent Assembly debates in 1949, there was a division among members regarding the name, with some suggesting alternatives like "Bharat known as India also in foreign countries."
- **Constitutional Naming:** The first article of the Indian Constitution reads, "India, that is Bharat, shall be a Union of States," reflecting the dual nomenclature.

Evolution of English name "India"

- **Herodotus and Byzantines (Ancient Times):** Byzantines used 'India' for the region beyond the Indus River, a usage influenced by Herodotus' works.
- **King Alfred's Translation (9th Century):** The English name 'India' derived from Latin and appeared in King Alfred's translation of Orosius in Old English. However, it was replaced with 'Ynde' or 'Inde' due to French influence.
- **Reintroduction of 'India' (Late Early Modern English, 15th Century to 1650 AD):** 'India' re-emerged in the English language, influenced by Latin, Spanish, or Portuguese. It was reintroduced during this period.

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- **King James Bible and Shakespeare (Late Early Modern English):** Consequently, the word 'India' appeared in the first edition of the King James Bible and in the works of the famous playwright William Shakespeare during this era.

UPI QR Code-CBDC interoperability

Context: Some banks, such as the State Bank of India and Bank of Baroda, have implemented UPI interoperability within their digital rupee app.

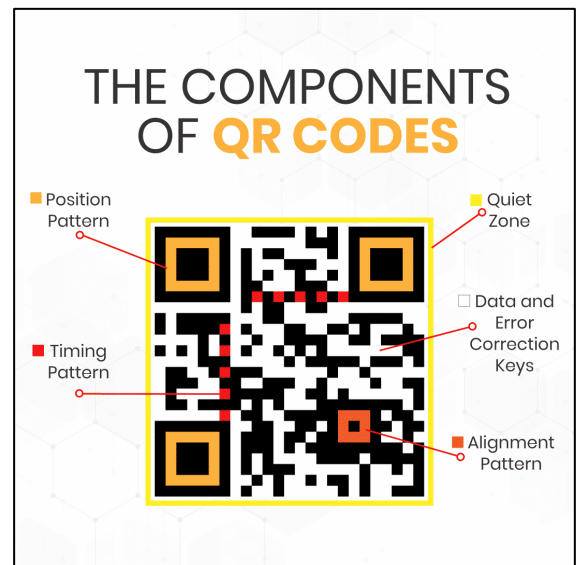
- Banks have enabled interoperability between Unified Payments Interface (UPI) Quick Response (QR) codes and their central bank digital currency (CBDC) or e₹ applications.
- This integration benefits users of the retail digital rupee (e₹-R) as they can now make transactions by scanning any UPI QR code at merchant outlets.
- Additionally, merchants can accept digital rupee payments through their existing UPI QR codes.
- The initiative is part of the ongoing pilot project led by the Reserve Bank of India (RBI) to promote the retail digital rupee (e₹-R).

Interoperability of UPI and Digital Rupee

- Initially, users of the retail digital rupee (e₹-R) had to scan specific QR codes for transactions.
- Interoperability means all UPI QR codes are now compatible with CBDC apps.
- This simplifies payments as users can use a single QR code for transactions.

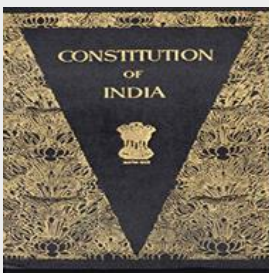
Central Bank Digital Currency

- The Digital Rupee (e₹), also known as eINR or E-Rupee, is a tokenized digital version of the Indian Rupee.
- It is issued by the Reserve Bank of India (RBI) as a central bank digital currency (CBDC).
- The concept of the Digital Rupee was proposed in January 2017, and it was officially launched on December 1, 2022.
- The Digital Rupee utilizes blockchain distributed-ledger technology.
- Similar to physical banknotes, each unit of the Digital Rupee is uniquely identifiable and regulated by the Central Bank, with the RBI bearing the liability.
- It is designed to be accessible both online and offline.
- The RBI introduced two variants: Digital Rupee for Wholesale (e₹-W), primarily for financial institutions to facilitate interbank settlements, and Digital Rupee for Retail (e₹-R), catering to consumer and business transactions.
- One of the key objectives of implementing the Digital Rupee is to eliminate the security printing costs associated with physical currency. These costs are shared by the general public, businesses, banks, and the RBI, amounting to ₹49,848,000,000 (approximately 5000 Crores).



NEWS IN BETWEEN THE LINES

Article 1



Recently, the discussion surrounding Article 1 of the Indian Constitution, which begins with the phrase "INDIA, That is, Bharat, shall be a Union of States," has gained attention.

What is Article 1?

- Article 1 is a specific provision within the Indian Constitution, and it deals with the "Name and territory of the Union."
- "India, that is Bharat, shall be a Union of States." This means that the official name of the country is 'India' and it is also referred to as 'Bharat' in the Constitution.

Dual Names - India and Bharat:

- Article 1 is unique because it uses both 'India' and 'Bharat' to refer to the nation. This dual nomenclature reflects the rich cultural and historical diversity of India.

Historical Significance:

- Article 1 was adopted during the process of drafting the Indian Constitution, specifically on September 18, 1949. Dr. B.R. Ambedkar, who chaired the Drafting Committee, played a pivotal role in its formulation.

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Gilbert Hill



About:

- Gilbert Hill is a 200-foot monolithic column of black basalt rock located in Andheri, Mumbai.
- The Maharashtra Government has recently proposed to develop it into a tourist attraction, similar to Dubai's Burj Khalifa.
- The rock's formation dates back to the Mesozoic Era, approximately 66 million years ago, during a period of volcanic activity.
- It was created when molten lava emerged from Earth's fissures and solidified into the unique monolithic structure.
- Gilbert Hill was declared a National Park in 1952, highlighting its geological and ecological significance.
- In 2007, the Brihan Mumbai Municipal Corporation designated it as a Grade II heritage structure.

