Rio Conventions PAVILION

Nature-based Solutions for Climate Change

4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Biodiversity Conservation & Infrastructure Development

Aligning nature and engineering-based solutions for disaster and climate resilience

26 November 2018 / 1:30-5:30 p.m. / **Rio Conventions Pavilion**, **CBD COP 14,**
Sharm El Sheikh International Congress Center (SHICC), Sharm El Sheikh, Egypt.

Convention on Biological Diversity

Implemented by giz

IUCN United for life and livelihoods

FEBA Friends of Ecosystem-based Adaptation

PEDRR

Supported by: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
based on a decision of the German Bundestag

Nature-based Solutions for Climate Change

4th Ecosystem-based Adaptation Knowledge Day

Background:
'Hard' or engineered approaches have been by far the most common way to reduce climate & disaster risks. However, these approaches tend to address single hazards, risking increasing vulnerability in the long-term by not considering future & multiple climate hazards. There is growing support for integrating ecosystem-based or hybrid approaches into infrastructure planning as evidence of their effectiveness and their potential for generating multiple benefits is increasing.

Objectives:
Participants will learn from *current approaches, opportunities and challenges for aligning biodiversity conservation with infrastructure development in the context of climate change adaptation and disaster risk reduction* both at policy and implementation level.

A panel discussion and interactive formats such as a poster market place and expert dialogue sessions will allow participants to share experiences, methods and implementation examples for better integrating nature-based solutions and infrastructure development.

Speakers
- **Veronica Lo,** Secretariat of the Convention on Biological Diversity (CBD)
- **Barbara Engels,** on behalf of German Ministry for Environment, Nature Conservation and Nuclear Safety (BMU)
- **Tom Wilms,** Witteveen+Bos / EcoShape, the Netherlands
- **Thora Amend,** Conservation & Development, Germany
- **Oscar Guevara**, World Wide Fund for Nature, Colombia (WWF)
- **Mahlodi Tau**, South African National Biodiversity Institute (SANBI)

Moderators: **Mathias Bertram** (GIZ) & **Angela Andrade** (IUCN)

Time	Content	Inputs
13.30	Welcome	GIZ and IUCN, by Mathias Bertram
13.40	**Opening remarks by CBD Secretariat** *Opportunities and barriers for aligning nature-based (green) and engineering-based (grey) infrastructure based on the Voluntary Guidelines for Ecosystem-based Adaptation & Disaster Risk Reduction*	Veronica Lo (CBD Secretariat)
14.00	**Panel Session** *Strengthening resilience through better alignment of green and built infrastructure – opportunities & barriers for strengthening ecosystem based approaches into policies, planning and practice*	Panellists
15.30	**Market Place** *Practical examples of nature-based solutions and better alignment with engineering-based solutions for disaster and climate resilience* - Introduction and elevator pitches for market place - Open exchange among participants - Short reflections on market place take-aways	Presenters of market places (OroVerde, IUCN, EcoShape, GIZ, Conservation & Development) Participants
16.15	**Interactive expert dialogue with participants** *How to better integrate nature based solutions into infrastructure planning (e.g. policy maker, implementer, researcher etc.)* - Group discussion based on "controversial" statements - Open discussion in plenary - Take away messages for UNFCCC COP 24, Poland	Participants
17.15	Concluding remarks & take away messages for UNFCCC COP 24	Angela Andrade (IUCN) & Veronica Lo (CBD)

Rio Conventions PAVILION

Selected key messages from Sustainable Infrastructure Day 17 November 2018

75% of the built infrastructure *in place in* ***2050 does not exist today*** *(roads, railways, dam construction, urban infrastructure etc.).*

Investments of $90 trillion *are expected between now and 2030.*

> ***Smart infrastructure choices can contribute to human development in line with environmental targets****, […]*
> *(Christiana Pasca Palmer, CBD)*

"if you cannot build it well, do not build it.
(Marco Lambertini, WWF)

Photos by IISD/ENB | Kiara Worth

Rio Conventions PAVILION

Nature-based Solutions for Climate Change

4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Selected key messages from EbA Knowledge Day 26 November 2018

"We need a ***better connection of socio-ecological issues with engineering" "Without investing in biodiversity, climate goals cannot be achieved"***
-Barbara Engels (German Government, Ministry of Environment)

