



BLUE CARBON AS NATURE-BASED SOLUTIONS

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NATURE BASED SOLUTIONS (NbS)



NbS – Natural solutions to societal challenges

Natural Solutions to:

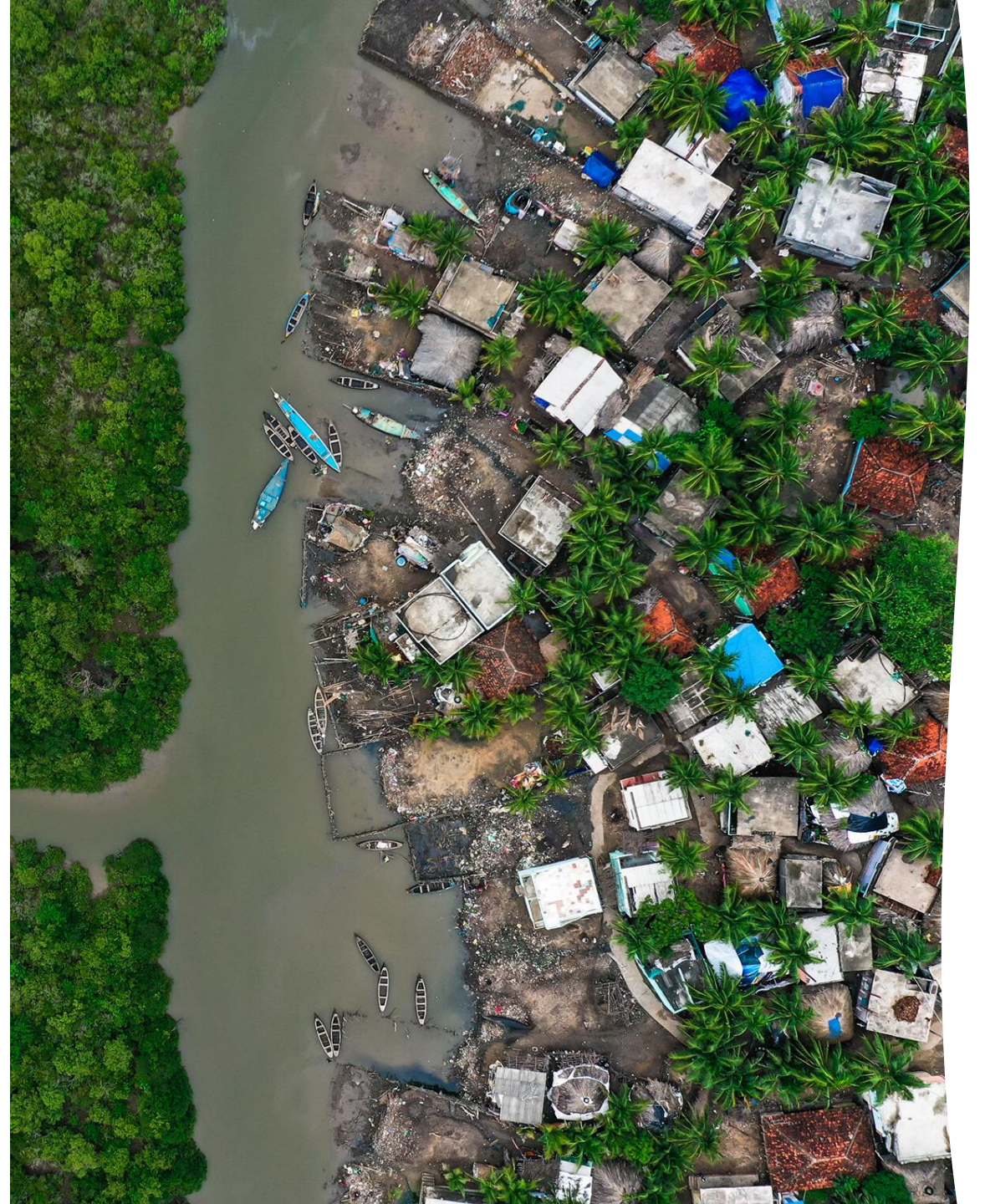
- Climate change
- Biodiversity loss
- Waste and pollution
- Poverty

NbS

NBS – Approaches that harness the **power of nature** to address environmental and societal challenges in a sustainable and resilient manner.

