

NATURE-BASED SOLUTIONS IN THE CONTEXT OF RISK INFORMED URBAN DEVELOPMENT PLANNING AND SUSTAINABLE INFRASTRUCTURE IN AFRICA

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Global Initiative on
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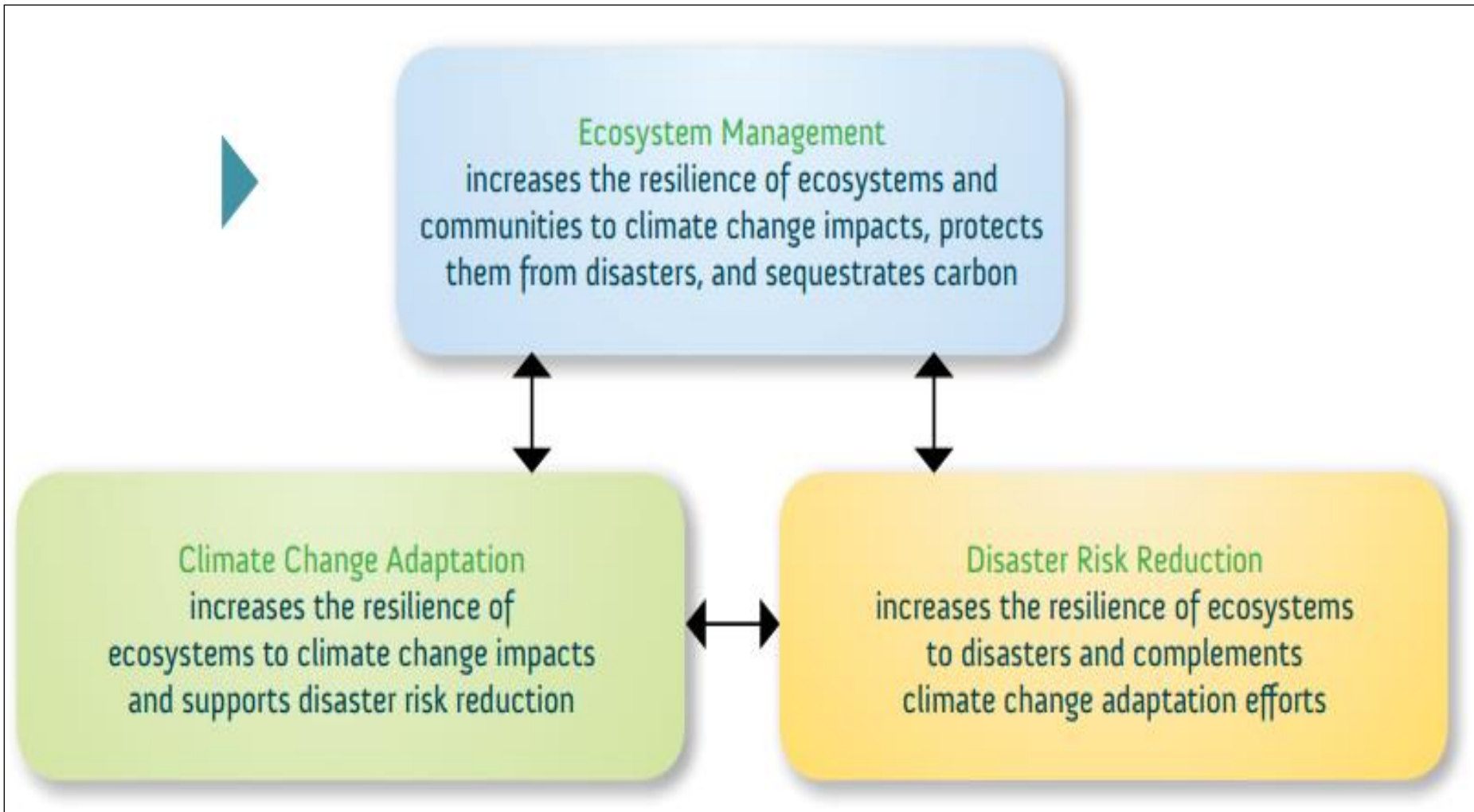
NATURE-BASED SOLUTIONS (NBS) WHAT IS IT?

