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GLOBAL FOREST WATCH (GFW)

THIS ARTICLE COVERS 'DAILY CURRENT AFFAIRS' AND THE TOPIC DETAILS OF "GLOBAL FOREST WATCH (GFW)". THIS TOPIC IS RELEVANT IN THE "ENVIRONMENT" SECTION OF THE UPSC CSE EXAM.

WHY IN THE NEWS?

The Global Forest Watch, which tracks forest changes in near real-time using satellite data and other sources, said the country lost 4,14,000 hectares of humid primary forest (4.1 per cent) from 2002 to 2023, making up 18 per cent of its total tree cover loss in the same period.

Global Forest Watch (GFW) is an online platform that provides near-real-time data and tools for monitoring and managing forests worldwide. It's an initiative led by the World Resources Institute (WRI) in collaboration with various partners.

THE KEY FINDING OF THE DATA:

- The loss of primary forests—those untouched by people and sometimes known as old-growth forests—in the tropics declined 9% in 2023 compared to 2022.
- Deforestation globally rose by 3.2% in 2023.
- Brazil, the Democratic Republic of Congo, and Bolivia topped the ranking of tropical countries with the most primary forest losses.
- From 2001 to 2022, Indian forests released 51 million tons while absorbing 141 million tons of CO₂ annually.
- India has lost 2.33 million hectares of tree cover since 2000, equivalent to a six per cent decrease in tree cover.
- The five states in India accounted for 60 per cent of all tree cover losses between 2001 and 2023.
- Assam had the maximum tree cover loss, at 324,000 hectares, compared to an average of 66,600 hectares.
- Mizoram lost 312,000 hectares of tree cover, Arunachal Pradesh 262,000 hectares, Nagaland 259,000 hectares, and Manipur 240,000 hectares of forest cover.
- From 2001 to 2022, Odisha had the highest rate of tree cover loss due to fires, with an average of 238 hectares lost per year.

The platform allows users to access interactive maps, analyse forest trends, and utilise various forest monitoring tools, including forest loss alerts, fire alerts, and land use classification. GFW also provides data on forest-related topics such as biodiversity, carbon emissions, and land tenure.

The Global Forest Watch refers to tree cover when discussing forest extent, loss, and gain. Tree cover is a convenient metric for monitoring forest change because it is easily measurable from space using freely available, medium-resolution satellite imagery. This means tree cover can be monitored frequently, cheaply, and over large scales.

The tree cover loss data featured on the Global Forest Watch represents the best available spatial figures on how forests change worldwide. However, changes have occurred to the data over time due to algorithm adjustments and improved satellite data.

DEFORESTATION IN INDIA:

Deforestation is a global environmental issue with far-reaching consequences for ecosystems, biodiversity, climate, and human well-being. India is one of the world's biodiversity hotspots, with many flora and fauna. Deforestation leads to habitat loss, endangering numerous plant and animal species. Many species are pushed to extinction due to the destruction of their habitats.

According to the Food and Agriculture Organisation, the rate of deforestation in India was 668,000 hectares per year between 2015 and 2020, the second highest worldwide. The data showed India lost 35,900 hectares of tree cover from 2002 to 2022, with 2008 recording the maximum tree cover loss due to fires (3,000 hectares).

Here are some key points about deforestation in India:

- Deforestation is driven by various factors, including agricultural expansion (such as clearing land for farming or cattle ranching), logging for timber and wood products, infrastructure development (roads, dams, etc.), urbanization, mining, and wildfires, both natural and human-induced.
- Logging for timber, wood products, and fuelwood is another significant cause of deforestation in India. The construction of roads, highways, dams, reservoirs, and other infrastructure projects often necessitates clearing large swathes of forest land. Rapid urbanization and industrialization also lead to encroachment into forested areas for residential, commercial, and industrial development.
- Mining activities for minerals, coal, and other resources result in clearing forests and destroying ecosystems. India's rapidly growing population puts pressure on land resources, leading to the conversion of forest land for settlement, agriculture, and other human activities.
- Deforestation has severe environmental consequences, including habitat loss and fragmentation, loss of biodiversity, disruption of ecosystems, soil erosion, alteration of water cycles, and increased greenhouse gas emissions leading to climate change.
- Trees play a crucial role in mitigating climate change by absorbing carbon dioxide from the atmosphere through photosynthesis. Deforestation often negatively impacts local communities that depend on forests for their livelihoods, including indigenous peoples and forest-dependent populations.

