Nature-based Solutions for Water Security and Ecological Security - Asian Development Bank Experience

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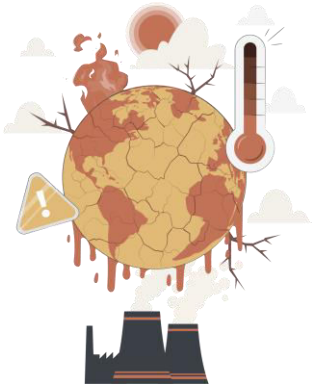
ADB

CONTEXT: Water Security Challenges in Asia and the Pacific

- Temperatures are **rising two times faster** in Asia than the global average (IMF)
- Extreme weather events: **$53.8 billion** – annual average economic cost of disasters in Asia and the Pacific (ADB).
- **More than 60%** of the region's population work in agriculture, fisheries, and forestry – the sectors most at risk to climate change (ADB)
- Both inland and marine/coastal **wetlands decreased by around 35 per cent** between 1970 and 2015, – three times the rate of forest loss (IFAD, 2018)
- Up to **135 million people are at risk** of distressed migration as a result of land degradation in the next 30 years (UNCCD)
- 63% of Asia's GDP, or $19.5 trillion of economic activity, is threatened by biodiversity and nature loss (WEF)

Water is the medium through which nature and human societies experience most of the impacts of climate change. Sustainable water management is an essential part of the solution to climate change.



Mainstreaming Nature-based Solutions into investment projects at ADB

- NbS are also infrastructure investments
  - NbS is about using natural physical and ecological processes to achieve water security
  - NbS has to be designed, based on calculations of effectiveness and costs – similar as we design a dam or irrigation system
    - Its performance needs to be evaluated, using the same criteria used for traditional solutions
    - NbS provide can outcomes with less Capex and Opex and greater flexibility
- For this it is needed that
  - We understand the physical and ecological processes better – we need scientific research (field, lab, etc) that provide evidence of the effectiveness and benefits of NbS
- An important approach and challenge is to combine NbS (green) and gray infrastructure for nature positive and secure outcomes
- NbS is not (just) about animals, fish, birds or plants, however…….

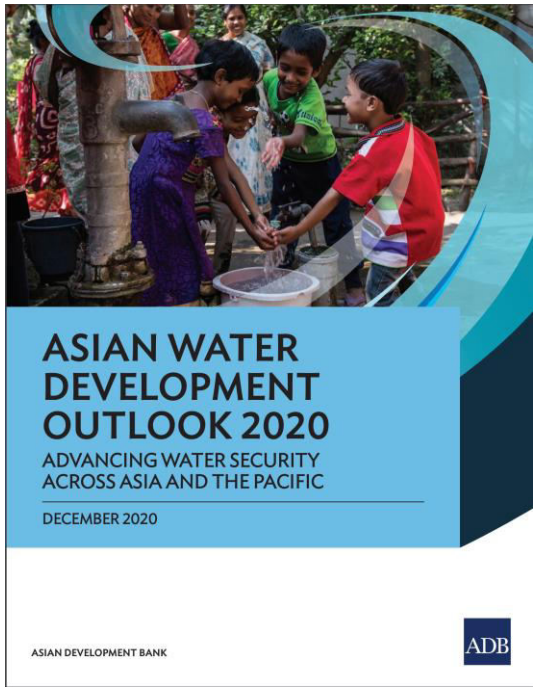
However, important Co-benefits through Nature-based Solutions

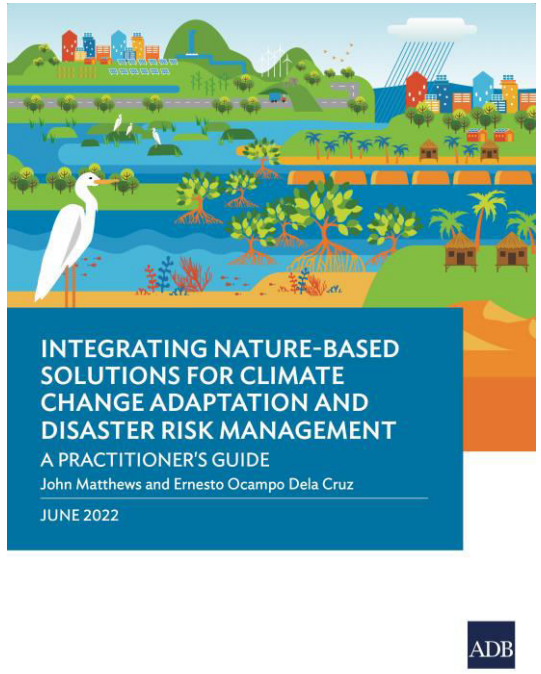
Strengthening climate adaptation and mitigation and water security of rural communities through healthy forests and wetlands and nature-based livelihoods.