- Umbrella concept for various ecosystem-related approaches.
- Activities to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits(IUCN Congress, 2016; Resolution (WCC-2016-Res-069) .
- NBS aim to achieve society's development goals, safeguard human well-being and enhance the resilience of ecosystems, (Cohen-Shacham et al. 2016).
- NbS shows interconnectedness of nature and people, prizes biodiversity and ecosystems services (supporting, regulating, provisioning and cultural) within the landscape/seascape.
- Healthy ecosystems protect people, optimise infrastructure and safeguard a stable and biodiverse future (IUCN, 2022)

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| Category of NbS approaches | Examples |
|---|--|
| Ecosystem restoration approaches | Ecological restoration Ecological engineering Forest landscape restoration |
| Issue-specific ecosystem-related approaches | Ecosystem-based adaptation Ecosystem-based mitigation Climate adaptation services Ecosystem-based disaster risk reduction |
| Infrastructure-related approaches | Natural infrastructure Green infrastructure |
| Ecosystem-based management approaches | Integrated coastal zone management Integrated water resources management |
| Ecosystem protection approaches | Area-based conservation approaches including protected area management |

A MODEL FOR ECO-DRR/CCA



Nature-based solutions for...





Pre- and post-disaster management



Landscape restoration



Taking care of our planet for the long-term



Wetland restoration



Climate smart agriculture/ agroforestry



Urban greening



Sustainable land & integrated fire management



Dealing with climate change



Integrated water resource management



Integrated coastal zone management



Integrated coastal zone management



Protected areas management

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THE THREE SOCIETAL AIM WITHIN NBS



Dealing with climate change through climate change adaptation and mitigation.



Taking care of our planet for the long-term through climate change mitigation and environmental management.



Protecting people and livelihoods through environmental management and disaster risk reduction and climate change adaptation.

RISK INFORMED DEVELOPMENT (RID)