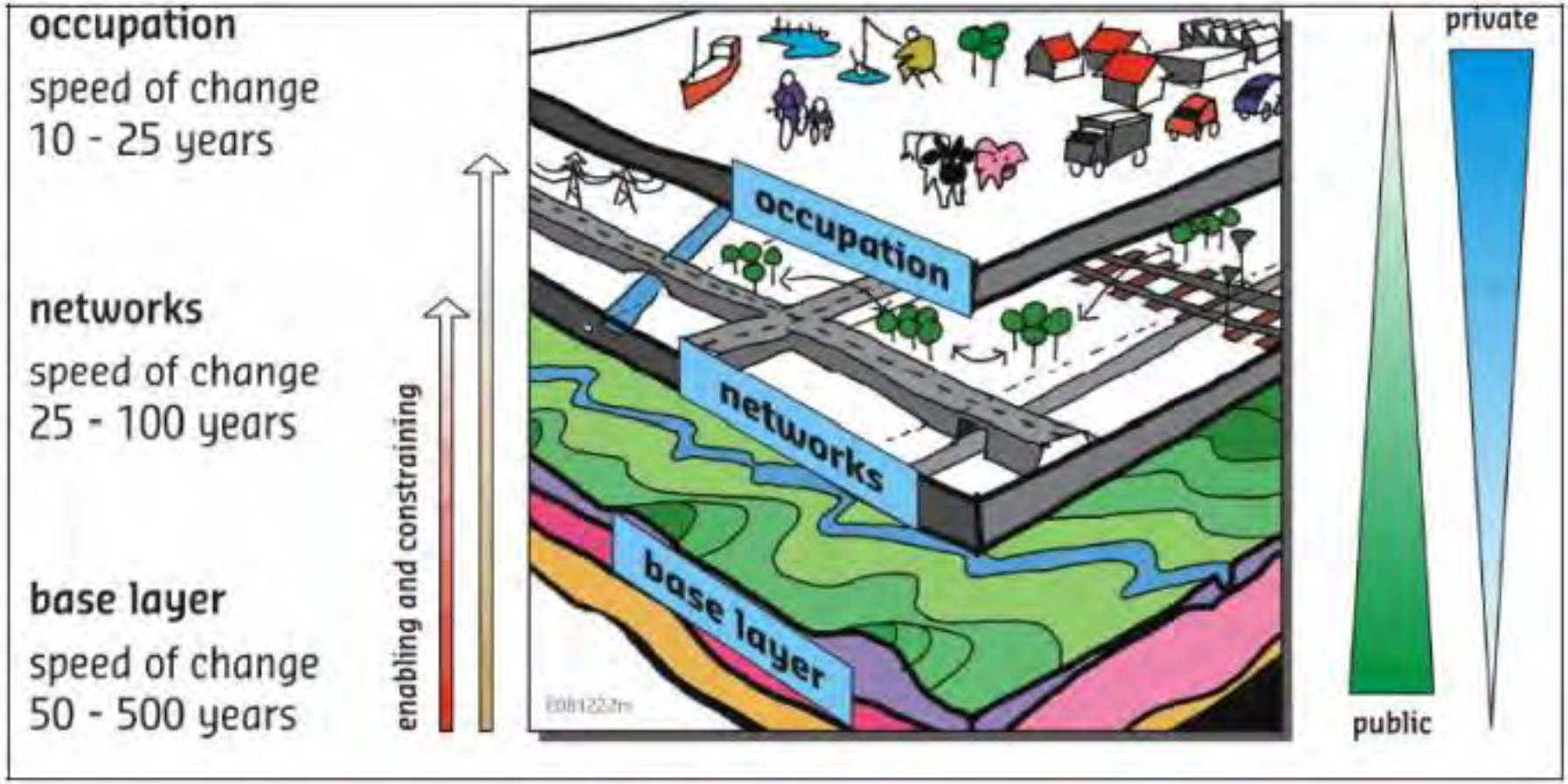
"We need to stimulate the national economy by creating jobs through planning and implementation of ecological infrastructure for water security"
- Mahlodi Tau (SANBI)

"We need to go beyond the state and also need to look into civil society and private sector: learn from each other and build coherent solutions."
-Thora Amend (Conservation & Development)

"We need a transition from building in nature to building with Nature"
- Tom Wilms (EcoShape)

Photos by IISD/ENB | Mike Muzurakis

We have to better understand the different "system layers" of grey and green infrastructure. Biosphere and ecosystems are the base layer for our resilience



Source: Wetlands International, 2016

Daily #9

Rio Conventions Pavilion Bulletin

A publication of the International Institute for Sustainable Development

Tuesday, 27 November 2018 Vol. 200 No. 48

Rio Conventions Pavilion
Monday, 26 November 2018

The 10th day of the Rio Conventions Pavilion addressed the theme, 'Nature-based Solutions for Climate Change.'

The day was organized in two segments. In the morning, participants took part in panel and break-out sessions to highlight a range of experiences with ecosystem-based adaptation (EbA) policy making, as well as lessons learned from implementing EbA projects and related nature-based approaches.

In the afternoon, EbA Knowledge Day convened, under the overall theme of 'Biodiversity conservation and infrastructure development.' The segment included a market place showcasing practical examples of nature-based solutions and how to better align them to engineering-based solutions for disaster and climate resilience.

The Day was co-organized by SwedBio, Friends of Ecosystem-based Adaptation (FEBA), Die Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), International Union for the Conservation of Nature (IUCN) and The Partnership for Environment and Disaster Risk Reduction (PEDRR).

Nature-based solutions for climate change

Integrating climate change and biodiversity in national level policy: Moderator Tristan Tyrrell, SwedBio, opened the morning segment with a recap of a recently concluded series of regional dialogues on the integration of EbA approaches in national climate policies and programmes and the Post-2020 Global Biodiversity Framework (Post-2020 Framework). He said the consultations had highlighted that: most policies are currently focused on forest landscape restoration and other mitigation strategies, as opposed to more integrated approaches such as EbA and ecosystem-based Disaster Risk Reduction (Eco-DRR); there is need to significantly scale up implementation; and the regional platforms can help facilitate information exchange and joint learning.

Tyrrell invited the panel to discuss their country experiences.

Ashley Dias, Ministry of Environment, Energy and Climate Change, Seychelles, described the impact of extreme climate events over the past two decades and highlighted the country's vision of minimizing such impacts in future through concerted and proactive action at all levels of society. Drawing on several ongoing project examples, she explained how the country utilizes EbA approaches to, *inter alia*, enhance freshwater security and flood control, and restore ecosystem functions of wetlands to boost resilience.

Kotchikpa Okoumassou, Togo, discussed the contribution of a community-level EbA project to national climate and biodiversity action plans and the Sustainable Development Goals (SDGs). Noting that the aim is to demonstrate the principle of living in harmony with nature, he said that the project seeks to link forest conservation with restoration of diverse tree species on agricultural land to enhance local livelihoods, especially for women. Okoumassou also highlighted a joint initiative with university researchers aimed at linking local and scientific knowledge.

Kotchikpa Okoumassou, Togo

The *Rio Conventions Pavilion Bulletin* is a publication of the International Institute for Sustainable Development (IISD) <info@iisd.ca>, publishers of the *Earth Negotiations Bulletin* © <enb@iisd.org>. This issue was written and edited by Wangu Mwangi, Priscila Pereira de Andrade, Ph.D., and Nadia Sohier Zaman. The Digital Editor is Mike Muzurakis. The Editor is Melanie Ashton <melanie@iisd.org>. The Director of IISD Reporting Services is Langston James "Kimo" Goree VI <kimo@iisd.org>. Specific funding for coverage of th s event has been provided by the Directorate-General for Environment of the European Commission (EC). IISD can be contacted at 111 Lombard Avenue, Suite 325, Winnipeg, Manitoba R3B 0T4, Canada; tel: +1-204-958-7700; fax: +1-204-958-7710. The opinions expressed in the *Bulletin* are those of the authors and do not necessarily reflect the vie s of IISD. Excerpts from the *Bulletin* may be used in other publications with appropriate academic citation. Electronic versions of the *Bulletin* are sent to e-mail distribution lists (in HTML format) and can be found at http://enb.iisd.org/. For information on the *Bulletin*, including requests to provide reporting services, contact the Director of IISD Reporting Services at <kimo@iisd.org>, +1-646-536-7556 or 320 E 46th St., 32A, New York, NY 10017, USA. The IISD team at the Rio Conventions Pavilion at CBD COP 14 can be contacted by e-mail at <wangu@iisd.org>.