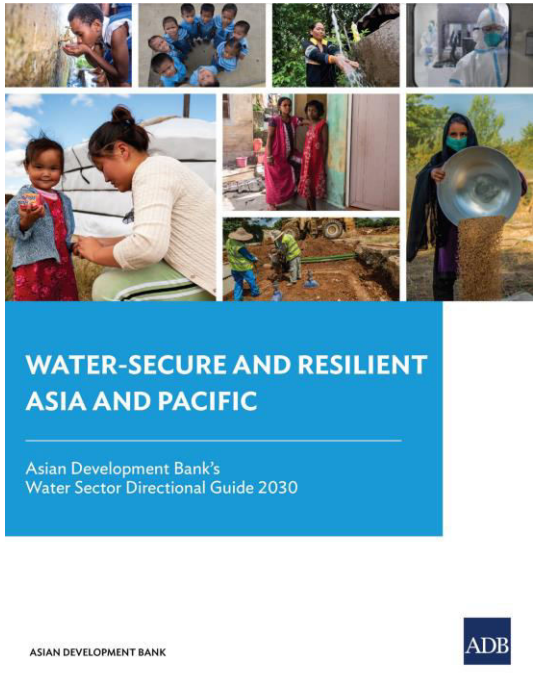
Nature-based solutions in wetlands provide efficient, inclusive, and proven interventions ensuring protection of habitats and species while supporting communities and delivering climate co-benefits.

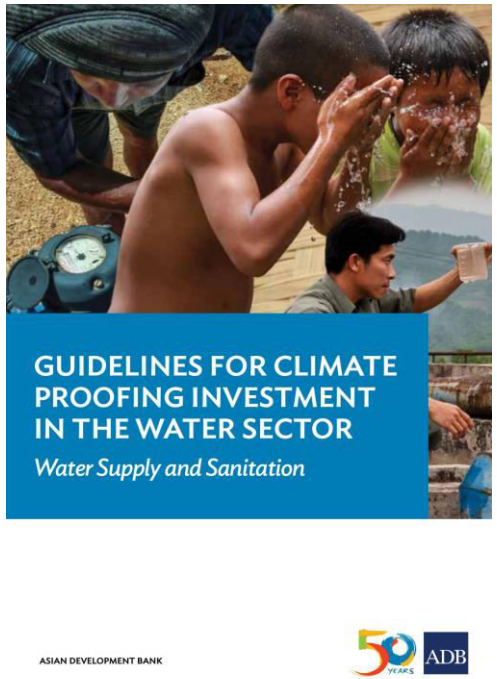
- Support for biodiversity and more resilient ecosystems
- Generate co-benefits for climate change adaptation and mitigation
- Conserve and enhance vital ecosystem services: clean water, air quality, recreation, health, resilient and livable cities
- Sustainably support communities dependent on natural capital – marginalized and gender
- Shape the enabling environment for continuous investments into nature-based solutions
- Need better means and methods to capture and communicate co-benefits

