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Moringa oleifera, Mitigator for Harmful Algal Blooms (HABs)

Why in News?

A research team at Clarkson University recently published a study about a plant-based alternative to traditional chemical methods of combating Harmful Algal Blooms (HABs).

- The team's research focuses on using ***Moringa oleifera*** to combat the cyanobacterium that causes HAB known as ***Microcystis aeruginosa.***
- The team comparing it to the traditional chemical method of using aluminum salts.
- **Microcystis aeruginosa -** Microcystis aeruginosa cells, the cyanobacterium that causes HABs contain a family of potent toxins known as microcystins.
- It can cause negative health effects in humans, from mild skin rashes to serious illnesses.
- They can also cause severe liver damage and even death in dogs and livestock.
- Any method used to treat harmful algal blooms must ensure that the cells remain intact to prevent the release of these toxins into the aquatic environment.
- **Moringa oleifera** - It is a ***Plant-based alternative*** for harmful algal bloom mitigation.
- The seeds of Moringa oleifera contain proteins that act as natural flocculants.

Flocculant is the substance that causes particles in liquid to clump together, and the clumped particles are called flocs.

- Aluminum salts, such as alum (potassium aluminum sulfate) and polyaluminum chloride, are commonly used as flocculants in water treatment processes.
- They effectively aggregate particles, facilitating their removal from water.
- However, their use raises environmental concerns, particularly regarding the formation of toxic sludge.
- This sludge can contain soluble aluminum compounds, which may leach into water bodies, posing risks to aquatic life and potentially entering the food chain.
- **Advantages -** Moringa oleifera offers a biodegradable, plant-based alternative that is less polluting.
- Its use as a flocculant reduces the risk of toxic sludge formation and minimizes environmental impact.

Reference

Phys | Moringa oleifera

Libia Lobo Sardesai, Goan freedom fighter

Why in News?

Goan freedom fighter Libia Lobo Sardesai was honored with the Padma Shri recently for her pivotal role in the state's liberation struggle.

- Libia, a ***Goan nationalist activist***, was born in 1924 in Portuguese-ruled Goa and grew up in Bombay.
- In 1954, after the Portuguese assaulted and arrested satyagrahis who had entered Goa to demand an end to colonial rule, India closed its borders and imposed an economic blockade.
- The Portuguese had imposed ***"total censorship"*** in Goa, instilling fear and feeding people Portuguese propaganda.
- To counter these lies, the nationalists set up an underground radio station, initially called **'Q'.**
- On November 25, 1955, the station began broadcasting hour-long programs in the morning and evening.
- Libia and fellow Goan nationalists *Vaman Sardesai and Nicolau Menezes* worked nearly 18 hours a day, listening to various bulletins and news from India and abroad.
- They also studying reports, collating information, and scanning Indian and foreign newspapers and newsletters to select information about anti-colonial struggles.
- After 6 years in the jungles, just days before ***Operation Vijay*** was launched to liberate Goa, the Indian border police bundled Libia and Vaman in a jeep and took them to a rest-house in Belgaum.
- On December 17, 1961, the station relayed a direct message from V K Krishna Menon addressed to the Portuguese Governor General, asking him to surrender to prevent unnecessary casualties.
- The Portuguese Governor General asked Libia to go into the skies and announce that Goa is free.
- On December 19, 1961, Libia and Vaman flew in an Indian Air Force plane with a radio transmitter aboard and a loudspeaker announcing in Portuguese and Konkani that the Portuguese had surrendered.

Reference

The Indian Express | Libia Lobo Sardesai

Whip System in India

Why in News?

Vice President Jagdeep Dhankhar's statement that party whips restrict MPs' freedom of expression has sparked debate, with the Supreme Court stating the whip system is necessary for political party preservation.

- **Origin -** It originates from the hunting fields of England, where a whipper-in was a member of the hunting party whose job was to bring straying hounds back into the pack.