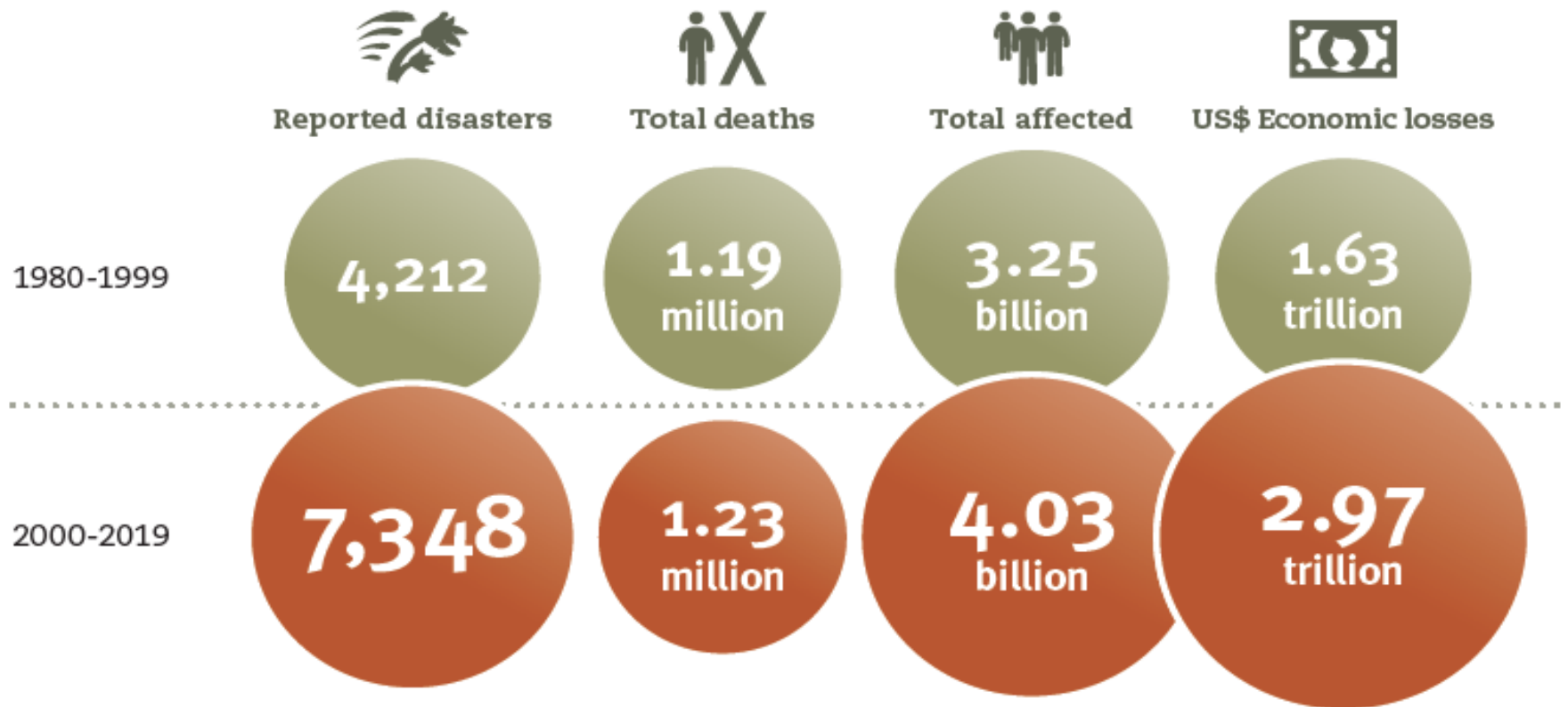
- *“Risk-based decision process that enables understanding of multiple threats and risks to and arising from development decisions and acting on that knowledge” (UNDP,2015)*

RID Should:

1. Avoids creating risk through poor development choices
2. Reduces risks by using development to reduce vulnerability and exposure, and increase resilience
3. Development is protected from the impact of hazards
4. Supports adaptation to climate change
5. Promotes continuous learning to improve sustainable development