ADB Strategic Guidance Publications





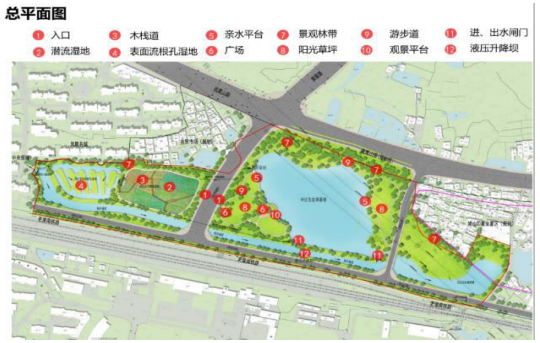




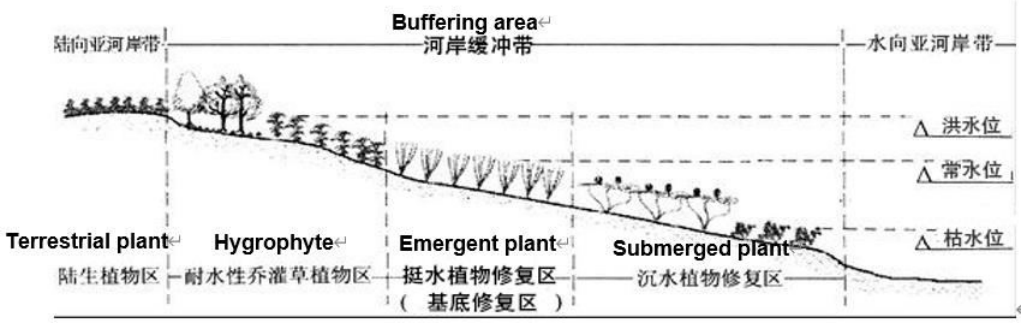
Chao Lake Environmental Rehabilitation Phase II Project

- **Impact**:
  - Ecological resilience and rural livelihoods enhanced in the Yangtze River Economic Belt (YREB).
- **Outcome**:
  - Ecosystem-based management and climate-resilient development of Chao Lake basin improved.
- The project proposes an **ecosystem-based management approach** for Chao Lake basin to bring long-term economic, social and environmental benefits to people in the region. It will improve water quality, promote sustainable development and improve livelihoods through a combination of measures: **nature-based solutions, water pollution reduction infrastructure, improved farmland development, policy incentives for sustainable farming and private sector engagement**.
- A total of **2.85 million people** including 48.62% of women and 3.09% of low-income people are **expected to benefit** from the project.
- For 2023 – total project cost $453m – ADB finance $224m

River Ecosystem Rehabilitation



Construction of one riverine wetland, three constructed wetlands and nine smart stormwater interception wells



Native submerged plants, emergent plants, herbaceous plants, shrubs and trees will be planted along Makou River (Wuwei City) with associated walking trails

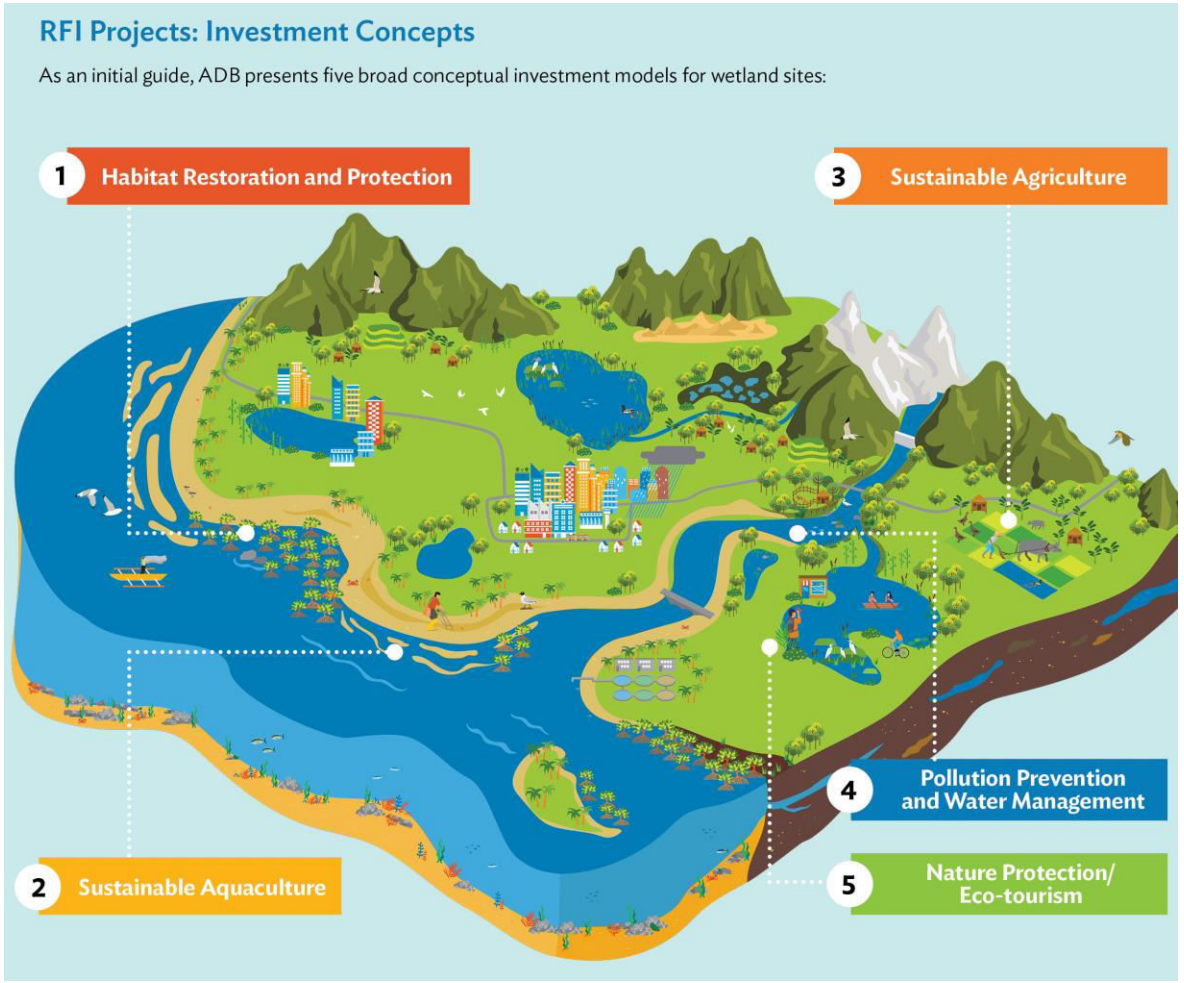
Riverbanks before and after rehabilitation