- Its use in politics comes from Anglo-Irish politician and philosopher Edmund Burke.
- In India, the whip system is as old as its parliamentary history.
- The whip system is crucial for parliamentary functioning in India.
- Member of Parliaments (MPs) are expected to vote on crucial matters and follow the party's line, as absence or voting against the party line can embarrass the party.
- Full attendance and compliance during division indicate the strength of the party or alliance, and failure to demonstrate majority can lead to a ***no-confidence motion.***
- The party chief whip serves as a bridge ***between party leadership and MPs***, ensuring their attendance and voting according to the party's wishes. A party whip is sacrosanct in this context.
- **Type of Whips -** There are three kinds namely, one-line whip, two-line whip and three-line whip.
- A one-line whip just informs members about a vote but ***permits them to abstain.***
- A two-line whip asks them to be present but does not tell them how to vote.
- The three-line whip, largely the norm these days, directs members to be present and vote as per the party line.
- A three-line whip to party members by a party's chief whip carries the heading "Three-Line Whip".
- As per the Anti-Defection Law, disqualification can happen for violation of a three-line whip.

Anti-defection Law was enacted through the 52nd Amendment Act, 1985 as part of the 10th Schedule of the Constitution of India.

- The most important role in the whip system is that of the chief whip of a political party.
- The Minister of Parliamentary Affairs is the government's chief whip in the Lok Sabha whereas in the Rajya Sabha, the Minister of State for Parliamentary Affairs is the government's chief whip.
- They can request leaders of all parties of the ruling alliance to issue a three-line whip to their members to be present and vote in a certain manner.
- A party ticket elects someone who agrees with its ideology and policies, necessitating discipline.

All-India Whips conference has been held since 1952 and Organized by the Ministry of Parliamentary Affairs.

Reference

The Indian Express | What is the whip system?

Pongal Bird Count (PBC)

Why in News?

Recently, the Pongal Bird Count completed its 10 years.

- **PBC** – It is an initiative of the Tamil Birders Network.
- It is an *annual bird monitoring programme* for the state of Tamil Nadu.
- **1st PBC** – It was conducted in *2015*.
- **Time period** – It happens *every year during the Pongal Festival* which falls in January.
- **Purpose** – To know the snapshot of distribution and abundance of the birds of Tamil Nadu.

Pongal Bird Count (PBC), 2025

- **Organized by** – Tamil Birders Network.
  - Bird Count India.
- **Total bird species** – *332*, were spotted across the state.

Important Spotted Bird Species	
Northern pintail	Blue-Tailed Bee
Northern shovelers	Indian Pita
Barn swallow	Paradise Flycatcher
Northern pintail	Brown-Breasted Flycatcher
Grey wagtail	Red-Throated Flycatcher
White-naped tit	Eurasian Spoonbill
Greenish warbler	Black-Headed Ibis
Indian blue robin	Black Drongos
Barn swallows	Cattle Egrets
Marshall's Iora	Glossy Ibis
White-bellied Sea eagle	Orange Minivet
Asian fairy-blue bird	Blue Rock Thrush
Racket-tailed drongos	Stints
Jerdon's leafbird	Wood Sandpipers
Puff-throated babbler	Eurasian moorhen
Pacific golden plover	Pheasant-tailed jacana

- **Decline in bird count** – The number of birds is lower during this year, where last year a total of *345 bird species spotted*.
- **Reasons** – It attributed to many reasons including,
  - Rains and unscientific de-silting of water bodies that wiped off natural vegetation from the bunds.
  - Dumping waste in lakes unaware of the presence of domestic and migratory birds.
  - Copious water in the lakes.
  - Brimming lakes.