Oscar Guevara, World Wide Fund for Nature (WWF), Colombia

Arno Sckeyde, GIZ

Isaya Naini Ole Saibulu, Pastoralists Indigenous NGOs Forum, Tanzania, presented some perspectives on how to empower pastoralist communities to contribute meaningfully to national policy frameworks. Lamenting that Indigenous Peoples have been largely excluded from climate processes, he stressed that the environmental conservation values as well as customary institutions developed by pastoralist communities over centuries – such as dry season grazing timetables to allow for natural regeneration – offer viable models for EbA and resilience.

Oscar Guevara, World Wide Fund for Nature (WWF) Colombia, presented the nature-based solutions for climate mitigation and adaptation that Colombia is undertaking to meet the targets for the Paris Agreement. He explained that Colombia is achieving its climate-related goals through the Nationally Determined Contributions and have furthermore recognized that the most effective way to reduce emissions is to reduce deforestation. Guevara added that Colombia had committed to increasing protected areas to 2.5 million hectares of land but have since tripled their initial target by increasing protected areas to 7.5 million hectares of land.

In the ensuing discussion, Guevara encouraged people to be persistent in their advocacy to policymakers and continually stress the importance of meeting global environmental targets. Okoumassou added that there is need for the general public to be familiar with national development plans and hold policymakers accountable to meet national goals.

Implementation of ecosystem-based approaches for climate change adaptation disaster risk reduction across sectors: Opening the session, Lisa Janishevski, CBD Secretariat, welcomed the inclusion of the Voluntary Guidelines for the design and effective implementation of EbA and Eco-DRR in the Annex of COP 14 Decision 21. She explained the two concepts, and outlined some of the main objectives, principles and safeguards contained in the Guidelines, among which: the provision of policy guidance for decision makers; a flexible framework for planning and implementing EbA and Eco-DRR; and the integration of these approaches into sectoral policies and plans.

Panelist presentations highlighted opportunities for EbA and Eco-DRR within different sectors.

Verónica Ruiz, IUCN, explained the opportunities to integrate environment into the humanitarian sector and emphasized that cross-sectoral approaches are crucial in scaling up EbA. She added that the inclusion of EbA and Eco-DRR, including their associated capacity building and training programmes, in humanitarian assistance, can lead to longer-term resilience. She further noted that data sharing across sectors underpins a strengthened humanitarian-environmental approach.

Oscar Guevara, WWF Colombia, noted that the implementation of EbA and Eco-DRR in the forestry sector requires understanding the context of the sector, identification of opportunities for ecosystem-based approaches and mobilization of action. He said it is necessary to: ramp up ambition towards forests as a key component of the 'New Deal for Nature and People'; adopt good governance including land use planning to address trade-offs between food, biodiversity, climate; and include forest-targets in the Post-2020 Framework..

Arno Sckeyde, GIZ, presented opportunities for spatial planning in land- and seascapes. He discussed: how land and marine spatial planning is affected by climate and disaster risks; and why ecosystem-based approaches should be strengthened. He also gave examples of EbA measures and highlighted required actions for better governance and engagement of civil society, state and private sector.

***Break out groups*:** Participants then held group discussions on sector-based advocacy strategies to enhance EbA approaches in the forestry, spatial planning and humanitarian sectors. The three groups were asked to develop specific messages that

Tom Wilms, Witteven+Bos/EcoShape

Veronica Lo, CBD Secretariat

could attract the attention of decision makers and practitioners and convince them to consider, integrate and make use of EbA and Eco-DRR.

The forestry group noted that forest and climate are not being fully integrated into policymaking and proposed one way to more effectively disseminate this linkage would be to work more closely with the media. They also put emphasis on scaling up local knowledge.

The spatial planning group said that considering the cross-cutting nature of biodiversity and climate change, more effort is needed to work across ministries. The group asserted that this can be done effectively if targeted messages are developed communicating both the short- and long-term benefits of EbA.

The humanitarian group drew attention to local community engagement, and thinking beyond the traditional approach of EbA as a response mechanism. They suggested that working more closely with development agencies can help minimize the vulnerabilities of communities and enable a greater focus on prevention.

EbA Knowledge Day: Biodiversity conservation and infrastructure development - aligning nature-based with engineering-based solutions for disaster and climate resilience

Opening session: Mathias Bertram, GIZ, opened the afternoon segment by sharing selected key messages from the Rio Pavilion Sustainable Infrastructure Day on 17 November 2018, and explaining the different "system layers" of grey and green infrastructure.

Veronica Lo, CBD Secretariat, drew attention to opportunities for aligning EbA and Eco-DRR into infrastructure developments, including: the Voluntary Guidelines on EbA and Eco-DRR as a flexible framework for planning and implementing ecosystem-based approaches to infrastructure developments; synergies with Rio Conventions objectives, capitalizing on momentum from other emerging policies; and capacity building support to governments and other project proponents by sharing data, knowledge, tools, approaches, and other mechanisms. Lo also underscored the need for more strategic, proactive and systems-level approaches to infrastructure planning that ensure nature-based solutions are carefully considered and integrated across different sectors, in close connection to the SDGs.

Panel discussion: Sandra Müller-Volk, German Ministry for Environment, Nature Conservation and Nuclear Safety (BMU) shared information on the increase of Germany's International Climate Initiative (IKI) EbA projects in the period between 2008-2017. She gave examples of three projects that are integrating: natural infrastructure into public investment programmes in Peru; climate services for climate resilient bridge construction in Costa Rica; and EbA into river basin planning in Thailand.

