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Nature-based Solutions

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2024 MAY

OVERVIEW

- Understanding Nature-based Solutions (NbS)
- Drivers, Barriers, and Implementation of NbS
- Use Cases and Case Studies
- Summary and Q&A





Understanding Nature-based Solutions (NbS)

Cristina Telhado – Programme Officer – Nature-based Solutions – UNEP-WCMC



WHAT ARE NATURE-BASED SOLUTIONS?

“actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits” – UNEA-5, 2022

WHAT ARE NbS?

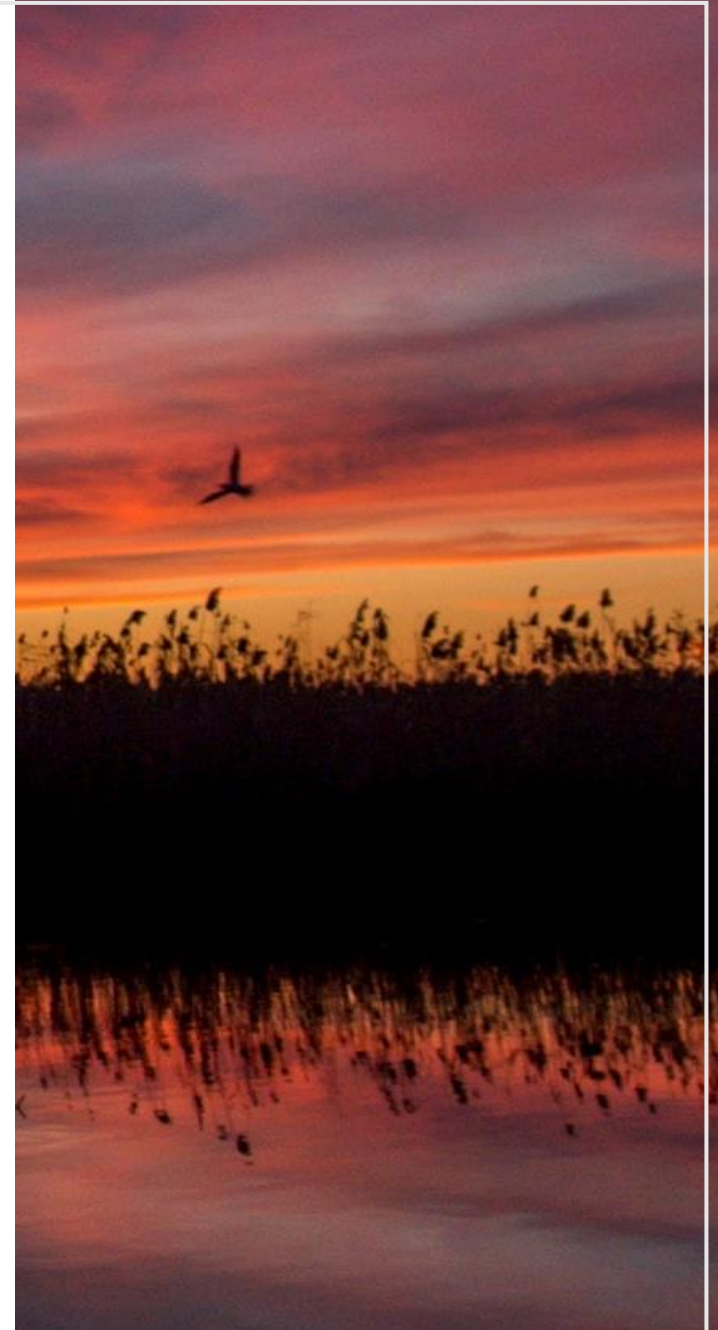
The UNEA resolution (UNEA-5, 2022) recognizes that NbS:

A- respect social and environmental safeguards

B- can be implemented in accordance with local, national and regional circumstances

C- are among the actions that play an essential role in the overall global effort to achieve the Sustainable Development Goals and address challenges