Examples:

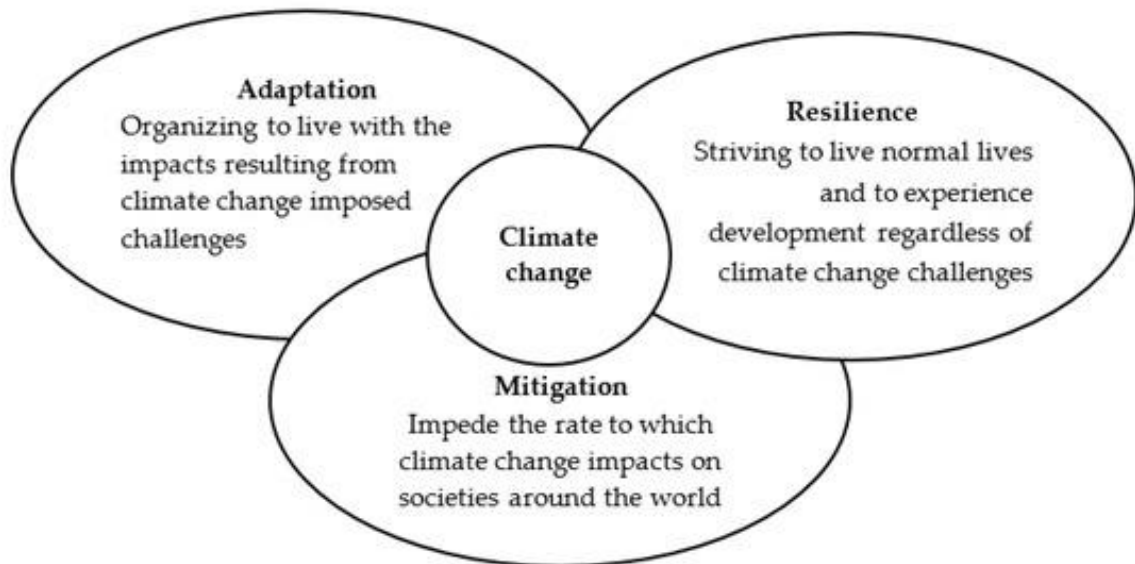
- Integrated Pest Management
- Improving soil fertility
- Alternative food sources
- Bioremediation
- Climate change adaptation and mitigation



KEY FEATURES OF NBS

- **Biodiversity Conservation:** NBS prioritize the preservation and restoration of biodiversity, recognizing the connectivity of different species within ecosystems.
- **Ecosystem Services:** NBS capitalize on the services that ecosystems naturally provide
- **Climate Change Mitigation and Adaptation:** NBS contribute to climate change mitigation and environmental resilience
- **Sustainable Resource Management:** NBS involve the sustainable use of natural resources, ensuring that they are not exploited beyond their capacity to recover.
- **Community Engagement:** Successful NBS involves working with local communities, acknowledging their insights, and incorporating their needs into conservation and restoration initiatives