WAY FORWARD:

Conserving trees is essential for maintaining biodiversity, mitigating climate change, preserving ecosystems, and ensuring the well-being of communities that depend on forests. **Here are some effective ways to conserve trees:**

1. Establish and enforce protected areas, national parks, and forest reserves to safeguard valuable forest ecosystems from deforestation, illegal logging, and other destructive activities. Strict enforcement of laws and regulations is crucial for effective protection.
2. Encourage sustainable forestry practices that prioritize long-term forest health and biodiversity conservation. This includes selective logging, reduced-impact logging techniques, and reforestation efforts to replenish harvested areas.
3. Involve local communities, indigenous peoples, and forest-dependent populations in forest management and conservation efforts. Recognize and uphold indigenous peoples' land rights, tenure, and local communities historically inhabited and managed forested areas.

4. Undertake reforestation and afforestation initiatives to restore degraded landscapes, rehabilitate deforested areas, and establish new forested areas where suitable. Promote urban forestry initiatives to plant and maintain trees in cities and urban areas.
5. Raise awareness among the general public, policymakers, and businesses about the importance of trees and forests for environmental conservation and human well-being. Implement policies and incentives that promote tree conservation, such as tax incentives for reforestation, subsidies for sustainable forestry practices, and regulations to curb deforestation and illegal logging.

PRELIMS PRACTICE QUESTION:

Q. Consider the following statements regarding Global Forest Watch (GFW):

1. It's an initiative led by the World Resources Institute (WRI) to monitor global forests in near real-time using satellite data and other sources.
2. According to the latest data from Global Forest Watch, India's tree cover has increased since 2000.
3. Deforestation worldwide increased by 3.2% in 2023.
4. Brazil topped the ranking of tropical countries with the most primary forest losses.
5. Assam had the maximum tree cover losses between 2001 and 2023 in India.

How many of the above statements are correct?

- A. Only two
- B. Only three
- C. Only four
- D. All five

ANSWER: C

MAINS PRACTICE QUESTION:

- Q. "How has deforestation in India impacted the local ecosystems, and what measures are being taken to mitigate these effects?"
- Q. Critically examine the impact of deforestation on indigenous communities and biodiversity in India.

[Amit pradhan](#)

INTERNATIONAL CONFERENCE ON DISASTER RESILIENT INFRASTRUCTURE MEET

THIS ARTICLE COVERS 'DAILY CURRENT AFFAIRS' AND THE TOPIC DETAILS OF "International Conference on Disaster Resilient Infrastructure Meet". THIS TOPIC IS RELEVANT IN THE "ENVIRONMENT AND ECOLOGY" SECTION OF THE UPSC CSE EXAM.

Why in the News?

Recently, Prime Minister Narendra Modi delivered a video message at the **6th edition of the International Conference on Disaster Resilient Infrastructure in Delhi**. The Prime Minister underscored the importance of investing in resilient infrastructure today to secure a better tomorrow. He highlighted the

necessity of integrating resilience into the development of new infrastructure and incorporating it into post-disaster reconstruction efforts.

ABOUT INTERNATIONAL CONFERENCE ON DISASTER RESILIENT INFRASTRUCTURE

- The International Conference on Disaster Resilient Infrastructure serves as a forum for governments, organisations, institutions, media, and infrastructure stakeholders to enhance global discussions on disaster and climate-resilient infrastructure.
- ICDRI stands as the premier yearly conference organised by the **Coalition for Disaster Resilient Infrastructure (CDRI)**.