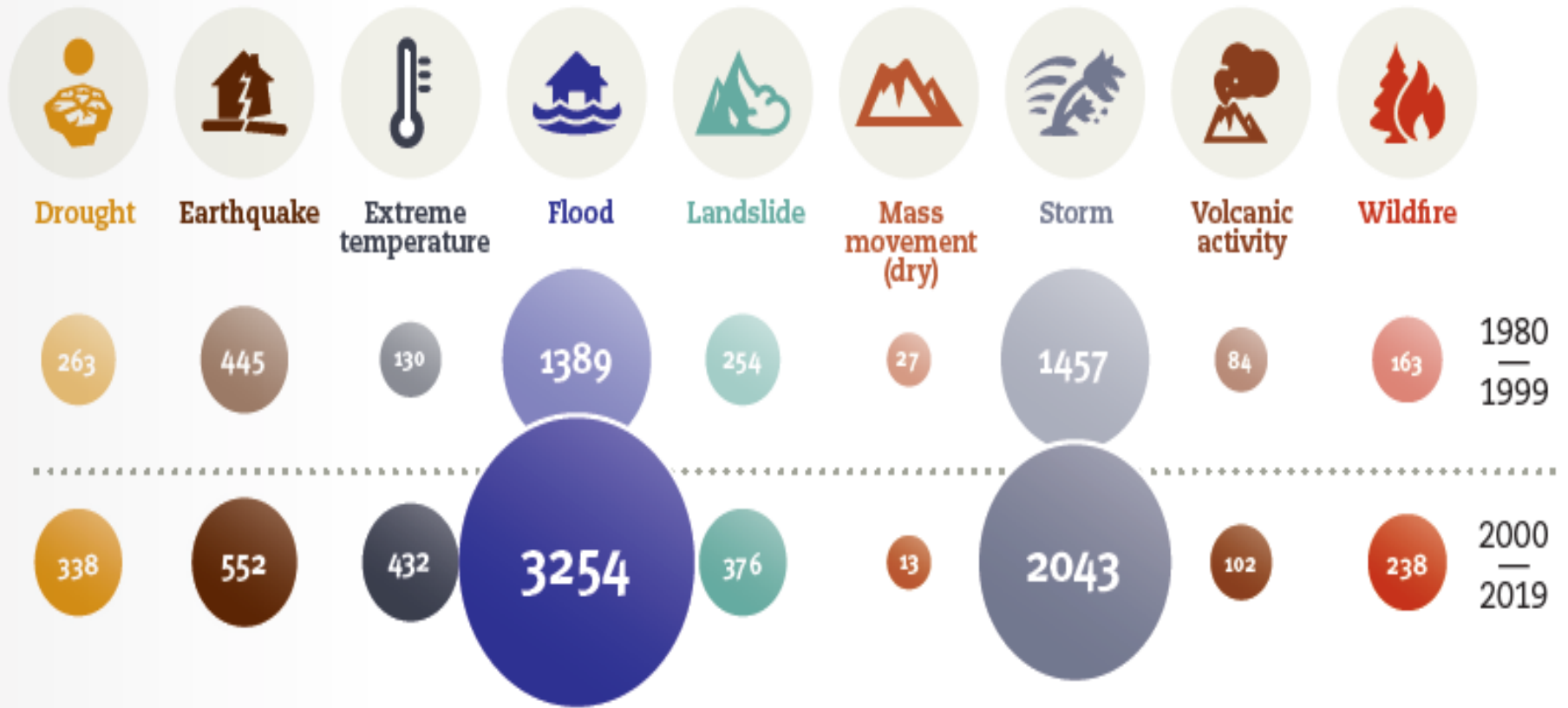
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- Extreme events especially climate-related have increased sharply over the last 20 years