Oscar Guevara, WWF Colombia, highlighted some challenges and opportunities to address interactions and avoid or minimize trade-offs between biodiversity and infrastructure. He noted the importance of the 'New Deal for Nature,' discussed the differences between "green" and "greening" infrastructure and said that sustainable infrastructure are assets that provide, among others the stewardship of natural ecosystems, trigger green innovation, and increase employment. He cited Colombia's 'Green Road Infrastructure Guidelines,' the 'Flood Green Guide' and the 'Green Recovery and Reconstruction: Training Toolkit for Humanitarian Aid' as examples.

Mahlodi Tau, South African National Biodiversity Institute (SANBI), emphasized that investing in built and ecological infrastructure contributes to a more water-secure South Africa. He presented South Africa's 2030 Development Agenda, 2012 National infrastructure Plan and the Water and Sanitation Master Plan. He said ecological infrastructure consists of naturally functioning ecosystems that generate and deliver valuable services to people and highlighted that opportunities exist to integrate EbA approaches into water resource management.

Tom Wilms, Witteven+Bos/EcoShape, the Netherlands explained the different phases involved in the transition from "building in nature to building with nature." Examples he

provided were, *inter alia*: working in close collaboration with stakeholders and local communities; developing hydraulic infrastructure in harmony with the behaviors of the natural system; and bringing together knowledge institutes, engineers, government contractors, and NGOs. Among his key messages, Wilms highlighted that a thorough system understanding and early stakeholder involvement are essential for higher environmental benefits, cost reductions and faster institutional processes.

Thora Amend, Conservation & Development, Germany, presented on holistic green-grey infrastructure planning. She advised that a good policy entry point and effective governance structure requires mainstreaming of nature-based solutions into local, municipal, national processes. Amend also said sector strategies are essential to increase the resilience of people and ecosystems in view of changing climate conditions and risk exposure.

In discussion, one audience member extoled the value of engaging local populations to share their challenges and also provide their input into large planned projects by government. Wilms reiterated that engineering solutions, which look beyond the benefits of infrastructure needs and which consider environmental advantages offer a better approach.

In discussion, the moderator asked panelists what would be their key messages for the upcoming UN Climate Change Conference in Katowice, Poland, to which one speaker suggested reminding negotiators that without investing in biodiversity, climate goals cannot be achieved.

Quoting Nelson Mandela, Tau emphasized that "sometimes it falls upon a generation to be great and you can be this generation. The UNFCCC must know that if a generation is going to bring a change, it is us and we need to acknowledge this."

Market Place: In this interactive session, GIZ, The Nature Conservancy, OroVerde, Witteven+Bos / EcoShape and Conservation & Development held a poster session. Organization representatives gave elevator pitches for nature-based and engineering-based solutions for disaster and climate resilience.

In takeaways following the session, some participants noted that the ideas discussed were a good starting point and illustrate the value of knowledge transfer and knowledge providers. They also highlighted how useful it was to learn during the poster session case studies of how things have worked in some countries and the conditions under which some solutions thrived.

Interactive expert dialogue with participants: In a final interactive session, participants met in smaller groups to discuss a series of provocative statements about how to integrate nature-based solutions into infrastructure planning.

Regarding the role of government, participants noted that multi-stakeholder approaches work best, and that sometimes NGOs and communities play a greater role in driving nature-based solutions. However, the discussions noted that government remains a key player in larger infrastructural and grey projects such as railways and ports, as well as creating an enabling environment for EbA through legal and policy frameworks.

Reacting to the statement, "nature-based solutions take too much time to show impact compared to grey infrastructure," participants pointed to many examples to the contrary. They highlighted that: green infrastructure offers more benefits as they as they provide multiple benefits and often address both short- and long-term perspectives; are more financially sustainable as they often require less investment than grey infrastructure both in the start-up phase and for maintenance over time; and involve people as part of the solution.

In concluding remarks, Bertram said that EbA Knowledge Day had provided a rich source of technical information and stakeholder perspectives as well as inspiring exchanges. Noting that the Day also incorporated discussions from Sustainable Infrastructure Day at the Pavilion, he urged participants to pass the torch on to colleagues travelling to UNFCCC COP 24 in order to build bridges between the Rio Conventions.

Lo thanked all participants for their contributions, and expressed appreciation to the governments of Germany and Sweden, the European Commission and all partners involved in the developing the Voluntary Guidelines on EbA and Eco-DRR.

Photo Selection – 4th EbA Knowledge Day

(http://enb.iisd.org/biodiv/cop14/riopavilion/26nov.html)

Tom Wilms, Witteveen+Bos/EcoShape

Veronica Lo, CBD Secretariat

From L-R: **Thora Amend**, Conservation and Development; **Tom Wilms**, Witteveen+Bos/EcoShape; and **Mathias Bertram**, GIZ

Mathias Bertram, GIZ

Barbara Engels, BfN on behalf of German Ministry for Environment, Nature Conservation and Nuclear Safety (BMU)

All photos by IISD/ENB | Mike Muzurakis

Photo Selection – 4th EbA Knowledge Day
(http://enb.iisd.org/biodiv/cop14/riopavilion/26nov.html)

Mahlodi Tau, South African National Biodiversity Institute

Angela Andrade, IUCN

All photos by IISD/ENB | Mike Muzurakis

Rio Conventions PAVILION

Nature-based Solutions for Climate Change

4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Biodiversity Conservation & Infrastructure Development

Aligning nature and engineering-based solutions for disaster and climate resilience

26 November 2018 / 1:30-5:30 p.m. / **Rio Conventions Pavilion**, **CBD COP 14,**
Sharm El Sheikh International Congress Center (SHICC), Sharm El Sheikh, Egypt.