THE COALITION, THROUGH ICDRI, AIMS TO:

- Facilitate action by offering a venue for decision-makers and influencers to convene, discuss common challenges, and pinpoint key areas for cooperation.
- Establish fresh partnerships, highlight best practices, and broaden the reach of the Coalition.

ABOUT COALITION FOR DISASTER RESILIENT INFRASTRUCTURE (CDRI)

- CDRI is a self-governing global institution serving as a collaborative platform where nations can exchange knowledge and resources.
- Its primary aim is to bolster the resilience of infrastructure systems against the effects of disasters.
- The organisation was founded in 2019 during the United Nations Climate Action Summit in New York and stands as India's second significant global initiative following the establishment of the International Solar Alliance (ISA) during the 2015 Paris Climate Change Conference.
- Currently, **CDRI has 39 countries and 7 organisations as its members.**

Why Investment in Resilient Infrastructure is Important?

Investment in resilient infrastructure is crucial for several reasons, particularly in the face of increasing threats posed by natural disasters, climate change, and other disruptive events. Here's a detailed exploration of why investing in resilient infrastructure is important:

- **Mitigating Disaster Risks:** Resilient infrastructure is designed to withstand and recover from various hazards, including earthquakes, floods, hurricanes, and tsunamis. By investing in infrastructure that can resist these disasters, communities can minimise the loss of life, property damage, and economic disruptions caused by such events.
- **Protecting Lives and Livelihoods:** Resilient infrastructure helps protect the lives and livelihoods of people living in vulnerable areas. For example, robust flood protection systems can prevent inundation of homes and businesses, while earthquake-resistant buildings can reduce the risk of casualties during seismic events.
- **Safeguarding Economic Stability:** Disasters and infrastructure failures can have significant economic consequences, disrupting supply chains, damaging critical facilities, and impeding business operations. Investing in resilient infrastructure helps safeguard economic stability by reducing the vulnerability of key assets and ensuring the continuity of essential services.
- **Promoting Sustainable Development:** Resilient infrastructure is a cornerstone of sustainable development, as it enables communities to thrive in the face of environmental challenges. By integrating principles of sustainability and resilience into infrastructure planning and development, societies can better manage resources, minimise environmental impacts, and adapt to changing conditions over time.
- **Adapting to Climate Change:** Climate change is exacerbating the frequency and intensity of extreme weather events, such as heatwaves, storms, and droughts. Resilient infrastructure is essential for adapting to these changes, as it allows communities to withstand climate-related risks and build adaptive capacity to cope with future uncertainties.

- **Long-Term Cost Savings:** While the upfront costs of building resilient infrastructure may be higher than traditional infrastructure projects, the long-term benefits often outweigh the initial investment. Resilient infrastructure can reduce the need for costly repairs and replacements, minimise insurance claims, and lower the overall economic burden of disasters on society.
- **Fostering Innovation and Technological Advancement:** Investment in resilient infrastructure drives innovation and technological advancement in engineering, construction, and other related fields. By encouraging the development of new materials, designs, and techniques, resilient infrastructure projects spur growth and competitiveness in the economy.



RELATION BETWEEN DISASTER RESILIENCE INFRASTRUCTURE AND CLIMATE CHANGE

- **Exacerbation of Hazards:** Climate change is increasing the frequency and intensity of natural hazards such as hurricanes, floods, heat waves, droughts, and wildfires. These extreme weather events pose significant risks to infrastructure, leading to damage, disruption, and loss of life. Resilient infrastructure is crucial for mitigating these risks by enhancing the ability of communities to withstand and recover from climate-related disasters.
- **Adaptation and Mitigation:** Resilient infrastructure plays a crucial role in both climate change adaptation and mitigation efforts. On the one hand, it helps communities adapt to the impacts of climate change by providing robust protection against extreme weather events and other hazards.
- **Food Security & Agriculture:** Climate change threatens agriculture production, leading to food insecurity and increased prices. Implementing climate-resilient farming practices and adopting smart agricultural techniques could combat crop failures resulting from erratic weather patterns. Also, improving storage and distribution infrastructure can preserve food supplies during extreme temperature fluctuations or unexpected disasters.
- **Urban Heat Island Effect:** Climate change exacerbates the urban heat island effect, leading to higher temperatures in urban areas compared to surrounding rural areas. Heatwaves pose significant risks to infrastructure and public health, increasing the demand for cooling systems and energy consumption. Disaster-resilient infrastructure includes measures to mitigate the urban heat island effect, such as