REGIONAL FLYWAY INITIATIVE— mobilize $3 billion of investment for wetland protection and management to have flyway level impact

- **East Asian-Australasian Flyway:** global route used by migratory waterbirds for their annual migrations
- **RFI timeframe. Phase 1 (2021–2024):** project development, **Phase 2 (2023–2033+):** implementation
- **Regional.** East, Central, Southeast Asia and Pacific
- **Goal.** Improved management of 50 wetlands (>2 million ha) → a network of habitats with species numbers maintained or enhanced
- **Co-benefits.** Healthy wetlands: natural capital and ecosystem services; nature-based solutions; livelihoods; climate adaptation and resilience
- **Initial focus on 10 countries including the PRC**
- **Aligned with** UNCBD, Paris Agreement, Ramsar, UNESCO

REGIONAL FLYWAY INITIATIVE— a focus on Nature based Solutions

- **Nature-based solutions in wetlands provide efficient, inclusive, and proven interventions—ensuring protection of habitats and species while supporting communities and delivering climate co-benefits.**



RFI INVESTMENT CONCEPT 1
HABITAT RESTORATION AND PROTECTION
Restoring and protecting mangroves and other wetland habitats has clear economic and ecological benefits.

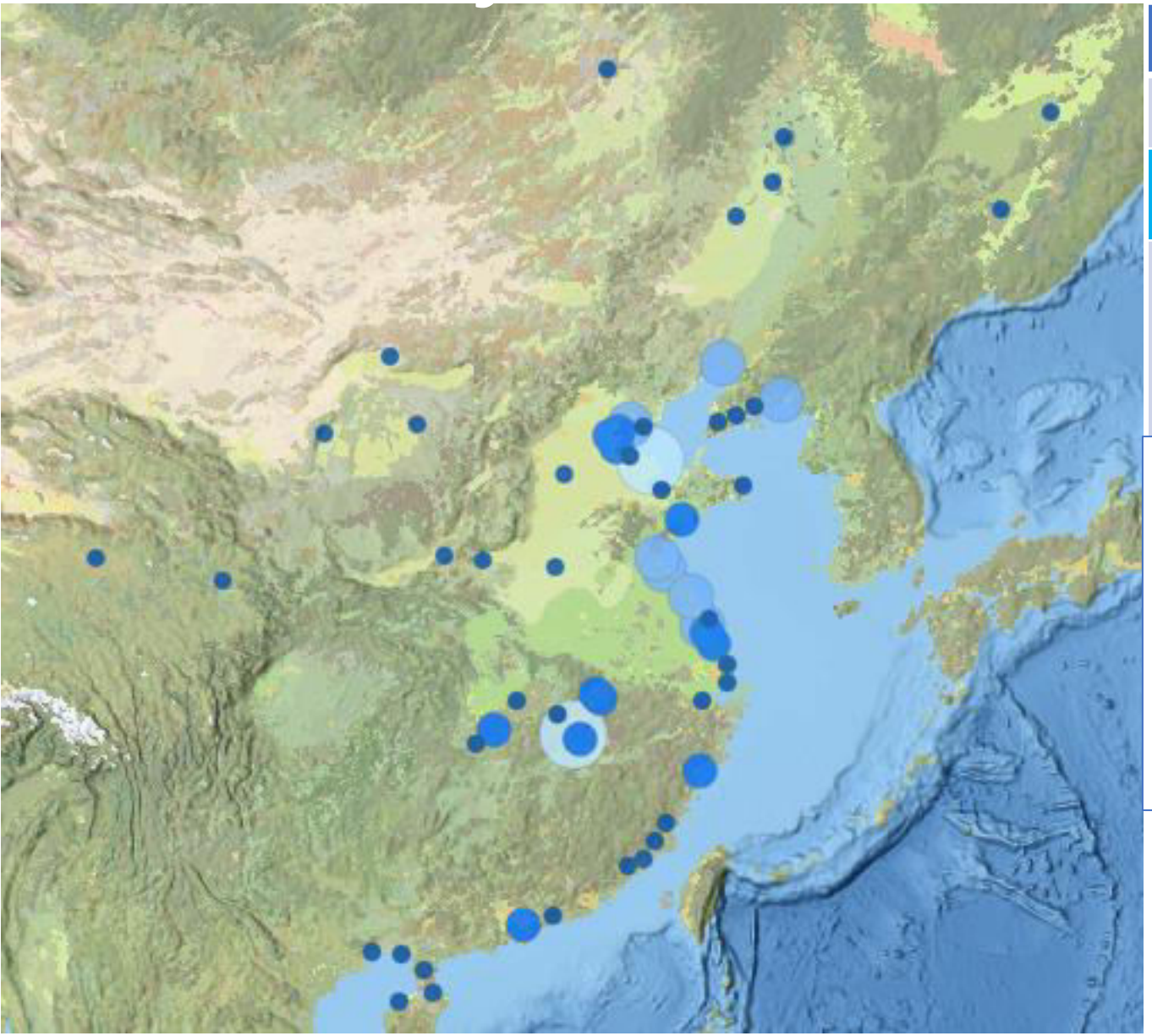
RFI INVESTMENT CONCEPT 2
SUSTAINABLE AQUACULTURE
Sustainable aquaculture and fisheries support food, nutrition and water security for wetland communities.

RFI INVESTMENT CONCEPT 3
SUSTAINABLE AGRICULTURE
Sustainable agriculture can strengthen long-term food and livelihood security while delivering net gains for biodiversity.

RFI INVESTMENT CONCEPT 4
POLLUTION PREVENTION AND WATER MANAGEMENT
Preventing pollution and sound water governance offers massive benefits

RFI INVESTMENT CONCEPT 5
NATURE PROTECTION AND ECO-TOURISM