Convention on Biological Diversity

Implemented by giz

IUCN United for life and livelihoods

FEBA Friends of Ecosystem-based Adaptation

PEDRR

Supported by: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
based on a decision of the German Bundestag

UN BIODIVERSITY CONFERENCE
Investing in biodiversity for people and planet
COP 14 - CP/MOP9 - NP/MOP3
Sharm El Sheikh, Egypt, 2018

United Nations Decade on Biodiversity

UNEP

25 YEARS Convention on Biological Diversity
SAFEGUARDING LIFE ON EARTH

Opportunities for aligning nature-based/green with grey infrastructure

The role of the Voluntary Guidelines for Ecosystem-based Adaptation & Disaster Risk Reduction

Veronica Lo
CBD Secretariat

Rio Conventions PAVILION
Linking biodiversity, climate change and sustainable land management

Supported by:
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
based on a decision of the German Bundestag

Implemented by
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

IUCN

FEBA
Friends of Ecosystem-based Adaptation

PEDRR

EbA & Eco-DRR: contributions to infrastructure

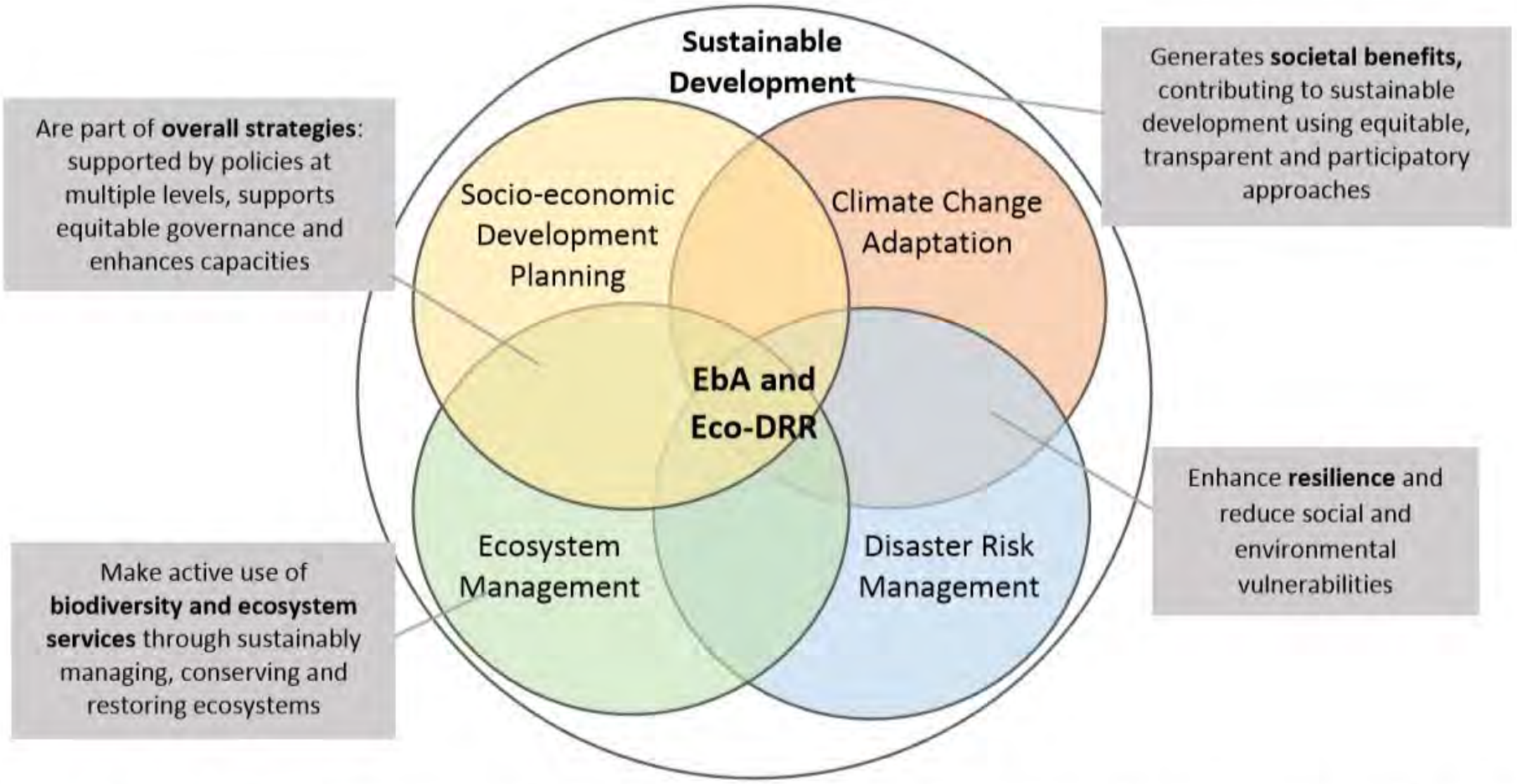
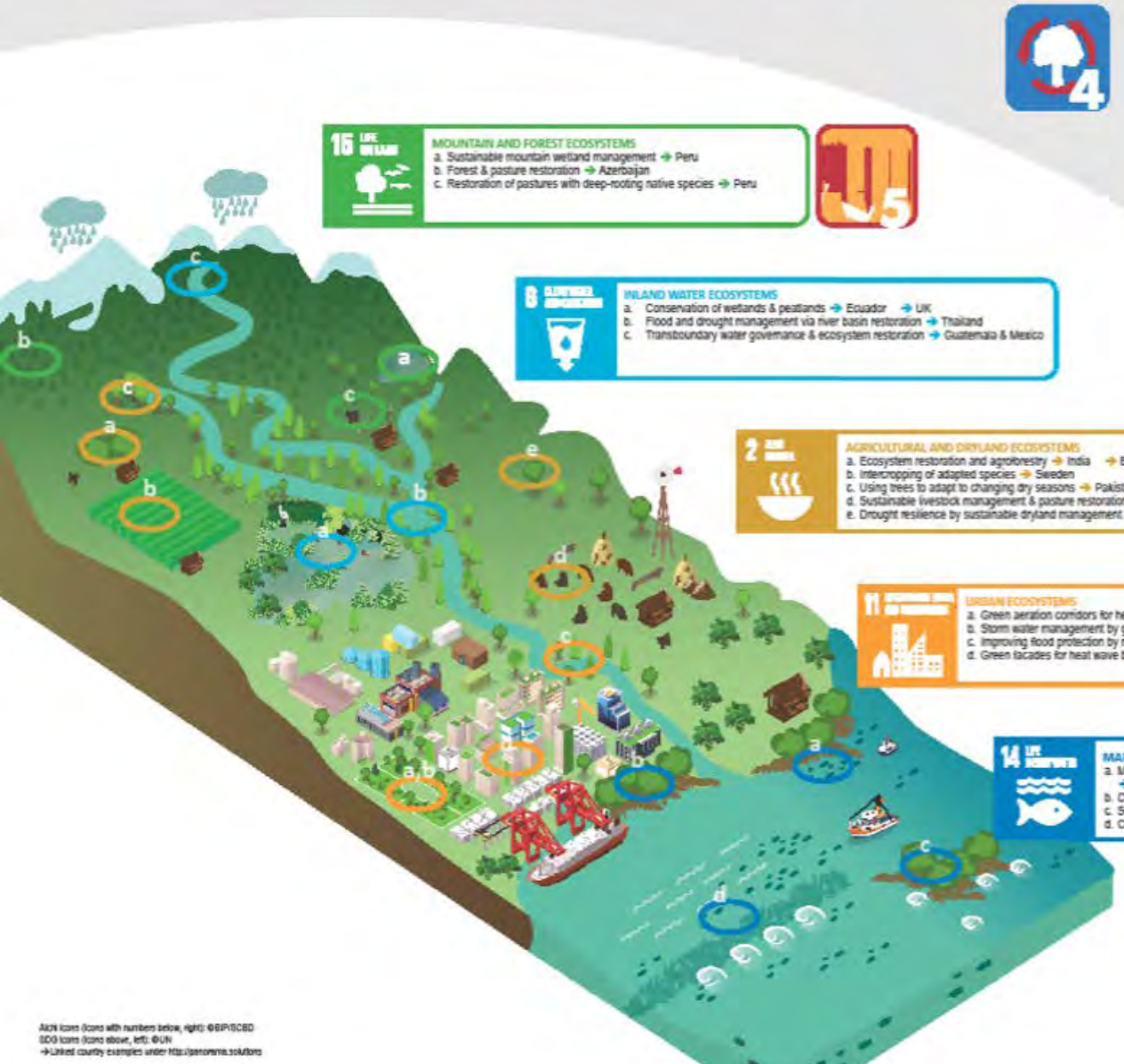