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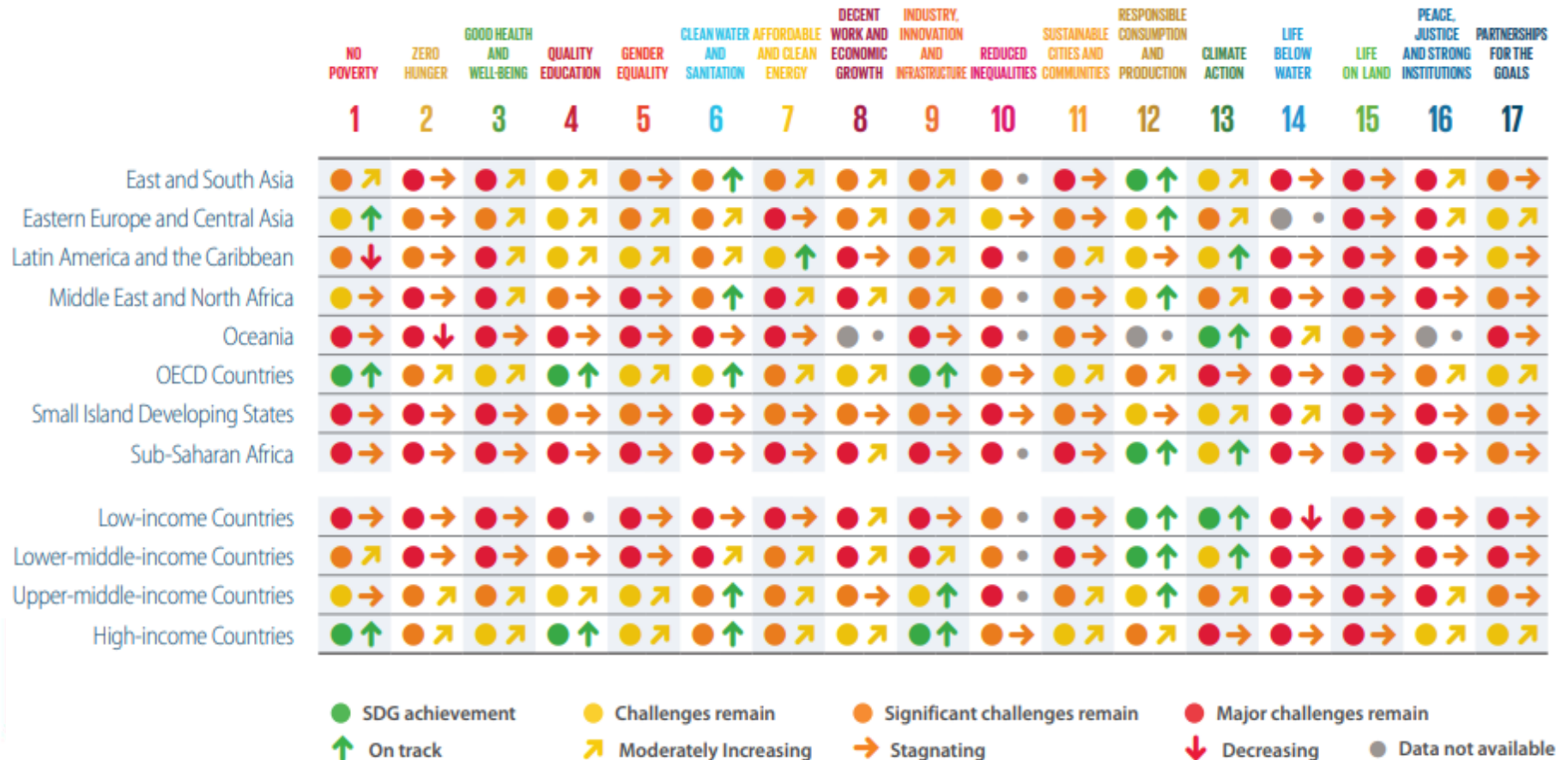
Water related disaster associated with climate change like floods and storms have almost doubled



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KNOCK ON SUSTAINABLE DEVELOPMENT-THE SDGS REPORT 2022

2022 SDG dashboards by region and income group (levels and trends)



INTERNATIONAL SUPPORT FOR NBS

- Sendai Framework for DRR (2015-2030)
- Sustainable Development Goals (G1, G2, G3, G6, G7, G11, G12, G13, G14, G15)
- Convention on Biodiversity
- Paris Peace Agreement on Climate Change and the IPCC Reports
- Making Cities Resilient 2030

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SOME COMPELLING BENEFITS OF NBS (WORLD BANK 2022)

1. Solutions for infrastructure (US\$ 57 billion)

Flooding damages averted by mangroves in China, India, Mexico, US and Viet Nam each year

2. Solutions for climate (37%)

- Amount of climate mitigation Nature-based Solutions can contribute to meeting Paris climate goal

3. Solutions for smart investments (US\$ 170 billion)

- Estimated global benefits in ecosystem services from Nature-based Solutions focused on climate

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OTHER BENEFITS

- NbS conserve or restore nature to support conventionally built infrastructure systems (gray infrastructure), reduce disaster risk and produce more resilient and lower-cost services in developing countries like in Africa.
- In DRM and water security sectors, NBS as green infrastructure strategies work in harmony with gray infrastructure systems.
- NBS support community well-being, generate benefits for the environment, and support the Sustainable Development Goals (SDGs) in ways that gray infrastructure systems alone cannot. (WB, 2022)

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APPLICATION OF NBS FOR DRM

Biodiversity for DRR

Biodiversity →
crucial, often
underestimated
role in the
mitigation of
disaster risks