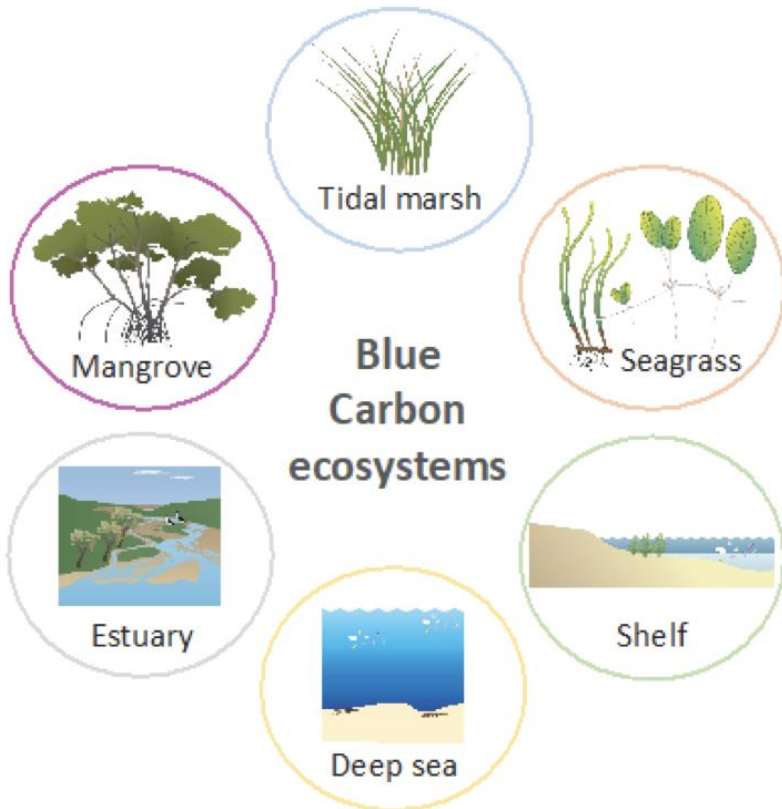
CORE STRATEGIES TO BUILD SOCIO-ECOLOGICAL RESILIENCE



Ecosystem based adaptation - Use nature to help people to adapt to climate and its impacts

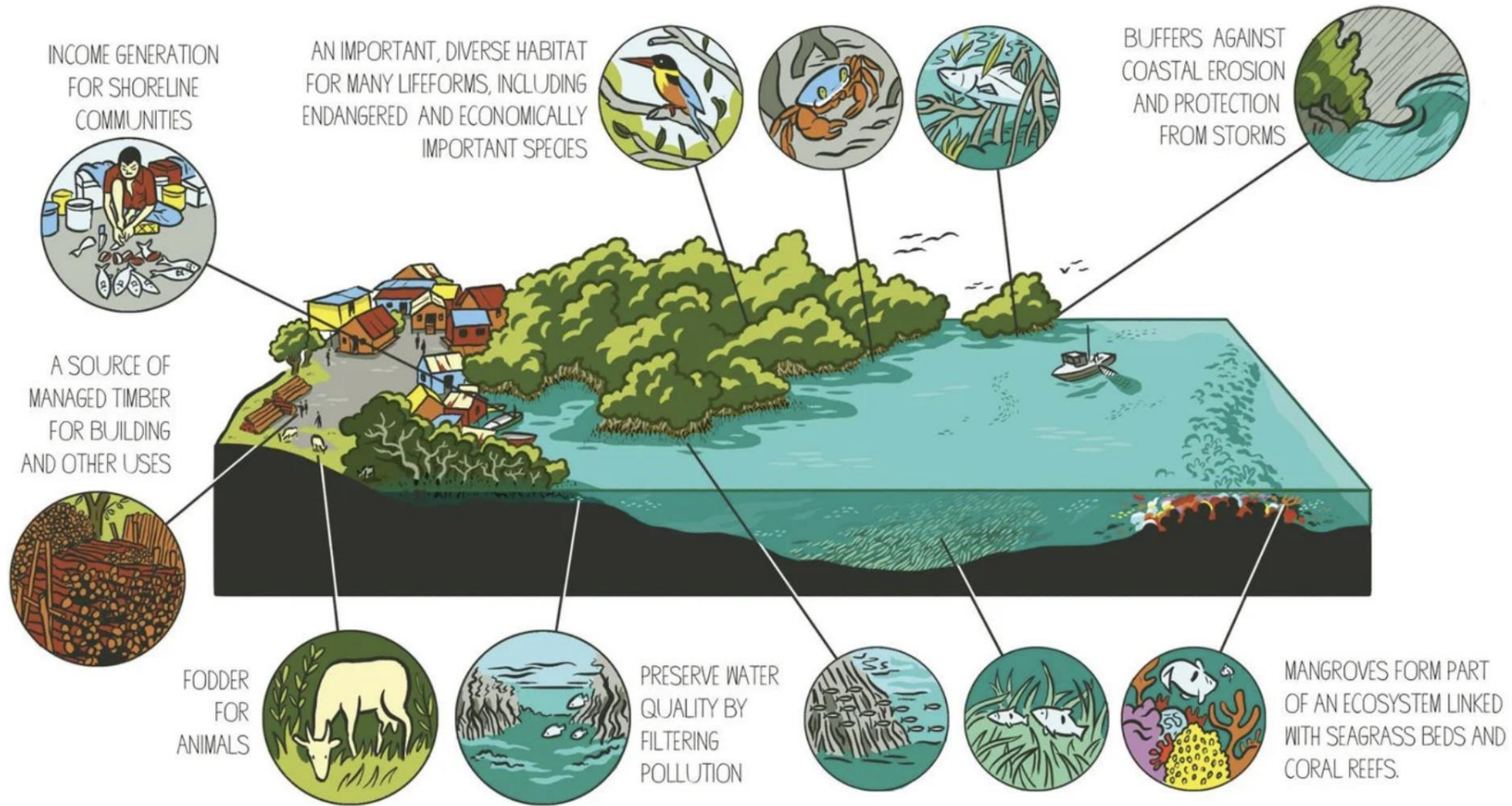
Nature-friendly adaptation - Use complementary measures that avoid and reduce harm to nature