Figure 3. Conceptual diagram of EbA and Eco-DRR: Ecosystem-based approaches to adaptation and disaster risk reduction (EbA and Eco-DRR) use ecosystems and biodiversity to integrate climate change adaptation, disaster risk management, ecosystem management and socio-economic development planning. The main elements of EbA and Eco-DRR are shown in the grey boxes[26]

Ecosystem-based Adaptation & Disaster Risk Reduction Solutions addressing the Sustainable Development Goals and CBD Aichi targets in a Land- and Seascape

25 YEARS Convention on Biological Diversity SAFEGUARDING LIFE ON EARTH



MOUNTAIN AND FOREST ECOSYSTEMS
a. Sustainable mountain wetland management → Peru
b. Forest & pasture restoration → Azerbaijan
c. Restoration of pastures with deep-rooting native species → Peru

INLAND WATER ECOSYSTEMS
a. Conservation of wetlands & peatlands → Ecuador → UK
b. Flood and drought management via river basin restoration → Thailand
c. Transboundary water governance & ecosystem restoration → Guatemala & Mexico

AGRICULTURAL AND DRYLAND ECOSYSTEMS
a. Ecosystem restoration and agroforestry → India → Burundi
b. Intercropping of adapted species → Sweden
c. Using trees to adapt to changing dry seasons → Pakistan
d. Sustainable livestock management & pasture restoration → S. Africa
e. Drought resilience by sustainable dryland management → Sudan

URBAN ECOSYSTEMS
a. Green aeration corridors for heat wave buffering → Germany
b. Storm water management by green spaces → Sweden
c. Improving flood protection by river restoration → Germany
d. Green facades for heat wave buffering → Austria

MARINE AND COASTAL ECOSYSTEMS
a. Mangrove restoration and coastal protection → Indonesia → Grenada → Ecuador → Colombia
b. Coastal realignment → UK
c. Sustainable Fishing & mangrove rehabilitation → Mexico
d. Coral reef restoration → Vanuatu

Aichi icons (icons with numbers below, right): ©SBP/SCBD
SDG icons (icons above, left): ©UN
→Linked country examples under http://panorama.solutions

Challenges for aligning ecosystem-based approaches into traditional engineering approaches for infrastructure