Hydrological disasters

e.g. **Tsunamis**

Mangrove and
reef systems
protect
coastlines

Meteorological disasters

e.g. **Storms**

Riparian
forests control
sedimentation,
reduce effects
of flooding

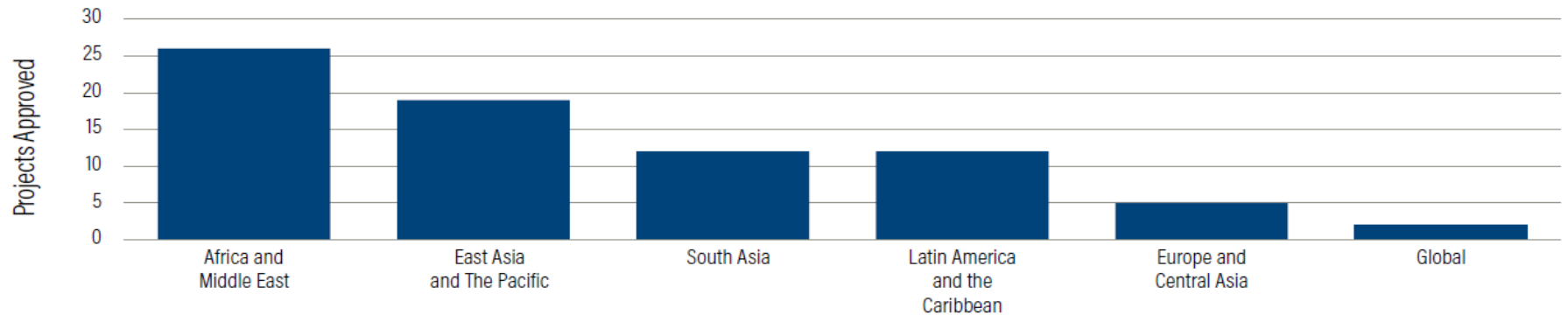
Biotic disasters

e.g. **Invasive
species**

Diverse
ecosystems are
less prone to
intrusion of
invasive
species

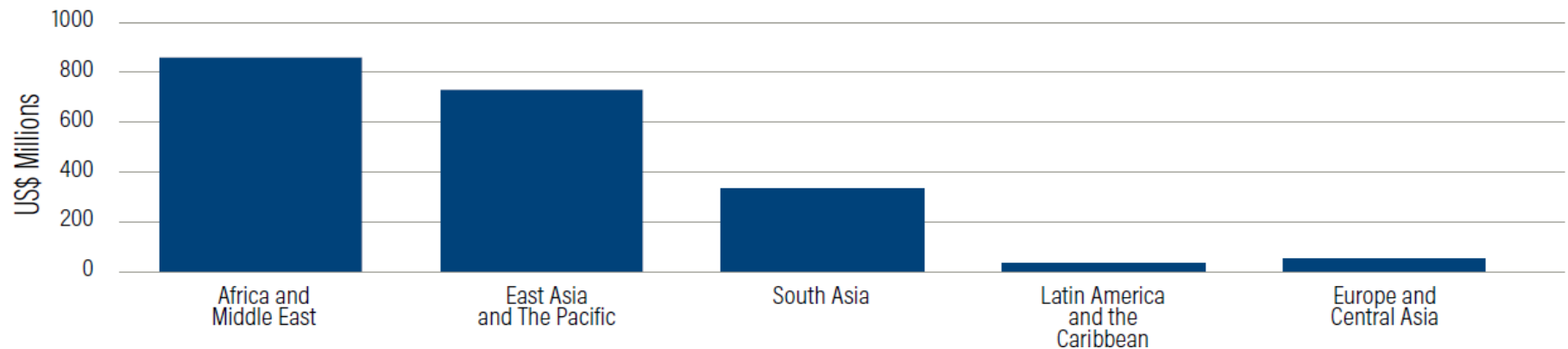
NBS AND DRM CONT'D

FIGURE 1 | Nature-based Solutions in the Disaster Risk Management Portfolio



Source: Adapted from WRI and World Bank (forthcoming)¹.