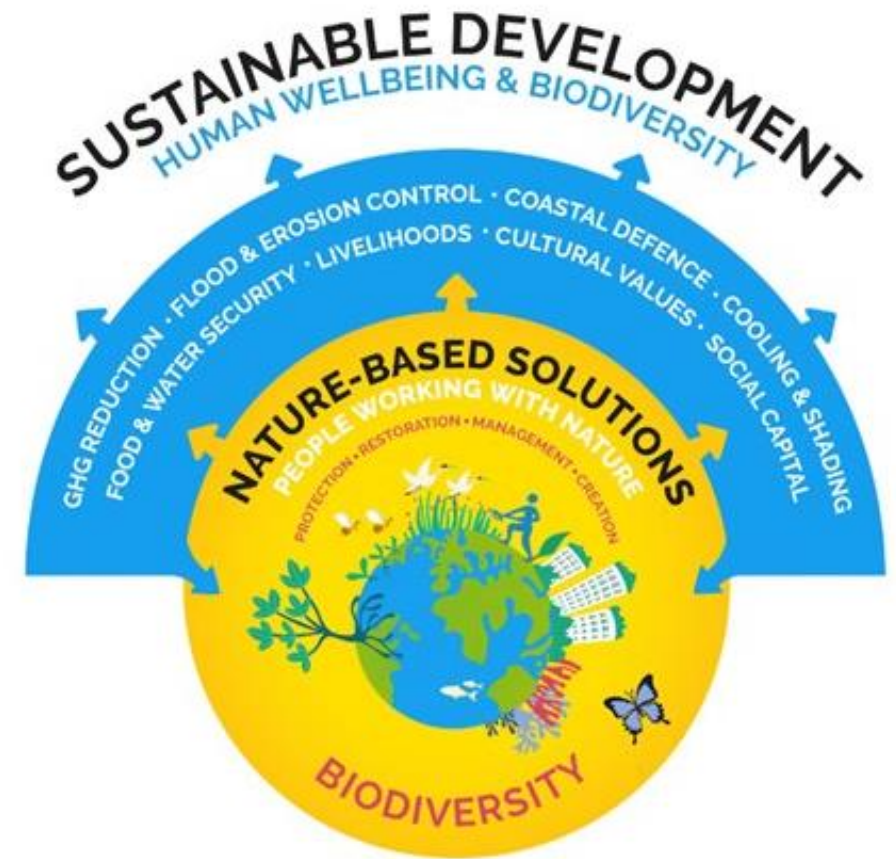
D- can help stimulate sustainable innovation and scientific research



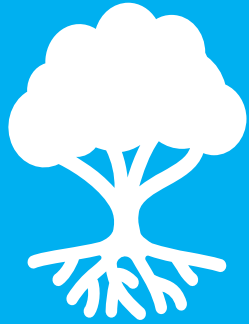
NbS AND OTHER NATURE-BASED APPROACHES

Types of action with potential to be NbS:

- Ecosystem-based adaptation
- Ecosystem-based mitigation
- Natural climate solutions
- Green infrastructure
- Ecological engineering



WHY NATURE-BASED SOLUTIONS?



Climate
Commitments



Biodiversity
Commitments



Dependencies
on Nature



Social Equity

BENEFITS ASSOCIATED WITH NbS

- NbS can provide substantial environmental and social benefits by maintaining and enhancing ecosystem services
- Benefits exist at multiple scales
- Understanding and assessing the value of benefits can be challenging
- But taking account of these benefits can dramatically improve the calculated cost-effectiveness of NbS

Water quality/ quantity

Climate adaptation

Land rehabilitation

Pollution remediation

Carbon sequestration

Improved livelihoods

Biodiversity

Potential benefits

NbS WILL BE FUNDAMENTAL TO ACHIEVING GLOBAL GOALS

- Implementation of NbS at scale is important to achieve global goals such as:
 - The Paris Agreement on climate change
 - The Kunming-Montreal Global Biodiversity Framework
 - The Sustainable Development Goals
- NbS can support climate change mitigation and adaptation efforts, while preserving a wide range of ecosystems.
- Require robust safeguards.