Protecting natural wetlands creates massive ecotourism benefits and opportunities

RFI Priority Wetland Sites in the PRC (60)



Criteria / Data	Coastal	Inland	Total
Sites Assessed	66	33	99
Priority Sites Identified	**37**	**23**	**60**
Number of site overlapping with Protected Areas	29	23	52

Key Lessons From ADB NbS Projects

- **Lead:** Strong and committed political leadership and good horizontal and vertical coordination among relevant agencies are indispensable.
- **Enable**: Lack of enabling environment discourages private sector investment
- **Learn and Develop** : Leverage international knowledge and design while adapting to local contexts and engaging local contractors and designers to build capacity
- **Innovate**: Traditional Cost-benefit Analyses and engineering approaches often do not apply to innovative nature-based solutions such as urban waterfront development.
  - Use best practice, experiment and innovate yet try to keep it simple
- **Inclusive**: Work with local stakeholders and civil society organizations to foster a sense of ownership, transparency and responsibility through the full life cycle
- **Mix**: Consider a mix of green and grey infrastructure to get the job done.
- **Finance**: NbS and financing challenges are inextricably linked

Thank you

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World Water Week
OFFICIAL SESSION

ADB

Evidence-based landscape approach

- **Holistic approach** providing best possible solutions based on assessment of root causes at landscape level (e.g., watershed, lake, coast)
- Making interventions **location-specific** and effective
- Developing **shared vision** among different stakeholders with competing interests.
- Identifying potential investment opportunities in **multiple sectors**, and mediating trade-offs between interventions

