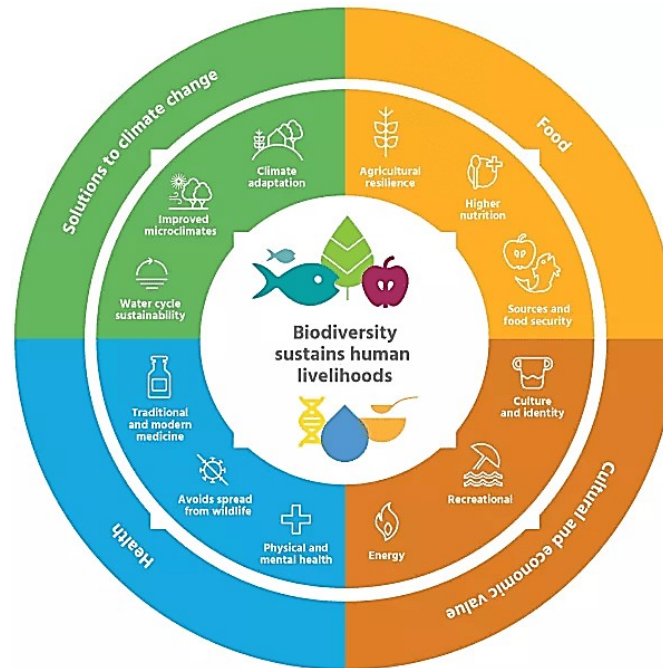


## 4. India's Rich Biodiversity Needs Science Based Implementation

**Prelims Syllabus:** Environment

**Mains Syllabus:** GS-III Environment & Biodiversity | Climatic Change Conservation, Environmental Pollution & Degradation, Eia



### Why in News?

- The sum and variation of our biological wealth, known as biodiversity, is essential to the future of this planet. India currently hosts 17% of the planet's human population and 17% of the global area in biodiversity hotspots, placing it at the helm to guide the planet in becoming biodiversity champions.

### What is 30×30 pledge?

- The importance of our planet's biodiversity was strongly articulated at the United Nations Biodiversity Conference in Montreal, Canada.
- On December 19, 2022, 188 country representatives adopted an agreement to halt and reverse biodiversity loss by conserving 30% of the world's land and 30% of the world's oceans by 2030, known as the 30×30 pledge.

### Government's efforts, Programs with potential

- **Green Growth push in Budget:** The Union Budget 2023 mentioned Green Growth as one of the seven priorities or Saptarishis. The emphasis on green growth is welcome news for India's biological wealth as the country is facing serious losses of natural assets such as soils, land, water, and biodiversity.

- **Green India Mission:** The National Mission for a Green India aims to increase forest cover on degraded lands and protect existing forested lands.
- **Green Credit Programme:** The Green Credit Programme has the objective to incentivize environmentally sustainable and responsive actions by companies, individuals and local bodies.
- **The MISHTI Program:** The Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI) is particularly significant because of the extraordinary importance of mangroves and coastal ecosystems in mitigating climate change.
- **PM-PRANAM:** The Prime Minister Programme for Restoration, Awareness, Nourishment, and Amelioration of Mother Earth (PM-PRANAM) for reducing inputs of synthetic fertilizers and pesticides is critical for sustaining our agriculture.
- **Amrit Dharohar scheme:** The Amrit Dharohar scheme is expected to encourage optimal use of wetlands, and enhance biodiversity, carbon stock, eco-tourism opportunities and income generation for local communities. If implemented in letter and spirit, Amrit Dharohar, with its emphasis on sustainability by balancing competing demands, will benefit aquatic biodiversity and ecosystem services.
- **For instance:** The recent intervention by the Ministry of Environment, Forest and Climate Change to stop the draining of Haiderpur, a Ramsar wetland in Uttar Pradesh, to safeguard migratory waterfowl is encouraging.

### **Programs must be science-based**

- **Evidence-based implementation:** It is critical that these programs respond to the current state of the country's biodiversity with evidence-based implementation.
- **A science-based and inclusive monitoring programme:** A science-based and inclusive monitoring programme is critical not only for the success of these efforts but also for documentation and distillation of lessons learnt for replication, nationally as well as globally.
- **Employing modern concepts of sustainability:** New missions and programmes should effectively use modern concepts of sustainability and valuation of ecosystems that consider ecological, cultural, and sociological aspects of our biological wealth.
- **Setting clear boundaries and priorities:** With clear system boundaries, prioritisation of the benefits to resource people, and fund-services (rather than stock-flows) as the economic foundation for generating value has enormous potential for multiple sustainable bio-economies.

- **Efficient water use patterns:** The future of our wetland ecosystems will depend on how we are able to sustain ecological flows through reduction in water use in key sectors such as agriculture by encouraging changes to less-water intensive crops such as millets as well as investments in water recycling in urban areas using a combination of grey and blue-green infrastructure.
- **Focus must be on ecological restoration:** As far as the Green India Mission is concerned, implementation should focus on ecological restoration rather than tree plantation and choose sites where it can contribute to ecological connectivity in landscapes fragmented by linear infrastructure.
- **Choices should be made on evidences of resilience:** Choice of species and density should be informed by available knowledge and evidence on resilience under emerging climate change and synergies and trade-offs with respect to hydrologic services.
- **Careful site selection for mangrove initiative:** Site selection should also be carefully considered for the mangrove initiative with a greater emphasis on diversity of mangrove species with retention of the integrity of coastal mud-flats and salt pans themselves, as they too are important for biodiversity.
- **Effort in response:** In response to these needs, we hope that the National Mission on Biodiversity and Human Wellbeing (Mission to green India's economy, restore natural capital, and make India a global leader in applied biodiversity science) already approved by PM-STIAC, will be immediately launched by the government.

#### **Grey and Blue-Green Infrastructure:**

- **Grey infrastructure:** It refers to traditional man-made infrastructure, such as buildings, roads, and bridges, that are designed to provide human-made services like transportation, water supply, and waste management.
- **Blue-green infrastructure:** It is designed to mimic the functions of natural ecosystems, such as wetlands, rivers, and forests, to provide services like stormwater management, water purification, and carbon sequestration.
- **Example:** It includes, Rainwater harvesting systems that capture rainwater and recharge groundwater, green roofs that provide insulation and absorb rainwater, Urban parks and green spaces that improve air quality and provide habitat for wildlife, Wetlands and retention ponds that filter pollutants and store excess water during floods

- **Sustainable and resilient:** Blue-green infrastructure is often seen as a more sustainable and resilient alternative to traditional grey infrastructure, as it can help to mitigate the impacts of climate change, reduce urban heat island effects, and enhance the quality of life for urban residents

**Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC):**

- PM-STIAC is a high-level advisory body that provides strategic guidance on science, technology, and innovation to the Prime Minister of India.
- Advises the Indian Prime Minister on science and technology policy, identifying emerging areas, recommending missions and projects, and enhancing the effectiveness of science and technology to tackle national challenges.
- The council comprises eminent scientists, technologists, entrepreneurs, and policymakers who are appointed by the Prime Minister.
- PM-STIAC also serves as a forum for stakeholders from academia, industry, and government to interact and collaborate on science and technology initiatives.

**Local community involvement:**

- **Efforts must be inclusive:** Each of these efforts must be inclusive of local and nomadic communities where these initiatives will be implemented.
- **Traditional practices should be integrated:** Traditional knowledge and practices of these communities should be integrated into the implementation plans.

**Conclusion:**

- Each of the above-mentioned programs has the potential to greatly improve the state of our nation's biodiversity if their implementation is based on the latest scientific and ecological knowledge.