25 YEARS Convention on Biological Diversity SAFEGUARDING LIFE ON EARTH

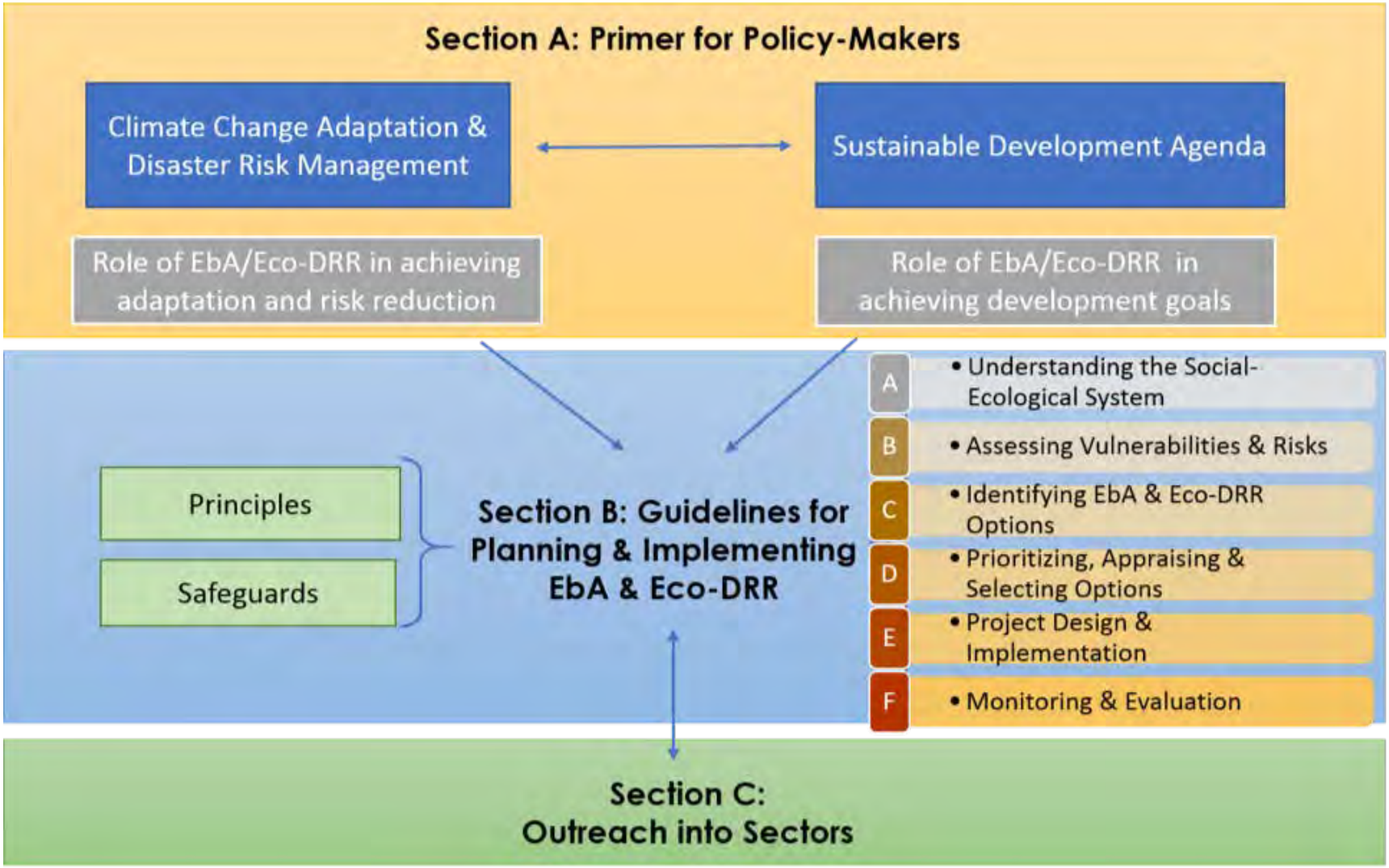
- Inadequate resources and poor governance often result in poor provision of public and community infrastructure, assets and services
- Gaps in government and institutional policies, research, and capacity in embedding ecological considerations in infrastructure
- Gaps in accounting for benefits over the lifetime of an infrastructure investment and making linkages to multiple benefits

Background to the Voluntary Guidelines

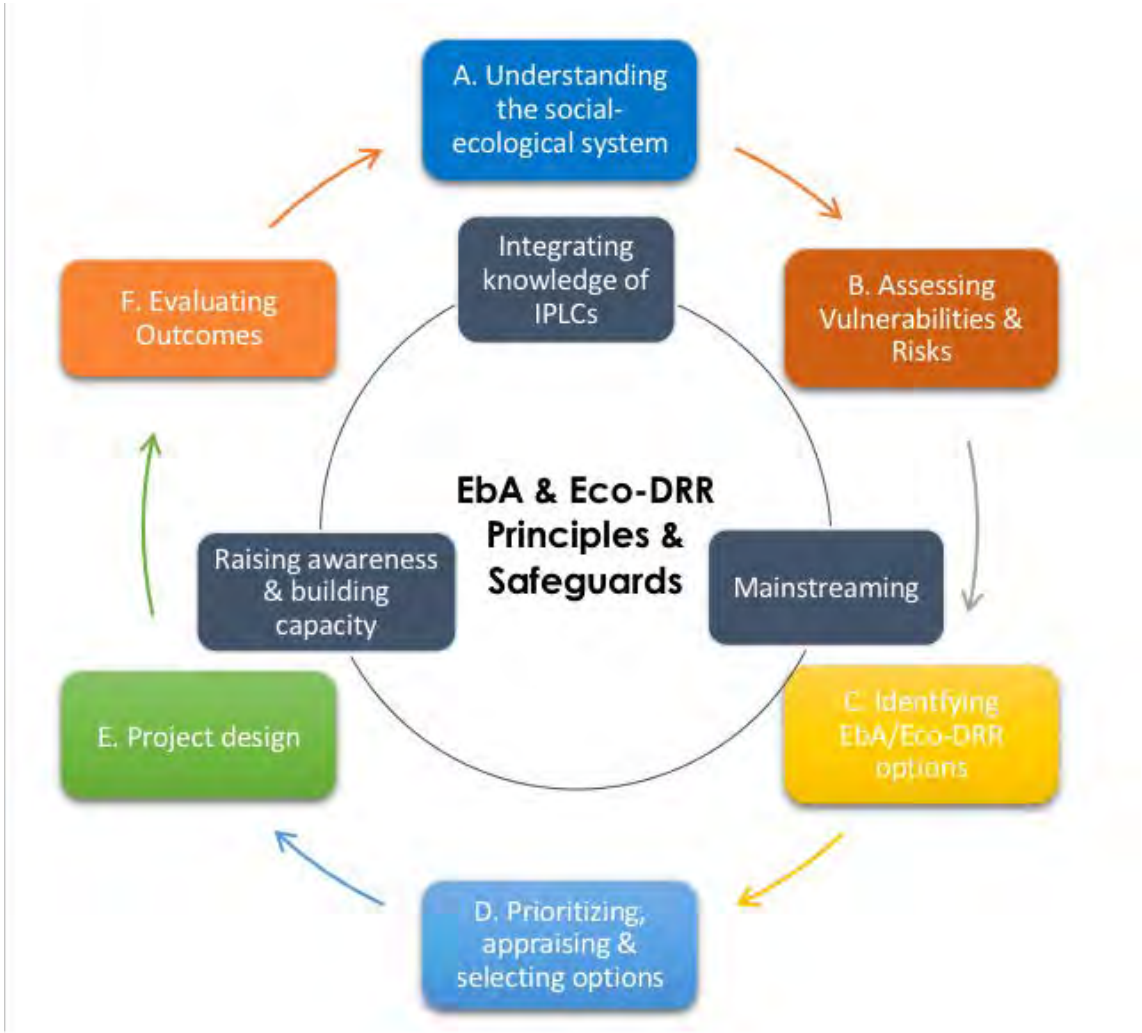
- The “voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction” have been prepared pursuant to paragraph 10 of decision XIII/4, for consideration of COP-14.

