

## 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 1<sup>st</sup> 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.
  - **1<sup>st</sup> Phase** - The Indian grid would be connected to the grids of Middle East, South Asia and South-East Asia to develop a common grid.
  - **2<sup>nd</sup> phase** - It would connect the functional first phase to the pool of renewable resources in Africa.
  - **3<sup>rd</sup> 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](#)