References

1. The Hindu| Pongal Bird Count 10 years
2. The New Indian Express| Species spotted during Pongal bird count
3. BCI| Pongal Bird Count

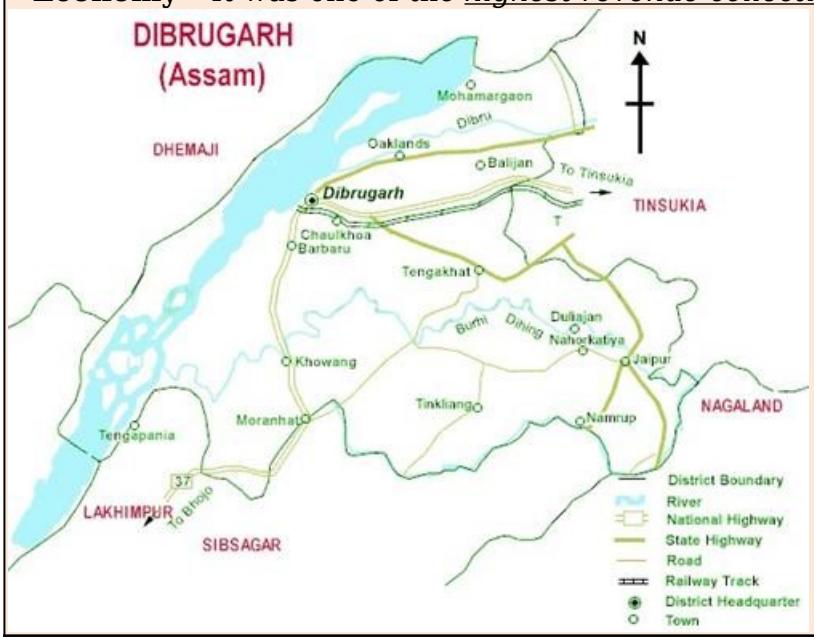
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Geography

Dibrugarh

Dibrugarh will be the Assam's 2nd capital sport an assembly complex by 2027.

• **Located in** – *Upper Assam*.
• **Adjoining to** – Tinsukia district.
• **Part of –** Brahmaputra River basin.
• **Background** – The British-era hub of *tea, oil and coal trade*.
• **Land forms** - Flood plain of Brahmaputra River and the terrace deposits and denudational hills in the southern part.
• **Economy** – It was one of the *highest revenue-collecting centers.*



Polity & Governance

Village Water and Sanitation Committee (VWSC)

• **Umbrella of** – Jal Jeevan Mission (JJM).
• **Under** – State Panchayat Raj Act.
• **Recognized by** – Gram Sabha.
• **VWSC –** It play a lead role in planning, implementation, management, operation and maintenance of in-village water supply infrastructure.
• **Objectives** – Assist Village Panchayat in effective management of water supply and sanitation facilities.
• Forum for community involvement in water and sanitation issues.
• Link between the Village Panchayat and users of water and sanitation installation.

Bhashini

Tripura became the 1st North East State (NES) to sign MoU with Bhashini.

• **Launched in** – 2022.
• **Under** – National Language Technology Mission.
• **Concept** – It is an AI-tool designed to *break the barrier between the diverse languages* that people speak across the country.
• **Aim** – To provide *technology translation services* in 22 scheduled Indian languages.
• **Tool used** – Artificial Intelligence (AI) and Natural Language Processing (NLP).
• It uses *voice as a medium.*

Agriculture

Pradhan Mantri Kisan Sampada Yojana (PMKSY)

• **Launched in** – *2017*.
• **SAMPADA** – Scheme for Agro-marine processing and Development of Agro-processing Clusters.
• SAMPADA renamed as Pradhan Mantri Kisan SAMPADA Yojana (PMKSY).
• **Nodal Ministry** – Ministry of Food Processing Industries (MoFPI).
• **PMKSY** – It is a comprehensive package in creation of modern infrastructure with efficient supply chain management from farm gate to retail outlet.

Creation/Expansion of Food Processing & Preservation Capacities (CEFPPC)

• **Umbrella scheme -** Pradhan Mantri Kisan Sampada Yojana (PMKSY).
• **Objective** – It is creation of processing and preservation capacities and modernisation/ expansion of existing food processing units.
• The processing activities undertaken by the individual units covers a wide range of post-harvest processes.
• **Features** - Increase the level of processing
  - Reduce wastage
  - Induction of modern technology
  - Improving the quality of the end product.