FIGURE 2 | Investments in Project Components Containing Nature-based Solutions by Region

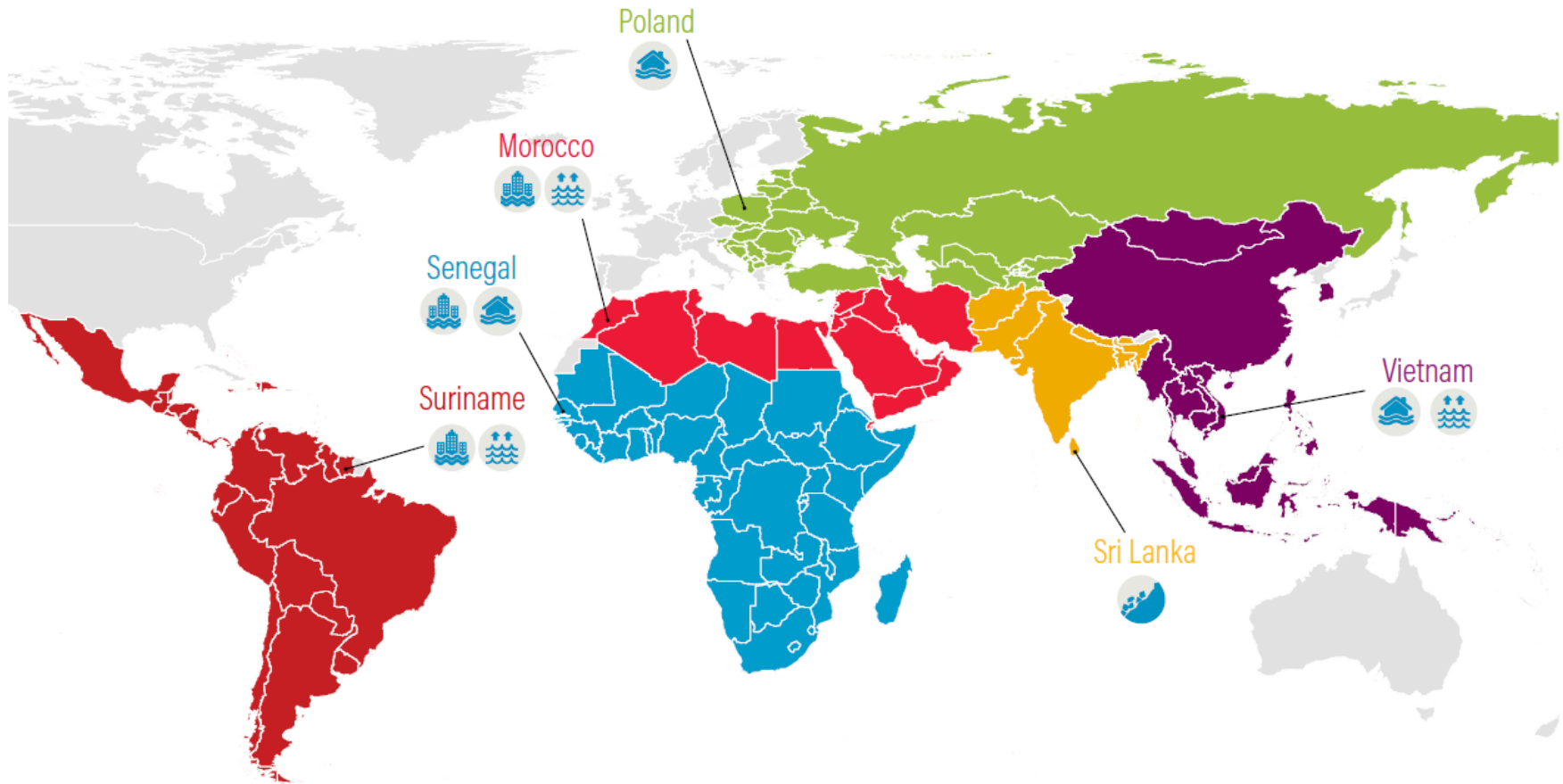


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WORLD BANK NBS PROJECTS FOR DRM