FORESTS

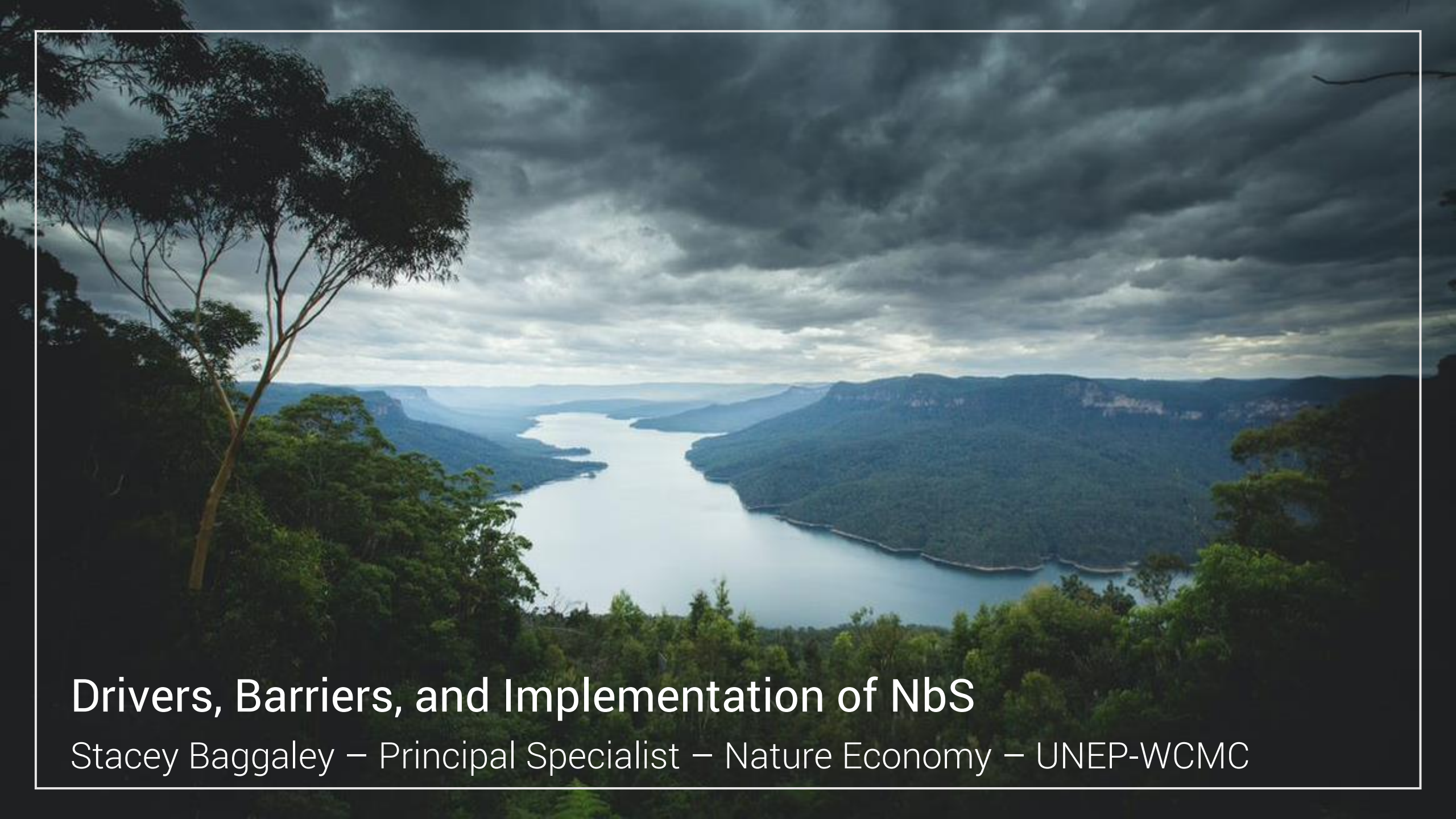
- Many forests areas are subject to pressure from land-use change (deforestation) and overextraction (forest degradation)
- Local communities, wildlife, company operations and other industries may rely on the ecosystems services provided by forests, such as water and climate regulation, soil and substrate management (e.g. reduced erosion, sedimentation, risk of landslides etc) and recreation and / or employment opportunities
- Healthy forests can sequester carbon - while burning of or cutting-down forests can result in substantial carbon emissions
- Protecting, conserving, restoring, sustainably using and managing forests can provide a range of benefits – local to global scale



WETLANDS

- Many wetland ecosystems are under threat from land-use change, overextraction, pollution etc.
- Local communities, wildlife, company operations and other industries may rely on fresh **water** supplies provided by wetlands (among other ecosystem services)
- Healthy wetlands can sequester carbon - while drained peatlands (a type of wetland) have substantial carbon emissions
- Protecting, conserving, restoring, sustainably using and managing wetlands can provide a range of benefits