green roofs, cool pavements, and urban green spaces, which can reduce temperatures and improve urban livability.

How India is Building Disaster Resilient Infrastructure?

- **Mumbai Metro Project** – To improve transport connectivity amid heavy rainfall and traffic congestion in Mumbai, India constructed an extensive metro network beneath the city streets. In heavy monsoon seasons, submerging trains become a possibility, hence providing safer commuting routes and easing traffic loads significantly.
- **Solar Panels Installations** – Utilizing solar panels to generate electricity reduces dependence on fossil fuels contributing significantly to pollution. Solar microgrid systems installed in remote villages offer reliable lighting and charging devices during blackouts triggered by natural disasters like cyclones and floods.
- **Cyclone Shelters** – India constructs temporary cyclone shelters during cyclonic seasons where residents gather before cyclones strike, keeping them protected until danger passes. These shelters incorporate adequate sanitation facilities, ventilation, and first aid kits.
- **Urban Forestry Program** – Planting trees in urban settings absorbs carbon dioxide emissions and reduces the urban heat island effect during hot summers. Trees absorb flood water runoff, thereby lessening flood intensity. Moreover, forests act as buffers to protect urban infrastructures like roads, bridges, and buildings.
- **Flood Control Measures** – India uses check dams, permeable pavements, rain gardens, contour planting, bioswales, and afforestation to prevent soil erosion and reduce flooding.

Examples of Disaster Resilient Infrastructure Around the World

- **Japan:**
 - Japan is renowned for its advanced earthquake-resistant building designs and infrastructure systems. Buildings, bridges, and highways are constructed to withstand seismic activity, reducing the risk of collapse and casualties during earthquakes.
 - The country has also invested in **tsunami barriers, seawalls, and early warning systems** to mitigate the impact of tsunamis along its coastal regions.
- **Netherlands:**
 - The Netherlands is known for its extensive system of flood protection measures, including dikes, dams, and storm surge barriers. These structures help protect low-lying areas from flooding caused by storm surges and rising sea levels.
 - The Dutch government also promotes nature-based solutions such as **wetland restoration and coastal dune reinforcement** to enhance resilience against climate-related hazards.
- **Singapore:**
 - Singapore has implemented comprehensive drainage systems and water management strategies to mitigate the risk of flooding in urban areas. The city-state also incorporates green infrastructure features such as **rain gardens, bioswales, and permeable pavements** to absorb and manage stormwater runoff.
 - **Singapore's Building and Construction Authority (BCA)** has established stringent building codes and standards for structural resilience, including requirements for wind resistance and seismic design.
- **Australia :**
 - Invested massively in bushfire prevention, educating residents on firefighting techniques, creating defensible space around residential properties, monitoring forest conditions via satellite imagery, upgrading rural electric infrastructure for rapid isolation of affected zones, deploying helicopters for aerial firefighting missions, and rolling out automated weather surveillance systems.

Prelims Based Question

Q1. Consider the following statements regarding the Coalition for Disaster Resilient Infrastructure:

1. CDRI is a major Global initiative of India.
2. CDRI was established During CoP-15, Paris.

Choose the correct answer using the codes given below:

- (a) 1 Only
- (b) 2 Only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

ANSWER: A

Mains based Question

Q1. How does resilient infrastructure contribute to promoting sustainable development and enhancing community resilience in the face of environmental challenges?

[Vikas](#)

