

Hariyali: Tapovan (Sacred Forest)



Rationale

Ecosystem degradation worldwide is negatively affecting the well-being of 3.2 billion people and draining over 10% of the annual global gross product in loss of biodiversity and ecosystem services. Authors behind the latest IPBES Global Assessment Report on Biodiversity and Ecosystems found an unprecedented decline in global ecosystem health and biodiversity and, in many regions, losing soil fertility and wetlands (up to 70% worldwide) and desertification are our “new normal.” This degradation of ecosystems limits livelihood prospects, increases emissions of atmospheric greenhouse gases, and limits the supply of ecosystem goods and services that build global climate resilience for all societies.

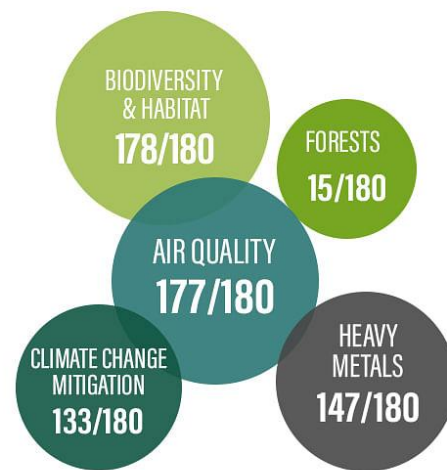
The importance of forest and tree cover cannot be underestimated as we depend upon them for our survival, from the air we breathe to the woods we use. Besides providing habitats for animals and livelihoods for humans, forests also offer watershed protection, prevent soil erosion and mitigate climate change. Yet, despite our dependence on forests, we are still allowing them to disappear. According to the India State of forest report right now 24.56% of land area of India is under forest and tree cover. The forest cover in India is increasing but is still lower than the targeted 33% of the country’s total geographical area under the Natural Forest Policy of India, 1988. About 2 billion people worldwide depend upon these forests for their shelter, livelihoods, water, food and fuel security. Beyond humans, forests are home to 80% of the world’s terrestrial biodiversity. After oceans forests are the largest storehouse of carbon. These forests are the major source of oxygen that we breathe in still we are letting it disappear. There is an urgent need to act against the odds of deforestation, climate change and food security.

India, the third largest emitter of greenhouse gases, was placed among the lowest-rung countries in air quality, projected emissions, and biodiversity and habitat in the 2024 Environment Performance Index (EPI).

India ranked 176th among 180 countries, above Pakistan, Vietnam, Laos, and Myanmar only, in the overall index, released 5 June by the Yale Center for Environmental Law and Policy and the Columbia Center for International Earth Science Information Network. This is a mild improvement to the last EPI in which India came at the bottom.

The 2024 EPI has 58 indicators, including biodiversity, air pollution, air and water quality, waste management, emission growth rates, projected

INDIA'S RANK IN DIFFERENT INDICATORS IN THE EPI 2024



Source: epi.yale.edu

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emissions, etc., under the three main heads of ecosystem vitality, environmental health and climate change. Among these three heads, India does not rank among the bottom ten countries only in climate change.

Area context

The Bundelkhand region, straddling across 13 contiguous districts of Uttar Pradesh and Madhya Pradesh, has a recorded history of water scarcity and draughts. This has resulted in a very high inter-generational incidence of poverty. It is an agro-climatically and socio-culturally distinct region. It has languished behind other regions, even within these states, which by themselves rank low amongst states of India in economic development. Geographically it straddles across the Vindhyan plateau (overwhelmingly in Madhya Pradesh) and the Gangetic plains (mostly in Uttar Pradesh but also in Madhya Pradesh). Beset with light soils with poor moisture retention capacity, agriculture here over the ages has suffered from the vagaries of Monsoons. Barring tracks, which have received the benefits of canal irrigation single annual crops, have sustained the population.

Deforestation, migration, and shift towards green revolution has led to decline in the importance given to the forest and native trees in this region. People have now shifted to mono-cropping pattern of agriculture. Nevertheless, what is amazing is that still there are a lot of households who still have native trees close to their houses. As per the rich culture of Bundelkhand, earlier people used to check the presence of these trees in a household before marrying their daughters; these were considered as an important asset of a household as they can sustain drought and provide income to a household during a time of need. People in this area since a long period of time have cultural importance to trees. Native trees such as Mahuwa (*Madhuca longifolia*), Jackfruit (*Artocarpus heterophyllus*), Chironji/Charoli (*Buchanania lanzan*), Amla/ Indian Gooseberry (*Emblica officinalis*), Bamboo (*Bambusa vulgaris*), Khinni (*Manilkara hexandra*) Harra (*Avicennia Marina*) and Bahera (*Terminalia bellirica*) etc. have been part of Bundelkhand since ages and people here are dependent on these for non-timber products.