BLUE CARBON AS NbS



Blue Carbon ecosystems constitute natural carbon sinks and provide multiple co-benefits, including support of biodiversity and human wellbeing, and coastal protection against erosion and sea level rise

BLUE CARBON AS NbS



THE IMPORTANCE OF MANGROVES FOR PEOPLE AND WILDLIFE

Ecosystem service category	Tidal marsh and mangroves	Coastal wetlands (tidal marsh, mangroves, and salt water wetlands)	Mangroves		
	Units: 1994 US\$/ha/year	Units: 2007 US\$/ha/year	Units: US\$/ha/year (values have not been standardized – average year of values is 2009)		
	Value	Value	Avg. value across all studies	Avg. value excluding benefit transfer studies	Avg. value of benefit transfer studies
Food	466	1,111	8,319	24,312	3,609
Water	–	1,217	799		799
Raw material	162	358	2,591	3,074	86
Genetic resources	–	10	–	–	–
Medicinal resources	–	301	97	173	20
Ornamental resources	–	–	–	–	–
Waste treatment	6,696	162,125	2,827	72	3,286
Climate regulation		65	34,756	138,233	313
Erosion prevention	–	3,929	930	858	744
Moderation of extreme events		5,351	1,086	455	1,316
Maintenance of soil fertility and nutrient cycling	–	45	428	3	640
Regulation of water flows	–	–	600	–	600
Biological control	–	–	797	–	797
Pollination	–	–	–	–	–
Maintenance of genetic diversity	–	6,490	82	–	82





MANGROVES AS NbS

Indonesia: The government, NGOs and local communities, are working to protect mangroves for their ecological and economic benefits.

Bangladesh: Sundarbans reforestation project, to enhance coastal resilience and protect against storm surges.

Vietnam: Mangrove restoration projects in the Mekong Delta to mitigate the impacts of climate change and to support local communities.

United Arab Emirates (UAE): The UAE has invested in mangrove conservation and restoration projects as part of its broader commitment to environmental sustainability.

United States (Florida): In Florida, mangrove restoration efforts aim to enhance coastal protection, support fisheries, and preserve biodiversity.

Australia (Great Barrier Reef Region): Conservation efforts focus on protecting mangrove habitats to maintain overall coastal resilience.

Mexico (Yucatan Peninsula): Mangroves are being conserved and restored along the Yucatan Peninsula to safeguard coastal areas from storms and to support biodiversity.

CHALLENGES IN IMPLEMENTING BLUE CARBON AS NbS



Land use conflicts

Pollution and degradation

Climate change impacts

Overharvesting

Awareness

Resources

Governance

Blue Carbon accounting

APPROACHES AND SOLUTIONS TO ADDRESS ONGOING AND POTENTIAL FUTURE CHALLENGES

1. Technology Integration:

Remote Sensing and GIS for real-time monitoring of mangrove health, extent, and changes.

Use of Drones and UAVs to conduct surveys, assess mangrove conditions, and monitor restoration efforts in inaccessible areas.

2. Community-Based Conservation:

Participatory Mapping - Involve local communities in mapping mangroves and identifying key areas for conservation and restoration.