HRMN-99

• **HRMN-99** – It is an apple variety developed by Hariman Sharma from Himachal Pradesh.
• **Patent by** – Protection of Plant Variety, Farmer Right Authority and Ministry of Agriculture.
• **Features** – It is striped *red-over-yellow skin*, soft and juicy pulp.
• Ability to produce up to *75 kg of fruit per plant annually*.
• Over 1 lakhs of saplings of the variety have been planted in all North East State (NES).
• It has empowered thousands of farmers across India.

Environment

Wetland City Accreditation (WCA)

Indore and Udaipur became the first 2 Indian cities to join the global list of wetland accredited cities.

• **Established in** – *2015*.
• **Established by** – Ramsar Convention.
• **WCA** – It is a voluntary scheme provides an opportunity for cities that *value their natural or human-made wetlands* to gain international recognition and positive publicity for their efforts.
• **Validity** – *6 years*, after it must be *renewed*.

Science

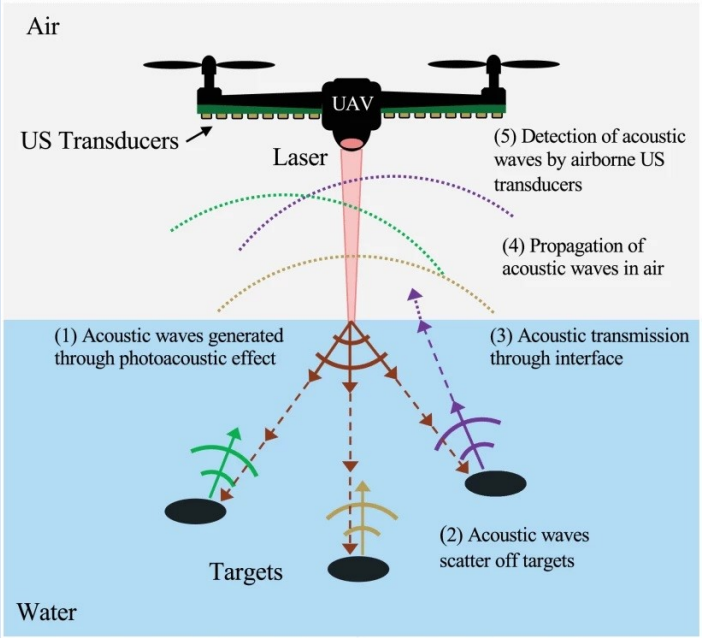
National Leprosy Eradication Programme (NLEP)

• **Established in** – *1983*.
• **Umbrella of** – National Health Mission (NHM).
• **Vision** – Leprosy-free India.
• **Mission** – To provide quality *leprosy services free of cost* to all sections of the population.
• **Objectives -** To reduce prevalence rate less than 1/10,000 population at sub national and district level.
• **National level** – To reduce Grade II disability% < 1 among new cases and cases < 1 case per million population.

Deep Sea Radar

Chinese scientists claim the build of world's 1st deep sea radar.

• **Concept** – It sits on the seabed and *detect & track aircraft flying high above.*
• **Capable of** – Detecting high-altitude aircraft.
• **Consists of** – A specially designed *acoustic sensor array* that can be deployed at depths of 3,280 feet (1,000 meters).
• **Tested** – These sensors detected and tracked incoming aircraft at altitudes of 5,000 meters.
• **Acoustic sensor** – It is a device designed to *detect and measure sound waves* or acoustic signals in the surrounding environment.



Miscellaneous

World Audio Visual & Entertainment Summit (WAVES)

• **Nodal Ministry** – Ministry of Information and Broadcasting.
• **WAVES** – It is a dynamic platform that aligns with Prime Minister vision of showcasing and economically empowering India's creative talents.
• It is globally recognized as the *Orange Economy.*
• It enhancing cultural strength, providing a foundation for our creators to earn respect and recognition worldwide.



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