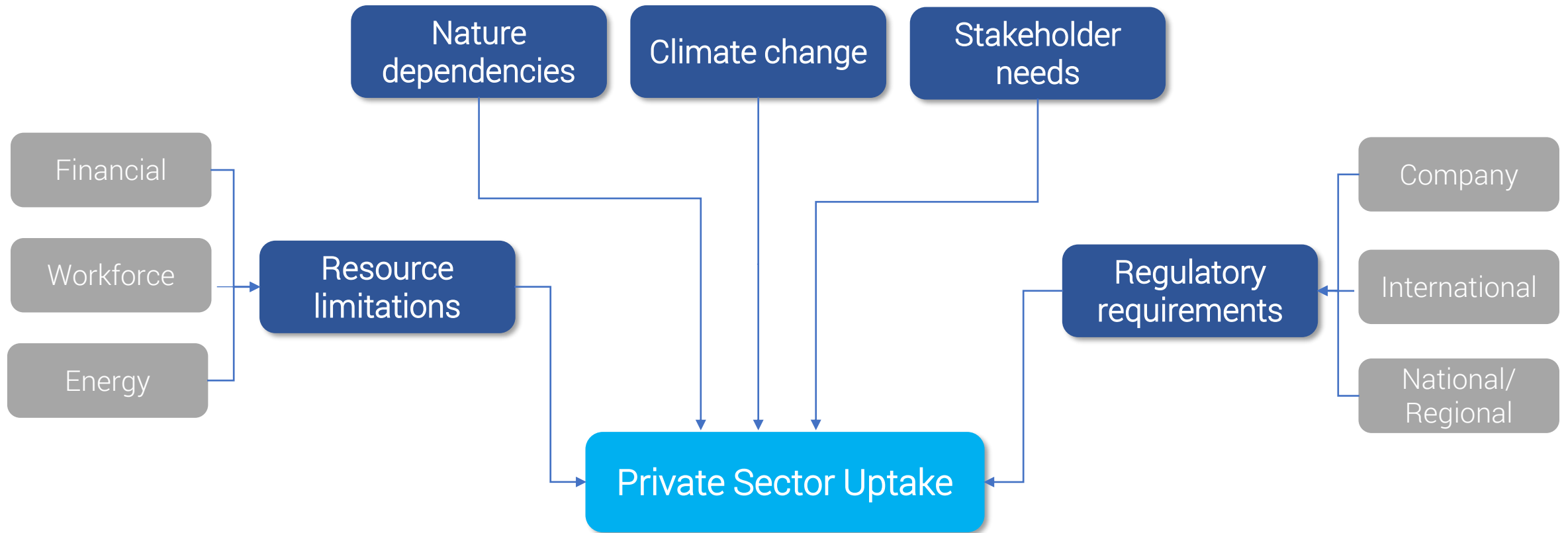




Drivers, Barriers, and Implementation of NbS

Stacey Baggaley – Principal Specialist – Nature Economy – UNEP-WCMC

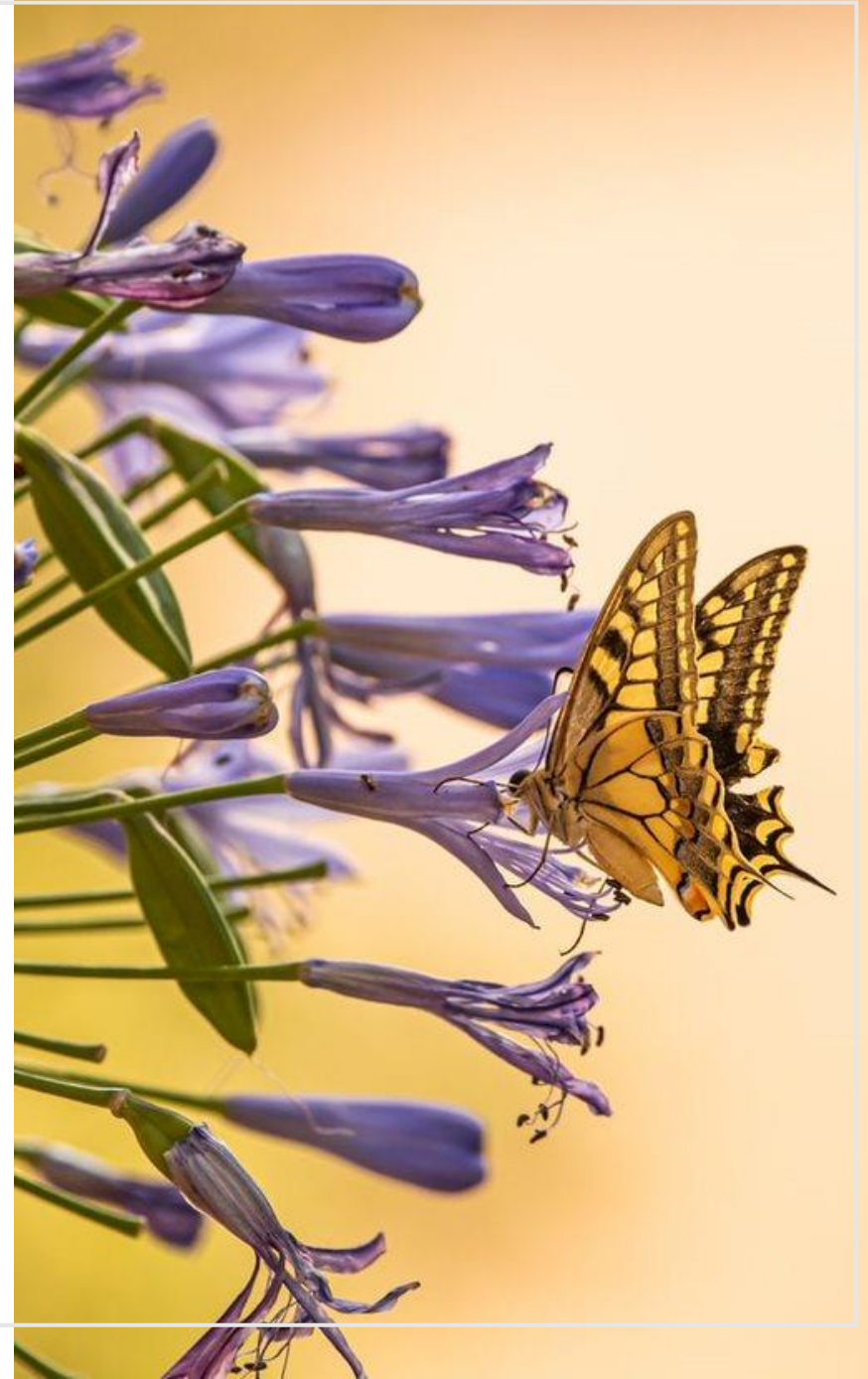
EXTERNAL DRIVERS FOR PRIVATE SECTOR UPTAKE OF NbS



INTERNAL DRIVERS FOR NbS

Nature-based Solutions can help to:

- Make cost-effective interventions
- Contribute to internal objectives
- Prepare for potential future regulatory / financing requirements
- Adapt to changing conditions
- Contribute to multiple needs and objectives