Problem Statement

As quoted in article of Dialogue Earth; The dusty, drought-prone Bundelkhand was once covered with dense jungle where leopards, tigers and antelopes roamed. Deforestation started under British rule in the 19th century and has accelerated in the past few decades. A report by government think-tank NITI Aayog and the United Nations Development Programme says, “Post-independence, population growth and the Green Revolution [when modern farming methods were adopted in India] brought even larger tracts of land under the plough and further increased wood-based energy needs. Combined with poor land management and government-approved commercial logging, these factors drastically reduced forested area [in Bundelkhand].” Between 2001 and 2019, forest cover in Bundelkhand districts along the Betwa decreased by over 290 square kilometres, according to the Forest Survey of India’s annual State of Forest reports. This figure discounts

Panna, where tree cover increased significantly due to the Panna Tiger Reserve. Scrubland increased by 11,890 sq km over this period.

With the advent of deforestation, there has been a huge decline in the forest cover, leading to several issues. One of the major issues the planet is currently facing is global climatic changes, leading to several issues. In the context of Bundelkhand, there are the following problems that are prevailing due to the decline in forest and tree cover in this region:

- The impact of climate change is evidently visible in the Bundelkhand region of Madhya Pradesh. Climate change has hit agriculture-based livelihoods, and food grain production in the Bundelkhand districts has decreased by 58%. This is very serious for the agriculture-based society and economy. Failure in agriculture has become a cyclical phenomenon in the Bundelkhand region of the State.
- This region experiences erratic rainfall. The average rainfall in most parts is received in just 20 days instead of 45-50 days. This region faces the grave tragedy of drought!
- There has been a decline in carbon sequestration with the decline in forest and tree cover in this region. This method helps reduce the carbon dioxide in the atmosphere as trees and plants capture carbon dioxide within themselves.
- There has been a loss of habitat in this region for ages, which has also led to the major decline of certain common species such as house sparrow, eagle, deer, etc.
- Cut-down forests were homes to Neilguy, which now comes to farmers' farms in search of food.

Objective

The main objective behind creating such a Tapovan (Community Native Forest) in the Bundelkhand region is the ecological restoration of the ecosystem that used to prevail in earlier times. There is a high need to perform more environmental conservation activities using innovative environmental recovery activities such as the diverse community forests. Community Native Forest (Tapovan) will help restore the microclimate, providing breeding grounds for birds and insects. This will help minimize the global issues we are currently facing, such as deforestation leading to climate change, global warming, and species extinction.

- Promote and conserve local biodiversity.
- Support local flora and fauna.
- Improve soil health and water conservation.
- Provide breeding grounds for insects, birds and other species.
- Improve land degradation.

Implementation Strategy

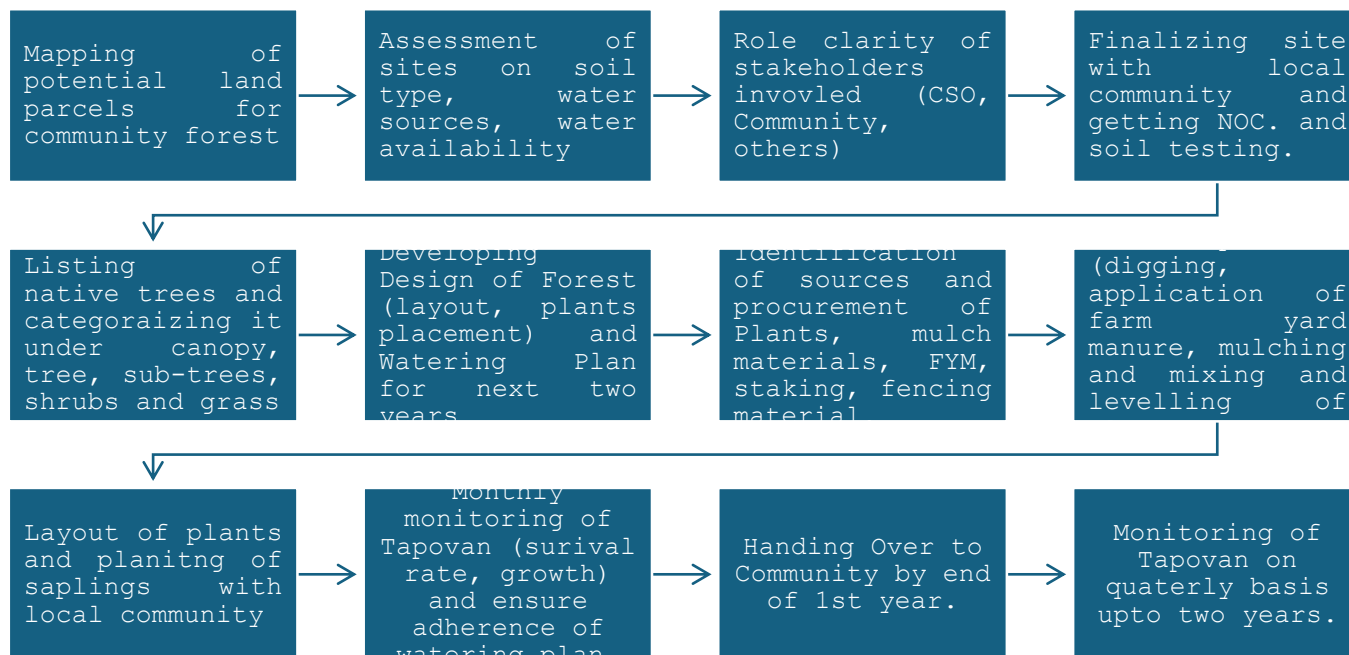
The United Nations General Assembly declared 2021-2030 the UN Decade on Ecosystem Restoration. This is a universal call for the protection and revival of ecosystems around the world, benefiting people and nature.