Landscape approach with examples of flood-risk management methods

Sponge Cities

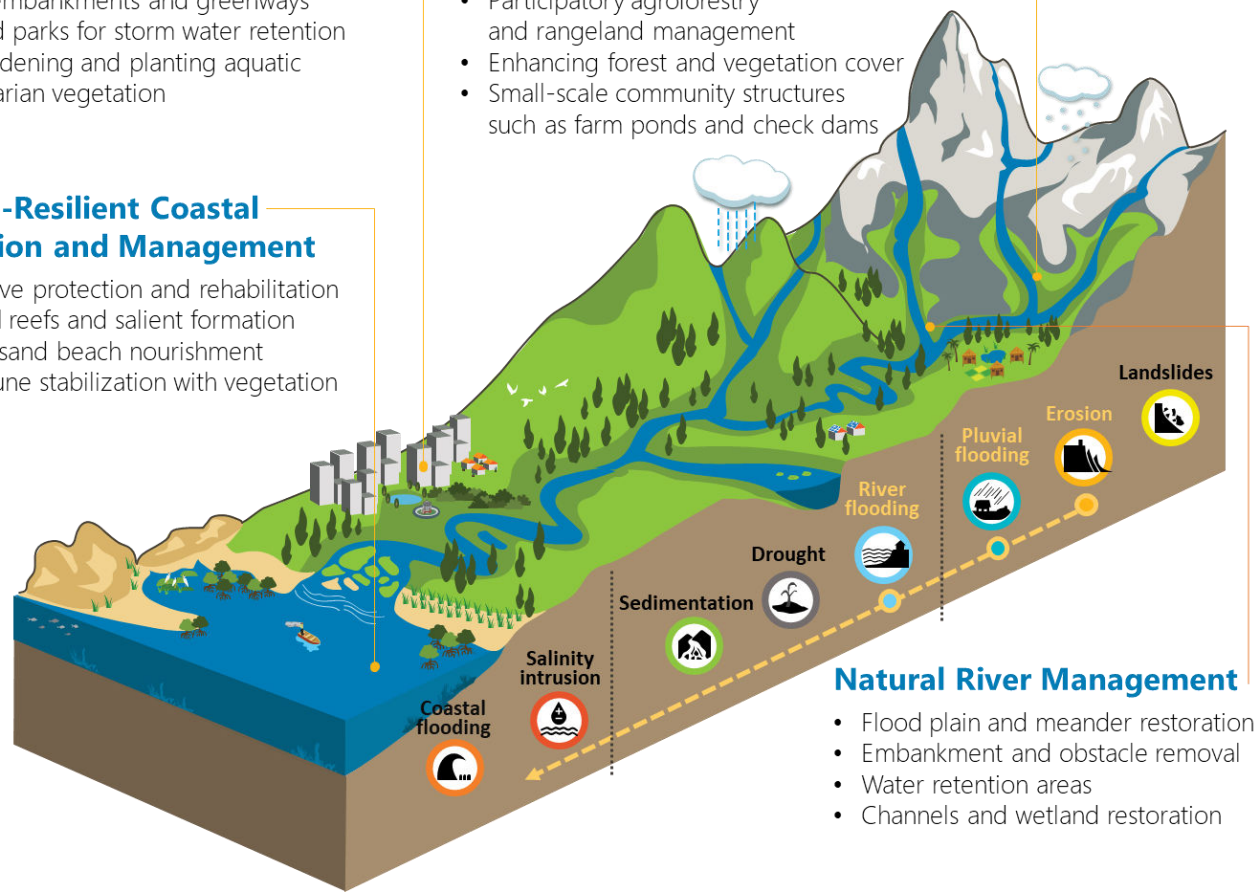
- Green embankments and greenways
- Wetland parks for storm water retention
- River widening and planting aquatic and riparian vegetation

Integrated Watershed Management

- Participatory agroforestry and rangeland management
- Enhancing forest and vegetation cover
- Small-scale community structures such as farm ponds and check dams

Climate-Resilient Coastal Protection and Management

- Mangrove protection and rehabilitation
- Artificial reefs and salient formation
- Coarse sand beach nourishment
- Sand dune stabilization with vegetation



Natural River Management

- Flood plain and meander restoration
- Embankment and obstacle removal
- Water retention areas
- Channels and wetland restoration

Programmatic operational support

Providing operational support at both policy and project levels

- **Upstream policy support** creating enabling environment through policy dialogue and national policy and strategy update
- **Project design clinic** providing advisory service to improve project design with nature component, serving as venue for knowledge exchange
- **Nature finance hub** providing financial advisory service, including advice on specific financial instruments (e.g., green and blue bonds)
- **Knowledge brokering** making match between project officers and experts/fund managers

Upstream support
creating enabling conditions

Design clinic
providing advisory service

Knowledge brokering
connecting project officers with knowledge and resources

Finance hub
providing financial service