NATURE-BASED SOLUTIONS TO ACHIEVE CLIMATE CHANGE RESILIENCE

Dr. EVR

CLIMATE CHANGE IMPACTS

- Earth is facing a dual climate and biodiversity crisis. A million animal and plant species are threatened with extinction and exposing millions of people to extreme weather events
- Earth will hit 3 °C of warming above pre-industrial levels by 2100
- 2015 Paris climate agreement aims to limit global temperature rise this century to well below 2°C, and ideally, to 1.5°C
- One of the answer could be adopting Nature based Solutions (NbS)

NATURE BASED SOLUTIONS IN COP-26

- One of the Goals of COP-26 was mitigation through Nature based solutions.
- As there is no pathway to net zero without protecting and restoring nature, COP is encouraging countries to include nature-based solutions in their climate plans.
- Nature-based solutions could absorb carbon, while avoiding emissions, at a rate of 10 Giga tonnes of CO2 per year.
- Achieving 10 Gt CO2 of mitigation would involve stopping the destruction of ecosystems worldwide; restoring 678 million hectares of ecosystems; and improving the management of around 2.5 billion hectares of land by mid-century.

WHAT ARE NATURE-BASED SOLUTIONS

- NbS are actions that help address societal challenges and foster development by working with nature and anchoring solutions with local communities.
- Nbs help identify how healthy natural ecosystems can be protected, developed and utilized for services that benefit humans and build systemic resilience.
- These services can also help address global challenges like climate change, poverty and equitable growth in a cost effective manner.
- NbS is an umbrella term that encompasses several nature-based approaches like Ecosystem-based Adaptation, Natural Climate Solutions and eco-Disaster Risk Reduction.

WHAT ARE NATURE-BASED SOLUTIONS

- Industries can incorporate Nature-based Solutions such as renewable power generation, green procurement, climate resilient green infrastructure, water conservation and use of waste materials as part of their core business operations. Many firms are actively working towards revamping production processes through eco-innovations and circular economy approaches.
- Air pollution is another problem where nature-based solutions can help. A study led by Ohio State University found that it was cheaper to use plants to mitigate air pollution than using technological inventions. Protecting watersheds is another example.

NATURE-BASED SOLUTIONS



Green space management



Knowledge building for sustainable urban transformation



Place regeneration



Health and well-being



Participatory planning and governance



Climate resilience



Natural and climate hazards



Biodiversity enhancement



Air quality



Water management



Social justice and social cohesion



New economic opportunities and green jobs



Nature-based Solutions for Ecosystem related approaches

✓ Ecological restoration ✓ Ecological Engineering Forest landscape restoration ✓ Ecosystem-based adaptation ✓ Ecosystem-based mitigation ✓ Climate adaptation services Ecosystem-based disaster risk reduction Conservation approaches, including protected area management ✓ Integrated coastal zone management ✓ Integrated water resources management ✓ Natural infrastructure ✓ Green infrastructure





United Nations Climate Change



INDIA's COP-26 DECLARATION

- India's PM had declared the five 'amrit tatva' at the COP-26 summit.
- 1st, India will bring its non-fossil energy capacity to 500 GW by 2030.
- 2nd, by 2030 India will fulfill 50 per cent of its energy requirement through renewable energy.
- 3rd, India will cut down its net projected carbon emission by 1 billion tonne from now until 2030.
- 4th, by 2030, India will bring down carbon intensity of its economy by more than 45%.
- 5th, by 2070 India will achieve the target of 'net zero'.
- PM Modi also said, India expects developed nations to make climate finance of one trillion dollars available at the earliest.

Land, Soil and Water Conservation

Landscape and Watershed Restoration

Planting trees along a river to prevent erosion of the banks

and siltation downstream



Adding Green Recreational space and Eco-Parks Waterfront Parks along rivers and lakes/ponds

Green streets

adding green infrastructure features to a street corridor contribute to a safer and more attractive environment for walking and biking



Greenways

along rivers or other natural features - are protected open space corridors managed for conservation and recreation where people can explore and enjoy nature

Restoring & Protecting

Wetlands

can improve water quality and reduce flooding

Storm Water Parks

are recreational spaces that are designed to manage storm water



Rain Garden

is a shallow, bio-retention vegetated basin that collects and absorbs runoff into the ground from rooftops, sidewalks, and streets. These can be added around homes, industries and businesses to reduce and treat storm water runoff

Adding Bio-Swales

a ditch with vegetation and a porous bottom to hold soil laden water

Green roofs

fitted with a planting medium and vegetation. It reduces energy costs for cooling the building



Rainwater harvesting systems

Tree canopy/ Green belt to reduce storm water runoff

Permeable Pavements

allow more rainfall to soak into the ground. Common types include pervious concrete, porous asphalt, and interlocking pavers



Storm water tree trench

is a row of trees planted in an underground infiltration structure made to store and filter storm water. Tree trenches can be added to streets and parking lots with limited space to manage storm water.

Protecting or restoring a nearby Forest

Restoring the productive capacity of degraded land

through 3-tier eco-restoration and biodiversity rejuvenation





Data retrieved from various sources is duly acknowledged

<u>ITANKA KOU</u>