Tree Planting for Restoring Ecosystem

Why in news?

According to the World Bank, the world has lost about 10 million square kilometres of forests since the 20th century due to uncontrolled and unsustainable practices, severely degrading forest landscapes.

What is Forest degradation?

- **Forest** – It is a large geographical area dominated by trees, animals of various species, aquatic biomes and microorganisms.
- **Forest degradation** – It refers to the *reduction in a forest's capacity* to provide goods and services due to human activities or natural disasters.
- **Causes** – It primarily caused by *environmental and anthropogenic changes*, has the potential to wipe out the whole forest cover and biodiversity.
    - Forest degradation, for example, can occur when acid rain or wildfires devastate a forest region.
- **Illegal Logging-** Uncontrolled logging for timber, firewood, and charcoal significantly degrades forests.
- **Agricultural Expansion-** Clearing forests for cash crops and cattle rearing leads to substantial deforestation.
- **Mining and Infrastructure-** Mining and infrastructure projects cause tree loss and forest degradation.
- **Climate Change-** Rising temperatures, shifting rainfall, and extreme weather contribute to forest decline.

Status of Forest degradation
• **India-**According to the Food and Agriculture Organization (FAO), *India lost 668,000 hectares of forest per year* between 2015 and 2020, which was the second highest rate of deforestation in the world, after Brazil. • **Globally-** Since 1990, *420 million hectares of forest* have been lost to other land uses. • Deforestation declined from 16 million hectares per year in the 1990s to an expected 10 million hectares per year between 2015 and 2020.

What is Ecosystem restoration?

- Ecosystem restoration – It involves assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.
- **Objective**- It aims to *restore natural habitats* and also to ensure that ecosystems can sustain their functions and services over time, benefiting both nature and human well-being.
- **Methods of restoration**

- **Reforestation-** Planting native trees in areas where forests have been cut down or degraded.
- **Afforestation-** Planting trees in areas where there were no previous forests, creating new forested areas.
- **Wetland Restoration-** Restoring natural hydrology, removing invasive species, and reintroducing native vegetation to revive wetland ecosystems.
- **Soil Restoration-** Using techniques like contour plowing, terracing, and the application of organic matter to restore soil health and prevent erosion.

Decade on Ecosystem Restoration
• **Decade on Ecosystem Restoration -** *year 2021 to 2030* • **Declared by-** United Nations (UN) • **Target-** It target for the *restoration of 350 million hectares* of degraded land to *generate $9 trillion in ecosystem services* and sequester an additional 13 gigatons-26 gigatons of greenhouse gases from the atmosphere.

- **Significance**- Ecosystem restoration is key to achieving multiple SDGs, such as climate action, life below water, life on land, and poverty alleviation.

What is Tree planting?

- It refers to the *process of transplanting tree seedlings,* usually for forestry, land reclamation, or landscaping purposes.
- **Aim-** It aims at *restoring forests, increasing green cover*, and combating climate change.
- **Purify air –** Trees *absorb pollutants and produce oxygen*, improving air quality.
- **Mitigate global warming** – Trees *sequester carbon dioxide*, helping *mitigate climate change*.
- **Regulate local weather** – They also *influence local weather patterns* and reduce the urban heat island effect.
- **Preserve water** – Trees improve water infiltration into the soil, reducing runoff and preventing soil erosion.
- They also help maintain groundwater levels.
- **Support biodiversity** – They provide habitat and food for various species, supporting wildlife and maintaining ecological balance.
- **Boost economic activities** - Tree planting and forestry activities can create job opportunities in rural and urban areas.
- **Challenges** - Planting trees in inappropriate areas like grasslands and animal habitats can *harm ecosystems, increase wildfire risk, and worsen global warming.*

Measures by India for Improving Green Cover

• India aims to *restore 21 million hectares* of forest by 2030 through the Bonn Challenge.
• India's national forest policy *targets 33% tree coverage*.
• **National Afforestation Programme** (NAP)- Launched in 2000, aims to increase the forest cover in the country through afforestation and reforestation activities.
• **Green India Mission**- A part of the National Action Plan on Climate Change, focusing on increasing forest cover, enhancing biodiversity, and improving ecosystem services.
• **Tree Plantation Drives** – Van Mahotsav (Tree Plantation Day) celebrated in the first week of July.
• **Haritha Haram Program**- It is launched by Telangana to increase the green cover of the state through extensive tree planting activities.

> *In 2023, U.S. President highlighted that India is the only G20 nation meeting its Paris Agreement commitments, achieving a carbon sink of 1.97 billion tonnes of CO2 equivalent.*

What lies ahead?

- *Use nature-based solutions*, like forest landscape restoration, can help reverse deforestation and degradation, restoring ecological, social, climatic, and economic benefits.
- *Reorient innovations* and strategies, supported by public awareness, social media, and community incentives, can transform forest ecosystems.
- *Follow effective post-planting care* and monitoring are crucial

References

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2. IUCN | Deforestation and forest degradation
3. Live Eo | Forest Degradation

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