



4 September, 2023

## Irrigation in India

**Context:** The latest Minor Irrigation Census (MIC) shows electricity as the dominant power source for water extraction from privately owned irrigation sources.

- MIC reports reflect past data, not the current state of use, with the latest edition focusing on irrigation trends in 2017-18.
- Granular data collection at the block level takes several years before becoming public.
- The rise in electricity usage for groundwater extraction corresponds to an increase in tubewells and borewells capable of deeper water extraction.
- Dugwells and ponds, drawing water from up to 15 meters, are still the dominant sources but decreased in number.
- Shallow tubewells, drawing from up to 35 meters, declined from 59 lakhs to 55 lakhs.
- Medium-sized wells, drawing from up to 70 meters, increased from 31 lakh to 43 lakhs, while deep wells (beyond 70 meters) rose from 26 lakh to 37 lakhs.
- The report doesn't discuss the reasons behind the increase in more powerful, deep-reaching tubewells.
- State governments' schemes and incentives may explain the growth of such tubewells, but energy-efficient water extraction could also be a factor.
- In total, there were 23.14 million minor irrigation setups in the country, with 94.8% for groundwater and 5.2% for surface water extraction.

### States in Lead

- Uttar Pradesh had the highest number of MI schemes in the country at 17.2%.
- Following Uttar Pradesh, other leading states for MI schemes were Maharashtra (15.4%), Madhya Pradesh (9.9%), and Tamil Nadu (9.1%).
- In terms of groundwater schemes, Uttar Pradesh, Maharashtra, Madhya Pradesh, Tamil Nadu, and Telangana were the leading states.
- Maharashtra, Karnataka, Telangana, Odisha, and Jharkhand had the highest share in surface-water schemes

### Irrigation Schemes in India

- **PMKSY:** Central scheme expands irrigation and enhances water efficiency in agriculture through four components.
- **AIBP:** Central scheme accelerates irrigation development, offering financial aid for new and existing infrastructure.
- **CADWM:** Central scheme improves irrigated agriculture productivity via water management, strengthening institutions and efficiency.
- **PMFBY:** Central scheme provides crop insurance and financial support for farmers facing losses from natural calamities, pests, and diseases.
- **RKVY:** Central scheme promotes agriculture and allied activities by providing financial aid for irrigation, water management, and other projects.

(Note: Read about each of the schemes in detail)

## GRIHA Norms

**Context:** The upcoming Thal Sena Bhawan for the Indian Army will adhere to green norms set by GRIHA-IV.

- The new Thal Sena Bhawan (TSB) for the Indian Army is being constructed on a 39-acre site with a built-up area of 143,450 sq. m.
- It adheres to GRIHA-IV green norms, emphasizing environmental sustainability.
- Designed for a 100-year lifespan and earthquake-resistant, it's expected to be ready by May-June 2025.
- It features grid interactive solar PV systems, sensor-based LED lighting, EV chargers, and a building management system for energy efficiency.
- The complex incorporates a sewage treatment plant, solid waste management, rainwater harvesting, and green paver block parking for groundwater recharge.

### Green Rating for Integrated Habitat Assessment

- GRIHA, known as Green Rating for Integrated Habitat Assessment, is an organization jointly established by TERI (The Energy and Resources Institute) and the Ministry of New and Renewable Energy (MNRE).
- GRIHA's primary purpose is to set clear benchmarks for green buildings and sustainable living environments.
- It achieves this by conducting comprehensive assessments of a building's environmental performance throughout its entire life cycle.
- GRIHA's assessment criteria include both quantitative and qualitative measures, and it considers various nationally recognized benchmarks.
- Buildings that successfully meet GRIHA's stringent environmental and sustainability requirements receive the designation of "green buildings."

### GRIHA Rating Tool and Criteria

- GRIHA is a rating tool that assesses building performance against nationally accepted benchmarks and is applicable to all types of buildings across India's various climatic zones.
- GRIHA aims to quantify aspects like energy consumption, waste generation, and renewable energy usage to effectively manage and reduce them.
- It evaluates a building's environmental performance throughout its entire life cycle, setting a standard for what qualifies as a "green building."