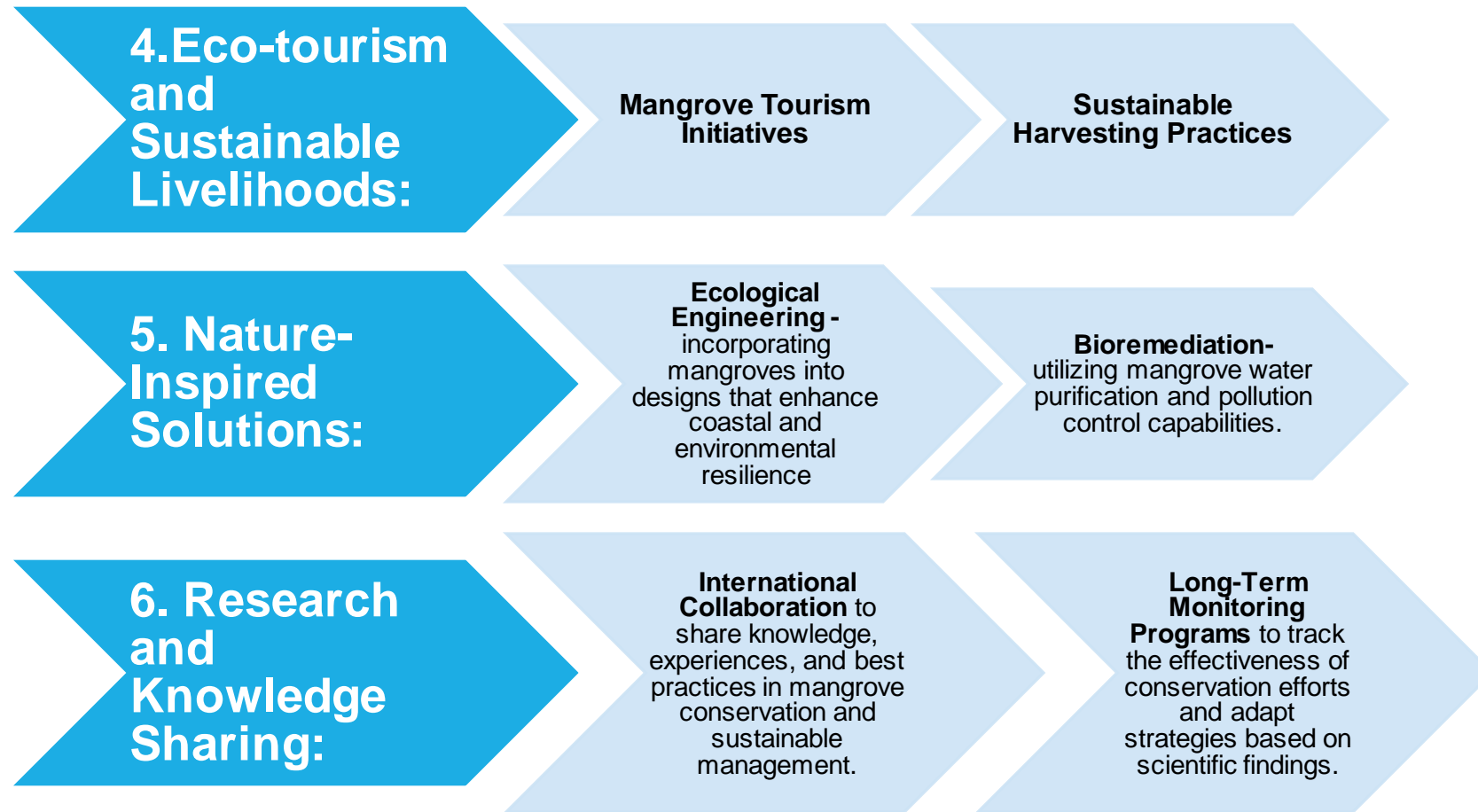
Citizen Science - Engage communities in data collection and monitoring, empowering them to contribute to mangrove conservation efforts.

3. Innovative Financing:

Blue Carbon Credits

Public-Private Partnerships

APPROACHES AND SOLUTIONS TO ADDRESS ONGOING AND POTENTIAL FUTURE CHALLENGES





THANK YOU |