The Mesozoic Era:

- The Mesozoic Era lasted from approximately 252 million years ago to 66 million years ago in Earth's history.
- This era is often referred to as the "Age of Dinosaurs" because dinosaurs were the dominant land animals during this time.
- Ended with the mass extinction event, Cretaceous-Paleogene (K-Pg), leading to the extinction of non-avian dinosaurs and many other species.

Kuruvai Paddy



What is Kuruvai Paddy?

- Kuruvai Paddy refers to short-term paddy cultivation, primarily grown in the river deltas of Tamil Nadu.
- It is typically cultivated during the June to September period.
- Its cultivation is prominent in several delta districts of Tamil Nadu, including Thanjavur, Tiruvarur and Nagapattinam.

Dependence on Water: Kuruvai crops require a significant amount of water for irrigation.

Mettur Dam:

- Farmers in Tamil Nadu depend on water from the Mettur Dam, which is located on the Kaveri River in Salem, for kuruvai cultivation.

Karnataka's Role:

- Karnataka's monthly release of water to the Mettur Dam in Tamil Nadu plays a crucial role in ensuring sufficient water availability for kuruvai crops.

Migration and Employment:

- In times of kuruvai crop failure due to water scarcity, many farmers are compelled to migrate to urban areas in search of employment, exacerbating rural-urban migration trends.

Zealandia



What is Zealandia?

Zealandia, a continent in the South Pacific Ocean, was recently identified by geoscientists after being overlooked for nearly 375 years.

Geographic Location:

- Situated in the southwestern Pacific Ocean, to the east of Australia and south of New Caledonia.

Geological Origins:

- Once part of the ancient supercontinent Gondwana over 500 million years ago.
- Began separating from Gondwana about 105 million years ago.
- Over 94% of Zealandia remains underwater.

Size and Topography:

- Covers an area of about 1.89 million square miles (4.9 million square km), roughly half the size of Australia.

Mostly submerged, with an above-water part forming New Zealand's north and south islands and New Caledonia.

Tectonic Plate Boundaries:

- Zealandia is situated along the boundaries of key tectonic plates, including the Australian Plate, Pacific Plate, and Indo-Australian Plate.

Abel Tasman's Discovery:

- First recorded by Dutch sailor Abel Tasman in 1642 during his quest for the "great Southern Continent."

Africa Climate Summit 2023



Recently, Africa Climate Summit 2023 (ACW23) held in Nairobi, Kenya, on September 4, 2023.

Global Climate Action:

- President Ruto stressed the urgency of addressing climate change despite Africa's small carbon footprint.
- Urged actions over debates about Global North vs. Global South or developed vs. developing countries.

Youth and Workforce Potential:

- By 2050, Africa to have over 25% of the global workforce and nearly 40% by 2100.

Renewable Energy Potential:

- Africa's vast renewable energy resources, including wind, solar, and hydro, can make the continent energy self-sufficient.
- Opportunity to support other nations in achieving net-zero goals by 2050.

Kenya's Renewable Progress: Kenya's achievements with renewables, aiming for 100% renewable energy by 2030 and 100 gigawatts entirely renewable by 2040.

Summit Theme and Significance:

- **Theme:** "Driving Green Growth and Climate Finance Solutions for Africa and the World."
- Outcomes crucial for African consensus and action leading up to COP28 under UN Framework Convention on Climate Change.

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Place in News

Turkey-Russia Black Sea Grain Deal

Recently, Turkey's President Erdogan expressed confidence in the revival of the Black Sea grain deal with Russia. Russia's President Putin linked the deal's restoration to Western obligations regarding Russian agricultural exports.

What is The Turkey-Russia Black Sea Grain Deal?

- The Turkey-Russia Black Sea Grain Deal is an international agreement signed in 2022, primarily aimed at ensuring the safe passage of cargo ships carrying grain from Ukraine through the Black Sea.
- This deal allowed ships to transport grain to and from Ukrainian ports in the Black Sea, including Odesa, Chornomorsk and Pivdennyi (Yuzhny), provided they passed inspection to ensure they were not carrying arms or prohibited cargo.

History of the Deal:

- The Black Sea grain deal was signed in 2022 to ensure safe passage for grain-carrying ships from Ukraine in the Black Sea.
- It aimed to prevent a food crisis in parts of Africa and the Middle East heavily reliant on Ukrainian imports.
- Russia initially refused to extend the deal in July, leading to ongoing discussions.

Importance of Ukraine:

- Ukraine is a major global exporter of food grains like wheat and corn.
- It plays a significant role in the United Nations' food aid programs.

The Black Sea Grain Initiative:

- Initiated by the UN and Turkey on July 22, 2022.
- Allowed cargo ships to travel between three Ukrainian ports (Odesa, Chornomorsk, Pivdennyi) in the Black Sea.



POINTS TO PONDER

- ❖ Which Indian has won the 2023 Ramon Magsaysay award? - Ravi Kannan
- ❖ Who is the first woman to head the Railway Board of India? - Jaya Verma Sinha
- ❖ What is India's Gross Domestic Product (GDP) percent in the April-June quarter of the current fiscal (2023-2024)? - 7.8%
- ❖ Which country is set to hold a referendum to recognize the country's Indigenous people in its constitution? - Australia
- ❖ In the August, the number of UPI transactions performed which milestone? - 10 billion

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