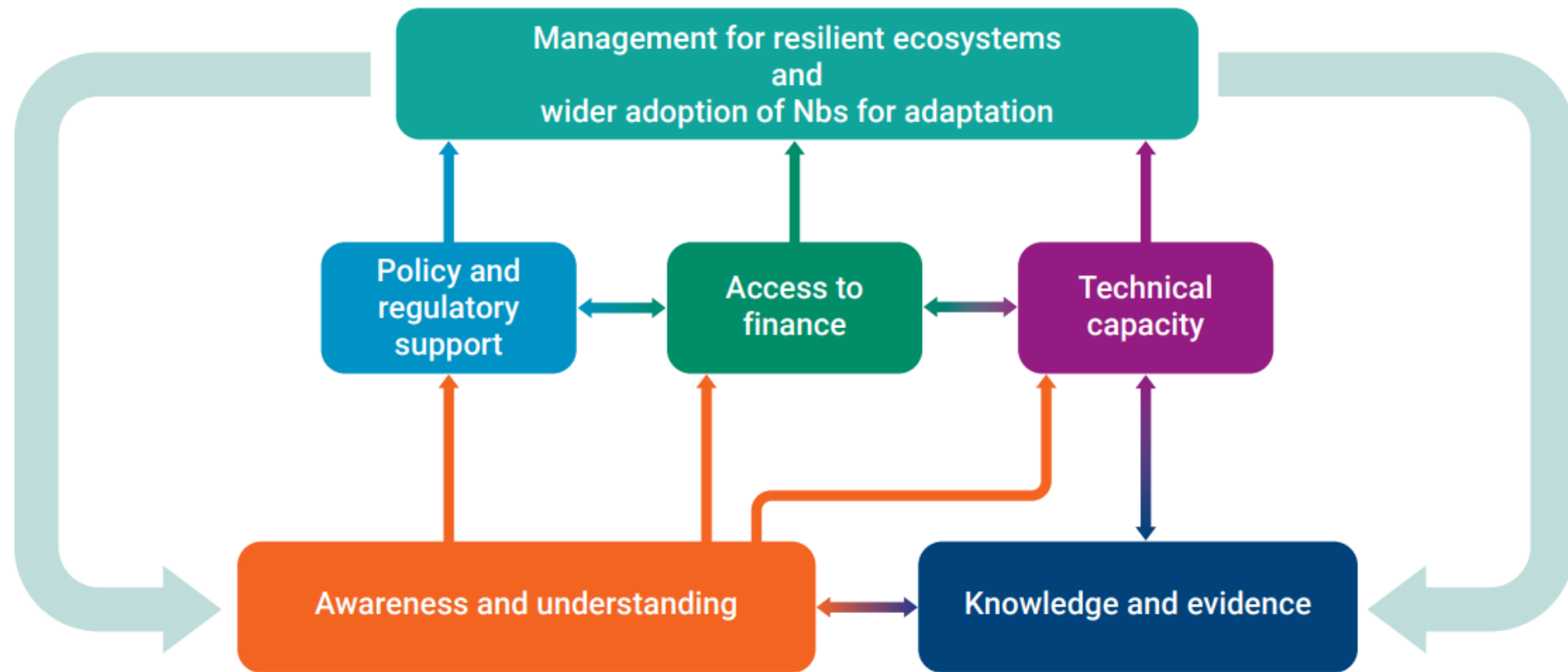
MANGROVES



BARRIERS TO WIDER UPTAKE OF NbS

FIGURE 4

Building blocks to support improved management for ecosystem resilience and wider adoption of NbS for adaptation.



Source: Kapos, V., Wicander, S., Salvaterra, T., Dawkins, K., Hicks, C. (2019) The Role of the Natural Environment in Adaptation, Background Paper for the Global Commission on Adaptation. Rotterdam and Washington, D.C.: Global Commission on Adaptation.



OVERCOMING CHALLENGES TO SCALING UP NbS

- Routinely consider NbS for mitigating, adapting to and managing risks related to climate change, biodiversity loss and pollution
- Increase awareness and provide sector leadership on use of NbS through building the evidence base (monitor, evaluate, publicize)
- Support public-private partnerships and collaborative governance structures where appropriate
- Ensure proper consultation, planning and safeguards are integrated into project implementation, alongside monitoring, evaluation and management



CONSIDERATIONS FOR IMPLEMENTING EFFECTIVE NbS

- Multiple options
- Uncertainty
- Long-term
- Stakeholder buy-in
- Safeguards
- Addressing pressures