## Face to Face Centres





- The rating system balances established and emerging energy and environmental practices, both nationally and internationally.
- Guidelines and criteria are subject to revision every three years to incorporate the latest scientific developments.
- **Criteria**
  - The GRIHA rating system comprises 34 criteria categorized into four sections: site selection and planning, resource conservation, building operation and maintenance, and innovation points.
  - Projects earn points for meeting criteria, and the total points determine the certification level (from one star to five stars), with a minimum requirement of 50 points for certification.
- **International Recognition**
  - GRIHA has international recognition and supports global sustainable development efforts, including the adoption of renewable energy in the building sector.
  - It plays a role in data collection for global building energy through tools like the "Common Carbon Metric," contributing to initiatives like "The Climate Reality Project."

## Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and Invasive Alien Species

**Context:** The 140+ members of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) have gathered at Bonn, Germany for the body's 10th plenary.

- A report developed by 86 experts from 49 countries will be approved by delegates at the plenary after four years of work.
- Invasive alien species are a major driver of biodiversity loss and are a focus of the Kunming-Montreal Global Biodiversity Framework (GBF) adopted in December 2022 by 193 Convention on Biological Diversity members.
- Target 6 of the GBF aims to eliminate, minimize, reduce, and mitigate the impacts of invasive alien species on biodiversity and ecosystem services by 2030.
- The goal is to decrease the rate of introduction and establishment of invasive alien species by at least 50% by 2030, contributing to biodiversity conservation.

### IPBES

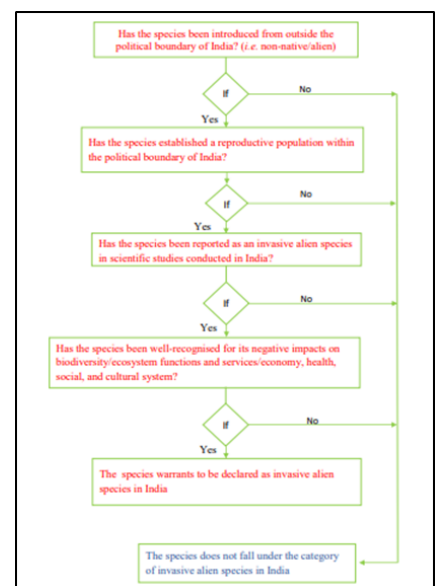
- IPBES is an independent intergovernmental body dedicated to enhancing the science-policy interface for biodiversity and ecosystem services, aiming to support the conservation and sustainable use of biodiversity, as well as long-term human well-being and sustainable development.
- IPBES is not a United Nations body but receives secretariat services from UNEP.
- IPBES currently includes 137 member states, open to any UN member state.
- IPBES operates with **four primary objectives**:
  - Conducting assessments on specific themes, methodological issues, and at regional and global levels.
  - Identifying policy-relevant tools and methodologies, facilitating their use, and catalysing further development.
  - Meeting the priority capacity, knowledge, and data needs of member states, experts, and stakeholders.
  - Ensuring the widest reach and impact of their work through communications and outreach.

### Invasive Species

- An invasive species refers to an organism that originates from a different region and poses a threat to the native species in a particular area.
- These species can inflict harm by potentially causing extinctions among native plants and animals, diminishing biodiversity, engaging in competition with local organisms for limited resources, and modifying habitats.
- Typically, their introduction to a new area occurs through various means such as ship ballast water, accidental release, but most frequently, through human activities.
- The image shows the process of classifying a species as Invasive Alien Species.

### Invasive species in India

- **Terrestrial Ecosystem:** 54 terrestrial plant species.
- **Aquatic Ecosystem:** 56 species, including microorganisms in freshwater and brackish water, aquatic plants, fishes, and marine invasive species.
- **Agriculture Ecosystem:** 47 species, encompassing fungi, bacteria, viruses, nematodes, and invasive insects.
- **Major Island Ecosystem:** 14 species, consisting of various insects, cnidarians, molluscs, fishes, amphibians, reptiles, birds, and mammals.
- Overall, India has 173 Invasive Alien Species (IAS) across these ecosystems.
- Commonly found alien species and their locations:
  - **African apple snail (*Achatina Fulica*)** - First reported in the Andaman and Nicobar Islands, now found across India.
  - **Papaya Mealy Bug (*Paracoccus marginatus*)** - Found in Assam, West Bengal, and Tamil Nadu.
  - **Cotton Mealy Bug (*Phenacoccus solenopsis*)** - Affects cotton crops in Deccan.



