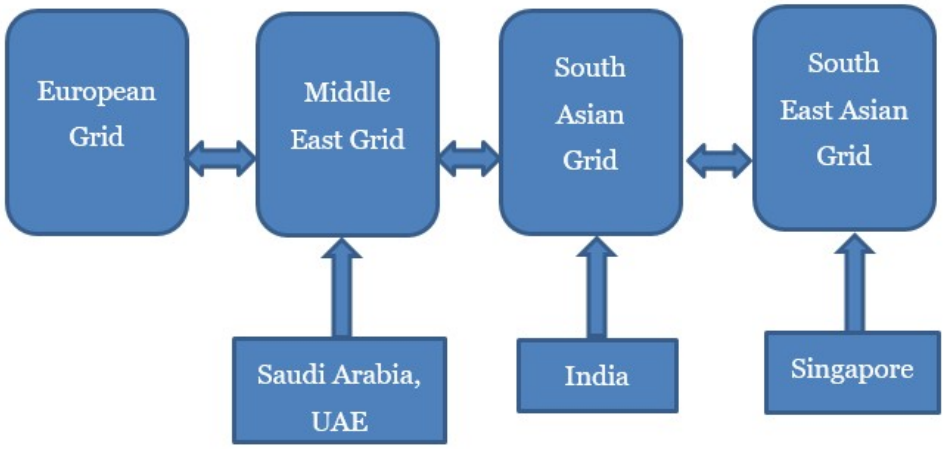
Prelim Bits 16-09-2023 | UPSC Daily Current Affairs

Transnational Grid Interconnections under OSOWOG

As part of One Sun One World One Grid (OSOWOG) Initiative, India, Saudi Arabia, the UAE and Singapore are in advanced stages of creating a mega grid infrastructure.

- **Objective** – This mega grid infrastructure enables trade in renewable energy *from South East Asia to Europe via Middle East*.



One Sun One World One Grid (OSOWOG

- Solar energy is available only during the day time and is dependent on the weather.
- OSOWOG is a solution to this challenge and aims to develop a worldwide grid through which clean energy can be transmitted anywhere, anytime.
- **Background** – The initiative was put forth at 1st assembly of International Solar Alliance (ISA) in 2018 by Indian Prime Minister.
- **Launched by** – Prime Minister of India and UK at COP26 Climate Meet in *Glasgow*.
- **Significance** –
- Reduces storage needs
- Enhances the viability of solar projects
- Reduces the cost of renewable energy
- Reduces carbon footprints and energy costs
- **Implementation** - OSOWOG is divided into 3 main phases.
    - **1st Phase** - The Indian grid would be connected to the grids of *Middle East, South Asia and South-East Asia* to develop a common grid.
    - **2nd phase** – It would connect the functional first phase to the pool of renewable resources in *Africa*.
    - **3rd phase** – It would look at achieving true global interconnection and integrate as many countries as possible to create a single power grid of renewable energy.

References

1. The Hindu Business Line| Mega Grid Initiative
2. ISA website| GGI-OSOWOG

UPAg Portal

The Centre launched the Unified Portal for Agricultural Statistics (UPAg) to address the complex governance challenges India's farm sector is facing now.

- It is a platform designed to generate crop estimates and is integrated with other systems generating agriculture statistics such as price, trade, procurement, stock.
- It is a crucial component of the *Digital Public Infrastructure for Agriculture*.
- **Initiative by** - *Department of Agriculture and Farmers' Welfare* under the Ministry of Agriculture.
- **Objective** – To streamline and enhance data management in the agricultural domain.
- **Key Features**
  - **Data Standardization** – It consolidates data from various sources into a standardized format for easier access and understanding.
  - **Data Analysis** – It offers insights such as production trends and consumption patterns for making informed decisions.
  - **Granular Production Estimates** – It improves the government's ability to respond to agricultural crises swiftly.
  - **Commodity Profile Reports** – The reports will be produced using algorithms, and provides users with comprehensive insights.
  - **Plug and Play** – Users will have the flexibility to use the portal's data to prepare their own reports, promoting data-driven decision-making.

References

1. PIB| Launch of UPAg
2. The Hindu Business Line| UPAg in data management

Lithium production using String Technology

Researchers at the University of Princeton have developed a String technique that can drastically reduce the amount of land and time needed for production.

- Lithium is a key element for new technologies and finds its use in modern batteries, ceramics, glass, grease, metallurgical powders, telecommunication and aerospace industries.
- **Current method** - A large majority of the lithium produced in the world is extracted from brine reservoirs located in salt flats which is an extremely *resource intensive* and *time-consuming* process.
- It is commercially viable only in a few locations around the world.

According to McKinsey report, the total demand for lithium is expected to grow to between 2 to 3 million tons by 2030.

String Technique

- **Working** - A set of porous fibres twisted into strings and engineered to have a *water-loving (hydrophilic) core* and *water-repelling surface*.
- When one end is dipped in a salt-water solution, the water travels up the string because of *capillary action*.
- The water then evaporates quickly from the string's surface which leaves behind salt ions such as sodium and lithium.
- Continued evaporation makes the salts increasingly concentrated, eventually forming *sodium chloride and lithium chloride crystals*.
- Sodium having low solubility, crystallises on the lower part, while the highly soluble lithium salts crystallise near the top.
- **Significance**
  - Reduces the production time
  - Reduces the land requirement by 90%
  - Allows automatic recovery of lithium without the use of additional chemicals
  - Allows to access new areas and new conditions like humid climates such as defunct oil and gas wells

References

Indian Express | String Technology for Lithium production

Scrub Typhus and Leptospirosis

Odisha is reeling from two major disease outbreak, Scrub Typhus and Leptospirosis which have killed six people in the state so far.

Scrub Typhus

- **Scrub typhus** – It is also known as *Bush Typhus*.
- **Cause** - Bacteria: Orientia tsutsugamushi.
- **Transmission** - Spread through bites of infected chiggers (larval mites).
- **Symptoms** - Fever, headache, body aches, and sometimes rash.
- **Vaccine** - Currently there is no vaccine available.
- **Treatment** - Treated through antibiotic doxycycline which can be used in persons of any age.
- **Distribution** - Most cases of scrub typhus occur in rural areas of Southeast Asia, Indonesia, China, Japan, India, and northern Australia.

Leptospirosis

- **Cause** – Bacteris (*Leptospira interrogans*)

- **Transmission** - Humans can become infected through contact with urine (or other body fluids, except saliva) *from infected animals* either directly or indirectly through contaminated water, soil or food.
- *Person to person transmission is rare*.
- **Symptoms** - High fever, headache, chills, vomiting, red eyes, abdominal pain, rashes, and diarrhoea.
- Some infected persons may have no symptoms at all.
- The illness lasts from a *few days to 3 weeks or longer*.
- **Effects** - It can lead to kidney damage, meningitis, liver failure, respiratory distress, and even death if not treated early.
- **Treatment** - It is treated with *antibiotics, such as doxycycline or penicillin*.

References

1. Livemint| Disease outbreak in Odisha
2. CDC web| Scrub Typhus fever
3. CDC web| Leptospirosis