Use Cases and Case Studies

USE CASE #1: ECOLOGICAL ENGINEERING FOR FLOOD RESILIENCE

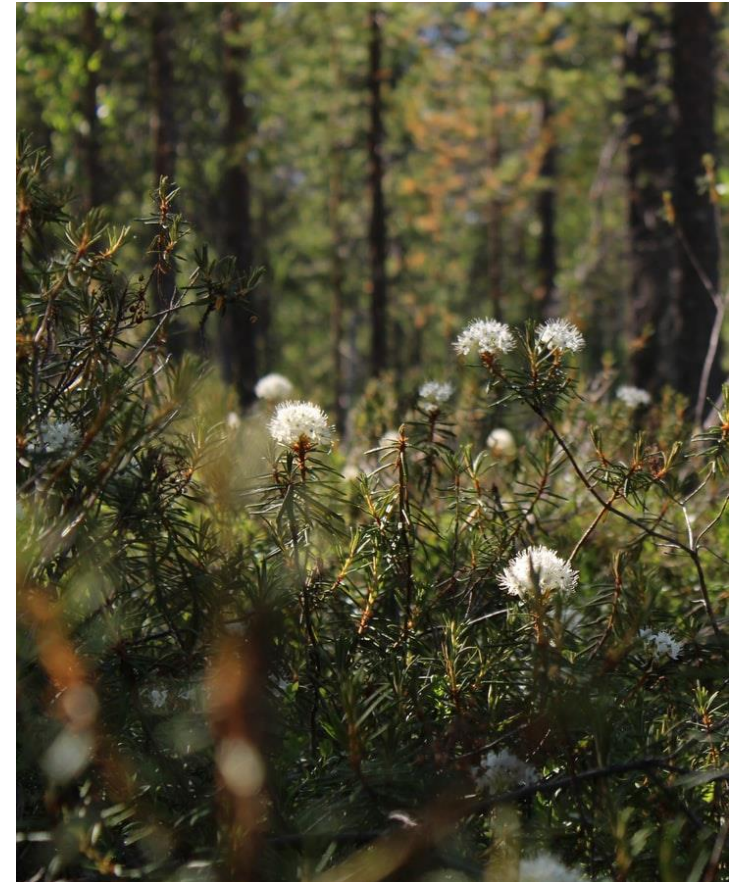
- **Challenge:** Populated areas are increasingly under pressure from flooding events
- **Solution:** Implementation of natural catchment measures and floodplain storage
- **Benefits:** Natural habitat protection, community greenspaces, landscape beautification, carbon sequestration
- **Actors involved:** Environmental agencies, local and national park authorities, universities, local communities



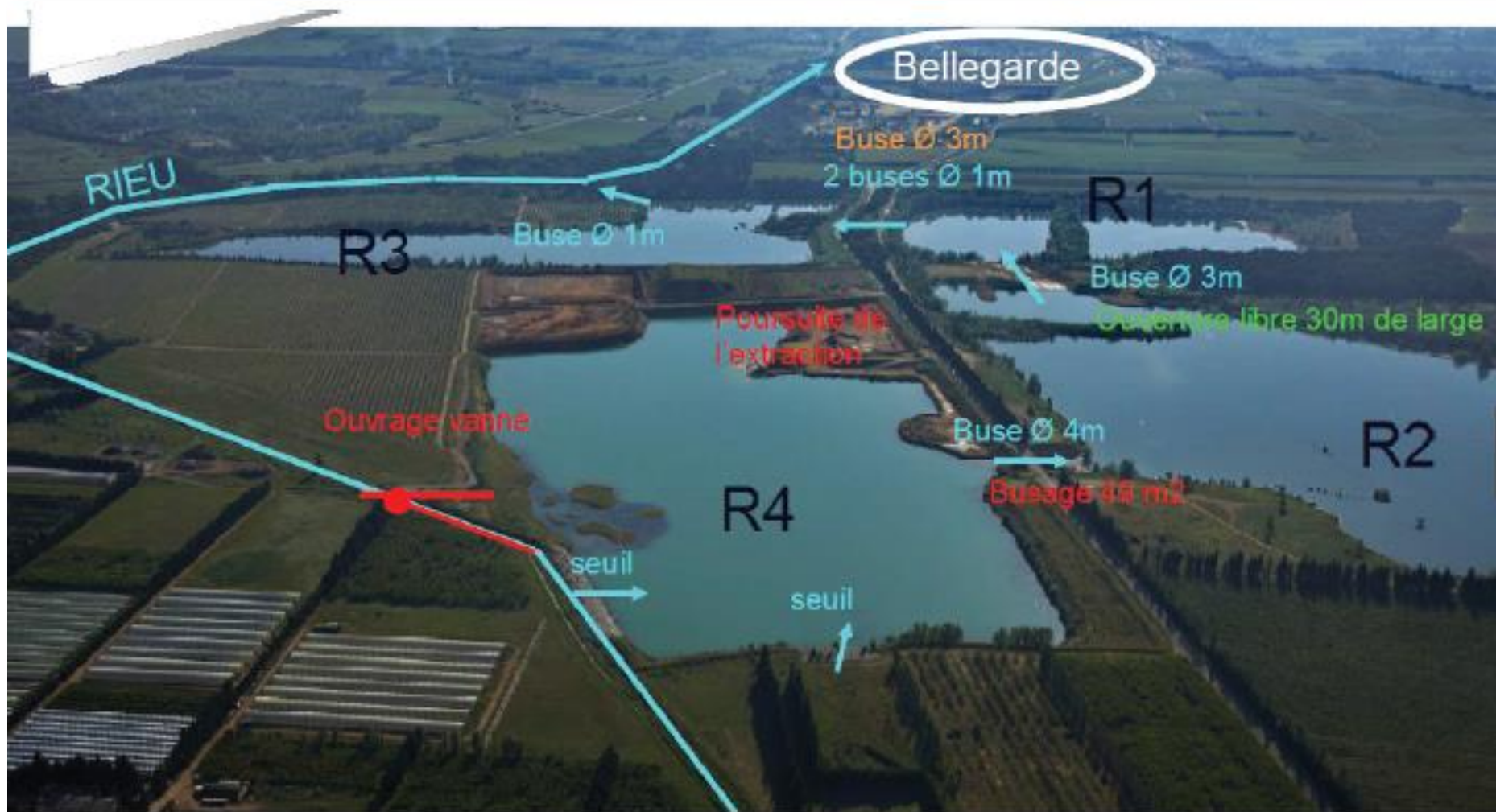
Source: Institution of Civil Engineers (2016)