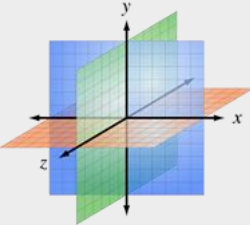



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- **Amazon sailfin catfish (Pterygoplichthys pardalis)** - Responsible for damaging fish populations in the wetlands of Kolkata.
- **Prominent invasive species-related cases in India:**
  - **Chilka Lake** - Affected by siltation and invasive freshwater species, leading to decreased fish productivity and biodiversity loss.
  - **Keoladeo National Park** - Invasive growth of Paspalum distichum changed the ecological character, impacting waterbird species.
  - **Kanjli Wetlands** - Invasive water hyacinth introduced to the area.
  - **Ropar Wetlands** - Various invasive weeds are a concern, with ongoing management plans.

## NEWS IN BETWEEN THE LINES

<p><b>Salimgarh Fort</b></p> 	<p><b>Historical Significance:</b> Salimgarh Fort, located along the Yamuna River in Delhi, was built in 1546 by Salim Shah Suri to defend against Humayun's army.</p> <p><b>Renaming and Transition:</b> After Humayun's victory, he renamed it Nurgarh as a sign of humiliation toward the Surs.</p> <p><b>Jahangir's Reign:</b> A bridge was built during Jahangir's reign, and the fort's land was given to Mughal noble Murtaza Khan during Akbar's rule.</p> <p><b>Used as a Prison:</b> Under Aurangzeb, it became a prison, where Zeb-un-Nissa wrote poetry during her incarceration.</p> <p><b>1857 Revolt:</b> During the 1857 revolt, it housed rebel soldiers and later became an English army camp.</p> <p><b>World War II Use:</b> In World War II, it imprisoned Indian National Army (INA) soldiers.</p> <p><b>Present Condition:</b> Salimgarh Fort is less known than the nearby Red Fort but is gaining recognition, especially in preparations for the G20 Summit.</p>
<p><b>Air Quality Life Index</b></p> 	<p><b>What is Air Quality Life Index?</b> The Air Quality Life Index (AQLI) is a measure that quantifies the impact of air pollution on life expectancy.</p> <p><b>Purpose:</b> Communicates air pollution's health effects to the public and policymakers.</p> <p><b>Measurement:</b> Uses PM2.5 concentration in the air.</p> <p><b>Global Scope:</b> Applicable worldwide for assessing air pollution's impact.</p> <p><b>WHO Guidelines:</b> Compares PM2.5 levels to WHO guidelines (typically 5 µg/m3).</p> <p><b>South Asia's Crisis:</b> South Asia, including Bangladesh, India, Nepal, and Pakistan, is highly polluted, with a 9.7% increase in particulate pollution from 2013 to 2021.</p> <p><b>Country Impact:</b> Bangladesh most polluted in 2021, potentially causing a 6.8-year loss in life expectancy. China reduced pollution by 42.3%, gaining 2.2 years in life expectancy.</p> <p><b>India's Challenge:</b> India, the second-most polluted country in 2021, saw PM2.5 levels exceed WHO guidelines by over 10 times, potentially leading to a 5.3-year loss in life expectancy.</p>
<p><b>Cartesian Coordinates</b></p> 	<p><b>Coordinate System:</b> A coordinate system is a set of numbers that locates a point in space.</p> <p><b>Cartesian Coordinates:</b> Invented by René Descartes in the 17th century, they use numbers to specify a point's distance from perpendicular planes. For N planes, N numbers are used.</p> <p><b>Location on a Plane:</b> Similar to latitude and longitude on Google Maps, Cartesian coordinates use pairs (x and y) to locate points on a plane.</p> <p><b>Three-Dimensional Space:</b> In 3D, an extra number (z-axis) specifies a point's location, like choosing a floor in a building.</p> <p><b>Analytic Geometry:</b> Descartes' invention bridged algebra and geometry, leading to analytic geometry, a fundamental math branch.</p> <p><b>Applications:</b> Cartesian coordinates are used in fields like astronomy, engineering, and geometry-related disciplines.</p>
<p><b>Pirola Variant</b></p> 	<p><b>What is Pirola Variant?</b> The Pirola variant is known as BA.2.86. It is a new Covid-19 variant with 30+ spike protein mutations compared to XBB.1.5 (a subtype of Omicron).</p> <p><b>Global Presence:</b> Detected in various countries, including the US and UK, in unrelated cases.</p> <p><b>Mutation in Viruses:</b> Viruses, like coronaviruses, naturally mutate during replication.</p> <p><b>Advantageous Mutations:</b> Some mutations may help viruses adapt and become more transmissible or resistant to immunity.</p> <p><b>Expert Perspective:</b> Anne Hahn, from the Yale SARS-CoV-2 Genomic Surveillance Initiative, finds Pirola noteworthy among Omicron subvariants.</p>