Investing in ecosystem restoration can generate returns well above (tenfold) the cost of initial investments. Large-scale ecosystem restoration ventures can be a major economic stimulus for national economies. Regarding climate resilience, we estimate that nature-based solutions provide approximately a third of the cost-effective climate change mitigation needed to achieve many UN 2030 objectives. Financing ecosystem restoration is a fast-track pathway for helping changemakers transform resource-dependent societies into low-carbon ones while also clearing alternative paths for shaking up transport, housing, industry, and food and energy production sectors. In this context, supporting women in low and middle-income countries (who are responsible 60-80% of food production) and Indigenous communities (stewards of 80%) of the world's biodiverse lands will be of critical importance.

We propose implementing 50 Tapovan (Community Native Forest) in a cluster of villages in Niwari, Jhansi and Tikamgarh of Bundelkhand and Shivpuri in community lands such as temples, schools, common land, barren land and wasteland. We have been working in these regions on water conservation, agriculture and livelihood with active participation of local community institutions. Therefore, we have a strong understanding of geography and socio-economic dynamics. Also, I would like to share a healthy relationship with the local administration and panchayat. This forest will be managed by the community in the long run.

Investing in developing these community native forests (Tapovan) and capacity building tailored to the needs of villages. Furthermore, by fostering collaboration and knowledge-sharing initiatives, we can harness the collective wisdom of our community to develop innovative solutions to the most pressing challenges. Together, we can turn the tide against soil degradation and water stress, forging a more sustainable and resilient future for the villages and community.

Process of Establishment of Tapovan



Monitoring of Tapovan

	Area	Bio-Diversity	Survival Rate	Soil Health	Carbon Sequestration
Record Keeping	Coordinates of Tapovan	List of plant varieties and their age and listing out birds, insects, etc	More than 90% of the survival rate	Soil health card	Record keeping of parameters (circumference, girth) on a sample basis, tree's varieties yearly

Methodology	Marking on Google Earth	Record keeping with the help of the community	Field records of Tapovans on plant survival.	Soil testing yearly.	We use the support of C-GEM, our knowledge partner, to evaluate the carbon sequestration by Tapovans.
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Benefits of Community Forest

These Community native forests will yield benefits at different levels. Forest influences climate and reduces extreme temperatures. They conserve soil and regulate moisture and stream flow. Maintain quality of water and air.

At the Landscape Level

1. **Critical Habitats for Pollinators:** Preserve forests and native vegetation.
2. **Connectivity Among Habitats:** Use trees, agroforestry, and biological corridors to link habitats.
3. **Pollinator-Friendly Agricultural Practices:** Minimize the use of pesticides and tillage.
4. **Floral and Nesting Resources:** Provide pollinators with diverse plant species and nesting sites.



At the Forest Level

- **Sustainable forest produce:** The community can access fruits and medicinal plants.
- **Act as carbon sink:** Forests help store carbon in the soil. The amount of carbon sequestered can be evaluated based on ground data.
- **Improving Soil Health:** Forests with diverse species sequester soil carbon and improve soil health.
- **Water Conservation:** The forest will enhance the water-holding capacity of the land parcels and ensure water conservation, further increasing the groundwater recharge.

Promote

- **Indigenous and Local Knowledge:** Utilize traditional knowledge in management practices.
- **Collaboration Between Stakeholders:** Foster partnerships for effective management.

Increase Habitat Heterogeneity with Controlled Disturbances

- **Create Temporary Micro-Habitats:** Develop semi-natural flowering habitats and exposed ground for ground-nesting pollinators. These forests support wild pollinators and enhance pollination in nearby agricultural lands.

Outcomes

- 55,000 saplings plantation.
- Above 90% survival rate.
- Carbon Sequestration every year.
- 30X denser than mono plantation.
- 10-20 times faster growth than conventional forest.
- Improve soil health of land and soil organic carbon yearly increase by 0.05%.
- 1.5 crores litres of water conservation yearly.

SDGs Goal Address



Citation

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