USE CASE #2: RESTORATION AND SUSTAINABLE MANAGEMENT OF FORESTS TO REDUCE FIRE RISK

- **Challenge:** Communities, businesses and ecosystem services are at increasing risk of forest fires
- **Solution:** Restoration and sustainable use of forests to manage density, improve structure and reduce invasive species
- **Benefits:** Reduced fire risk with potential for many other benefits
- **Actors involved:** Local communities, businesses, NGOs, donor agencies, experts, government and associated agencies



QUARRY BROWNFIELD SITE, BELLEGARDE/ FRANCE



Source: WBCSD (2015) Natural Infrastructure Case Study: Water management and flood prevention in France.



CHALLENGE AND ACTIONS TAKEN

Challenge: Seasonal flooding of sites and adjacent communities (disruption of operations and safety risks)

Actions: Expand flood prevention infrastructure through quarry rehabilitation and creation of wetlands



OUTCOME AND BENEFITS

Outcome: Reduced flood risk to operations and local communities

Benefits: Habitat creation for a variety of species, regulating Ecosystem Services (such as water purification)



Summary

Cristina Telhado – Programme Officer – Nature-based Solutions – UNEP-WCMC



NATURE-BASED SOLUTIONS

- Can be applied at a range of scales and in a wide variety of contexts
- Actions to protect, conserve, restore, sustainably use and manage ecosystems
- Address social, economic and environmental challenges, including:
 - biodiversity loss, climate change mitigation and adaptation, land degradation, desertification, food security, disaster risks, urban development, water availability, poverty eradication, inequality and unemployment, social development, sustainable economic development, human health, ecosystem services
- Require engagement, consultation, safeguards, monitoring and adaptive management
- Are key to achieving important global goals.

A wide-angle landscape photograph showing a dry, hilly region. The foreground is a flat, golden-brown field. A large, dark shadow is cast across the middle ground, extending from the right side towards the center. The background consists of rolling hills and a range of mountains under a clear sky. The overall color palette is dominated by warm, earthy tones like gold, brown, and tan.

Supplementary Materials

RESOURCES & GUIDANCE

Nature-based Solutions

- [IUCN Global Standard for Nature-based Solutions](#)
- [Increasing Infrastructure Resilience with Nature-Based Solutions](#): a 12-step technical guidance document for project developers
- [Strategies for Operationalizing Nature-Based Solutions in the Private Sector](#)
- [Nature-based Solutions Handbook](#)
- [Decision-making in a nature positive world](#)
- [Nature Based Solutions For Climate Change Mitigation](#)
- [Nature-based Solutions: Opportunities and Challenges for Scaling Up](#)



RESOURCES & GUIDANCE

Ecosystem-based Adaptation (EbA)

- [Ecosystem-based Adaptation Tools Navigator](#): searchable database of EbA-relevant tools
- [Guidebook for Monitoring and Evaluating Ecosystem-based Adaptation Interventions](#)
- [Adapt now](#): a global call for leadership on climate resilience

Green / Gray Infrastructure

- [Practical guide to implementing green/ grey infrastructure](#)