Coastal & urban
flooding



Coastal
erosion



River flooding



Landslides

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LATIN AMERICA & THE CARIBBEAN

Greater Paramaribo Flood Risk Management



Location: Suriname

Challenges: Coastal & urban flooding; coastal erosion

NBS: Mangrove restoration; rivers & floodplain management

Cost of NBS-related Component: US\$ 225,000



EUROPE & CENTRAL ASIA

Odra-Vistula Flood Management Project

Location: Poland

Challenge: River flooding

NBS: Dry polder & embankment retrieval

Cost of NBS-related Component: US\$ 22M



AFRICA

Stormwater Management and Climate Change Adaptation Project



Location: Senegal

Challenge: Urban & river flooding

NBS: Artificial & natural retention ponds; wetlands

Cost of NBS-related Component: US\$ 4M



SOUTH ASIA

Forest-based Landslide Risk Management Program

Location: Sri Lanka

Challenge: Landslides

NBS: Restoration of forests & vegetation

Cost of NBS-related Component: US\$ 150,000



MIDDLE EAST & NORTH AFRICA

Integrated Coastal Zone Management Project



Location: Morocco

Challenge: Coastal & urban flooding

NBS: Forests & vegetation; inland & coastal wetlands; dunes & beaches

Cost of NBS-related Component: US\$ 4M



EAST ASIA & THE PACIFIC

Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project

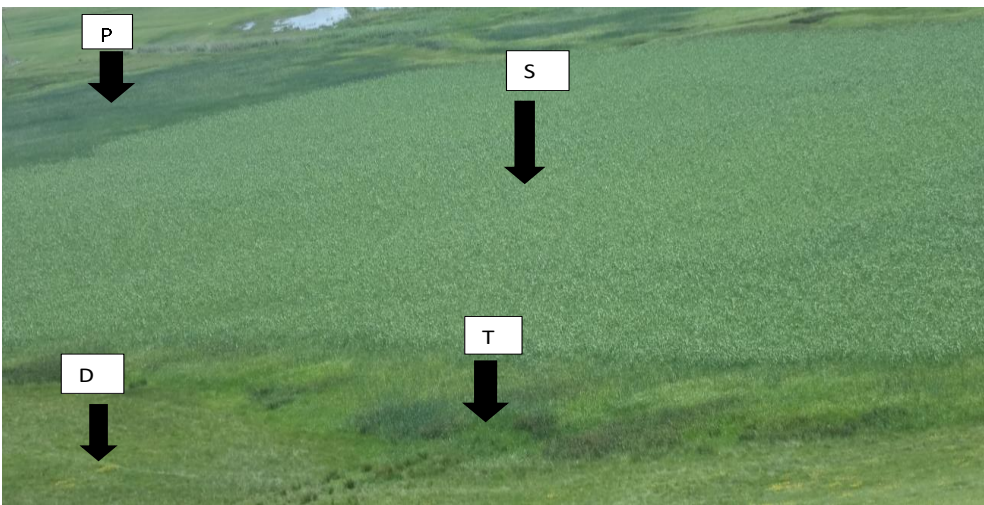
Location: Vietnam

Challenge: Coastal flooding & erosion; river flooding

NBS: Mangrove restoration & re-connect river

Cost of NBS-related Component: US\$ 243M

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HOW CAN WE MAINSTREAM NBS

- Many entry points such as:
 - Policies and Legislations
 - National, Local and Sectoral Integrated Plans and Strategies
 - Programmes and projects
 - Education, Training and Awareness
 - Financing, Budgeting and Resources allocation



Thank You!
Merci!
Bai Dankie!

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