Prelim Bits 04-10-2022 | UPSC Daily Current Affairs

Biomass Co-firing

Recently, an inter-ministerial meeting of the Environment, Agriculture and Power Ministries to review the progress of biomass co-firing in thermal power plants was held in New Delhi.

- **Biomass co-firing** is a method for efficiently and cleanly converting biomass to electricity by adding biomass as a partial substitute fuel in high-efficiency coal boilers.

  *The Centre has directed all thermal power plants in the country to ensure **5% co-firing of biomass** along with coal by October 2022.*

- In this meet, the Government is considering cutting coal supply for those thermal power plants that do not comply with the policy on biomass co-firing.
- Directions were also given to all thermal power plants in NCR region to install biomass pellet manufacturing plants in their premises.
- **Benefits** - Ministry of Power launched the National Mission on Use of Biomass in Thermal Power Plants (**SAMARTH Mission**) provides for co-firing of biomass waste in Thermal Power Plants.
- This reduces the challenges of stubble burning into an opportunity for green power production.
- This helps in the reduction of air pollution in the Northwest region of our country and also helps in the income generation for farmers.
- **Issues** - Unavailability of biomass pellets of agricultural residues as the manufacturing capacity is relatively low.
- Biomass pellet suppliers fetch better prices from other industries such as textile, food processing.

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MGNREGS in Reversing Desertification

A recent advisory from the Union Government urged the Chief Secretaries of the States to

ensure that the MGNREGS and PM Krishi Sinchayee Yojana to work in tandem to restore degraded land and reverse desertification in the country.

- Under the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), activities such as ridge area treatment, drainage line treatment, soil and moisture conservation, afforestation, and horticulture are done.
- The Union government now wants the States to undertake these activities using Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) funds, which go towards both material and wage components.
- This convergence with the MGNREGS could help take up treatment of about 30% more land than feasible with the current scheme size.
- **Desertification in India** - According to the Desertification and Land Degradation Atlas published by the Environment Ministry in 2021, at least 30% of India's total geographical area is under the category of **degraded land.**
- Jharkhand, Rajasthan, Delhi, Gujarat and Goa have more than 50% of land area undergoing desertification or degradation.
- Kerala, Assam, Mizoram, Haryana, Bihar, Uttar Pradesh, Punjab and Arunachal Pradesh have less than 10% of land area undergoing desertification or degradation.



- In 2019, the government raised its target of restoration of degraded to **26 million hectares by** 2030 during **COP14 held at New Delhi**.
- The Rural Ministry has been making efforts to contribute towards meeting the international commitment made during the **UN Convention to Combat Desertification** (UNCCD).

The UNCCD is the only legally binding framework set up to address desertification and the effects of drought. India hosted the COP14 of UNCCD in 2019.

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Pahari Community

Paharis of Jammu, one of the communities which has long-standing demand for the Scheduled Tribe status.

- The Pahari community is a **linguistic group** mainly residing in the **Pir Panjal valley** comprising Rajouri and Poonch districts in J&K.
- Paharis are also spread in parts of the **Kashmir valley**.
- Gujjars, Bakerwals and Paharis are non-Kashmiri speaking population of J&K.
- Paharis comprise both **Hindus** and **Muslims**.
- But the two prominent nomadic clans, **Bakerwals** and **Gujjars** follow Islam.

According to Article 342(1), the President of India declares a tribe as Scheduled Tribe, after consulting with the Governors of respective states.

- **The Gujjar -Pahari rift -** Bakerwals and Gujjars are given ST status in J&K.
- At present, there is 10% reservation in jobs for STs in J&K and they feel this reservation will be diluted, if Paharis were granted ST status.
- Bakerwals and Gujjars are arguing that ST status is not granted on the basis of linguistics though the Constitution does not define or specify any criteria.

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Medicinal Fungi

A research shows that some chemicals that medicinal fungi secrete may find use as novel drugs.

- **Medicinal fungi** – These are fungi that contain metabolites or can be induced to produce metabolites to develop prescription drugs.
- Fungi when they are induced produce chemical compounds which are not essential but enhance the fungus' ability to survive are called **secondary metabolites**.

Cordycepin, a secondary metabolite produced by Cordyceps species of fungus, is known to have anti-tumour properties.

- Medicinal fungi belongs to two taxonomic divisions namely,
  - *Basidiomycota* - Mushrooms belongs to this.

    Example - The consumable button mushroom.

  - *Ascomycota* – They are generally not mushrooms.

    Example – Fungi *Isaria cicadae* and *Shiraia bambusicola* are used in traditional Chinese medicine.
- **Findings** - The researchers analysed the structure of 1,830 secondary metabolites of medicinal fungi and found that the secondary metabolites were structurally distant from existing drugs.
- However, the secondary metabolites of medicinal fungi have molecular properties which makes it suitable for identifying novel drugs.

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Kappaphycus Alvarezii

Centre's Multi-purpose Seaweed Park project promotes cultivation of Exotic Kappaphycus seaweed in TN's coastal villages, which poses threat to coral reefs.

- ***Kappaphycus alvarezii*** is a red alga but, its actual live colour is green or yellow.
- **Habitat** – The seaweed is native to the Indo-Pacific region.
- It has been widely introduced and cultivated in tropical regions for commercial purposes.
- **IUCN Status** - The invasive seaweed Kappaphycus is an IUCN red-listed species.
- **Commercial significance** – It is used in the production of an industrially lucrative polymer called Carrageenan.
- Carrageenan a substance extracted from red and purple seaweeds, which is used as a thickening or emulsifying agent in food products.
- **Threat it poses** – The rich coral reefs of Gulf of Mannar Marine National Park and the seagrass beds in Palk Bay Dugong Conservation Reserve have increasing threat from exotic seaweed Kappaphycus.

  The Gulf of Mannar Marine National Park is one of the six marine National Parks and only marine Biosphere reserve in India

- **Threat to Coral reefs** – The algae was firmly attached to the coral colonies and started forming a thick gelatinous unbreakable mat over them, eventually smother and kill corals.
- Some of the islands in the Gulf of Mannar have been invaded by Kappaphycus.
- The coral reefs of Valai Island in the Keelakarai group and Krusadai Island of Mandapam group were dying due to stress from Kappaphycus invasion
- **Threat to Dugongs** - The commercial cultivation of Kappaphycus in Palk Bay may affect the efforts to conserve the dugong population.
- Seagrass beds, which are Dugong's prime foraging grounds are likely to be impacted.

  India's first Dugong Conservation Reserve is in Palk Bay, Tamil Nadu.

- **Threat to other aquatic species** - Also with increased Kappaphycus cover, the macro faunal and fish density is decreased.

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