## Face to Face Centres



## G20 Park



### G20 Park Unveiled:

- NDMC inaugurates G20 Park in Chanakyapuri.
- Features 19 sculptures of G20 member countries' national birds and animals.

### Waste-to-Art Concept:

- Sculptures created from recycled metal scrap materials.
- Materials sourced from NDMC storage facilities.

**Preparation for G20 Summit:** Part of preparations for the upcoming G20 Summit on September 9-10.

**Sculpture Creation Process:** Initiated by Lalit Kala Akademi-affiliated artists in Garhi village.

**Theme:** "One Earth, One Family, One Future"

### Diverse Sculptures:

- Represents various national birds and animals, promoting unity among G20 member nations.
- It includes peacock, bison, jaguar, crane, camel, magpie, emu, gray jay, brown bear and golden eagle.
- The G20 includes the European Union and 19 individual countries, symbolizing international cooperation.

## Place in News

### Port of Reni

Recently, a Russian drone attack lasting over three hours targeted the Reni sea port in Ukraine's Odesa region.

### Location:

- The Port of Reni is located in southern Ukraine, specifically in the Odesa region.
- It is situated along the Danube River, making it an important river port for maritime trade.

### Geographical Significance:

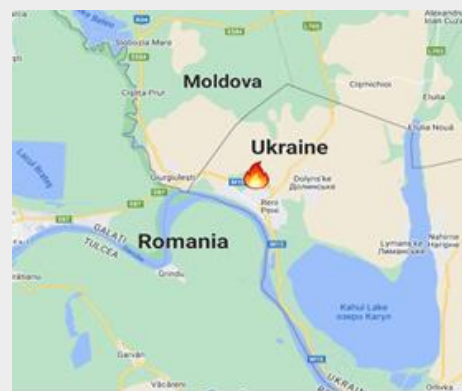
- Reni is one of Ukraine's significant river ports along the Danube River, which flows through multiple European countries.

### Connection to the Black Sea:

While situated along the Danube River, the Port of Reni provides a connection to the Black Sea, allowing for the transportation of goods to and from international markets.

### Importance for Ukraine:

- The port's location and infrastructure make it vital for Ukraine's international trade, especially for agricultural products.
- It contributes to Ukraine's economy by serving as a key export gateway.



## POINTS TO PONDER

- ❖ What marks the beginning of Aditya-L1's 110-day trajectory to the L1 Lagrange point? -Trans-Lagrangian1 insertion manoeuvre
- ❖ What is NeGD integrating into the DIKSHA platform? -Personalised Adaptive Learning (PAL)
- ❖ What did researchers from the Oregon Health & Science University (OHSU) use to test menstrual product absorbency? -Human blood
- ❖ Pulikali is a folk dance of which Indian state? - Kerala
- ❖ Sukapaika River is a distributary of which river? -Mahanadi

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