- The voluntary guidelines are intended to be used as a flexible framework for planning and implementing EbA and Eco-DRR

Background to the Voluntary Guidelines



Framework for planning & implementing EbA & Eco-DRR



Sectoral Briefs within the Voluntary Guidelines for EbA & Eco-DRR

25 YEARS Convention on Biological Diversity SAFEGUARDING LIFE ON EARTH

Section C:
Outreach into Sectors

Sectoral Briefs include:

- Information and advice on how sectors are impacted by climate change and how ecosystem based approaches can provide solutions, including practical examples, actions needed, and relevant resources.
- 'outreach products' to help government agencies 'to make the case for EbA/EcoDRR' to sector ministries by providing:
  - i) key considerations,
  - ii) arguments,
  - iii) examples, and
  - iv) recommendations.

Sectoral Briefs within the Voluntary Guidelines for EbA & Eco-DRR

25 YEARS Convention on Biological Diversity SAFEGUARDING LIFE ON EARTH

Section C:
Outreach into Sectors

- **Sectors:**
  - Development planning and public finance
  - Spatial planning
  - Agriculture
  - Humanitarian
  - Forestry
  - Water
  - **infrastructure**

Infrastructure Sector

- How physical and natural infrastructure is affected by climate change and disaster risks
- Why ecosystem-based approaches should be strengthened
- The role of indigenous and local communities to increase climate resilience of infrastructure
- Challenges and opportunities

Opportunities for aligning EbA/Eco-DRR into infrastructure developments

- Voluntary guidelines as a flexible framework for planning and implementing ecosystem-based approaches to infrastructure developments
- Synergies with Rio Conventions objectives, capitalizing on momentum from other emerging policies/frameworks
- Support governments and other project proponents by sharing data, knowledge, tools, approaches, and other mechanisms
- Seek for more strategic, proactive and systems-level approaches to infrastructure planning that ensure nature-based solutions are carefully considered and integrated across different sectors, in close connection to the SDGs.

Thank you for your attention!

Secretariat of the Convention on Biological Diversity

413 Saint Jacques Street, Suite 800
Montreal, QC, H2Y 1N9, Canada
Tel: +1 514 288 2220
Fax: + 1 514 288 6588
Email: secretariat@cbd.int
www.cbd.int

Rio Conventions PAVILION

Nature-based Solutions for Climate Change

4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Panel Inputs & Discussion

Convention on Biological Diversity

Implemented by giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

IUCN United for life and livelihoods

FEBA Friends of Ecosystem-based Adaptation

PEDRR

Supported by: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, based on a decision of the German Bundestag

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

The International Climate Initiative (IKI)

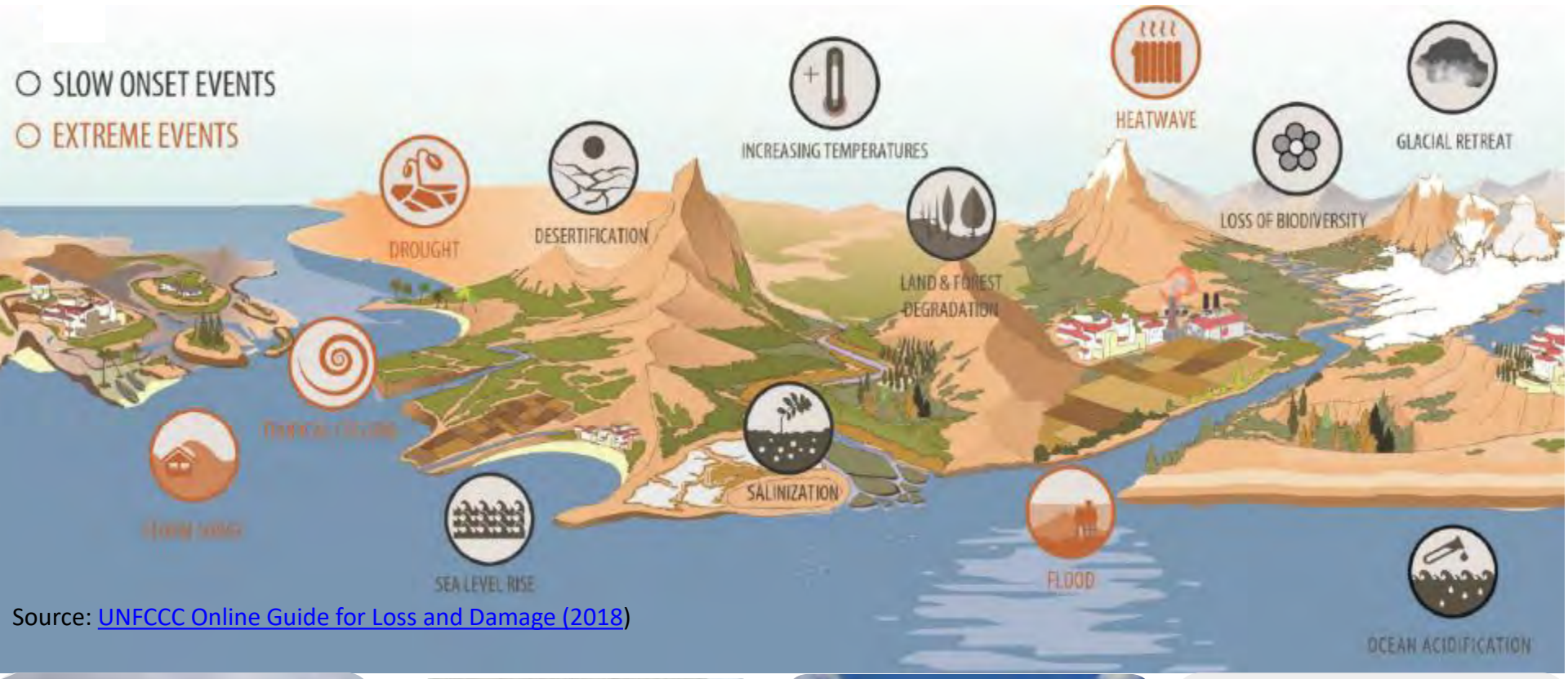
4th Ecosystem-based- Adaptation Knowledge Day – Nature-based Solutions for Climate Change

Barbara Engels (BfN) on behalf of

Division N I 4 International Coorporation on Biodiversity

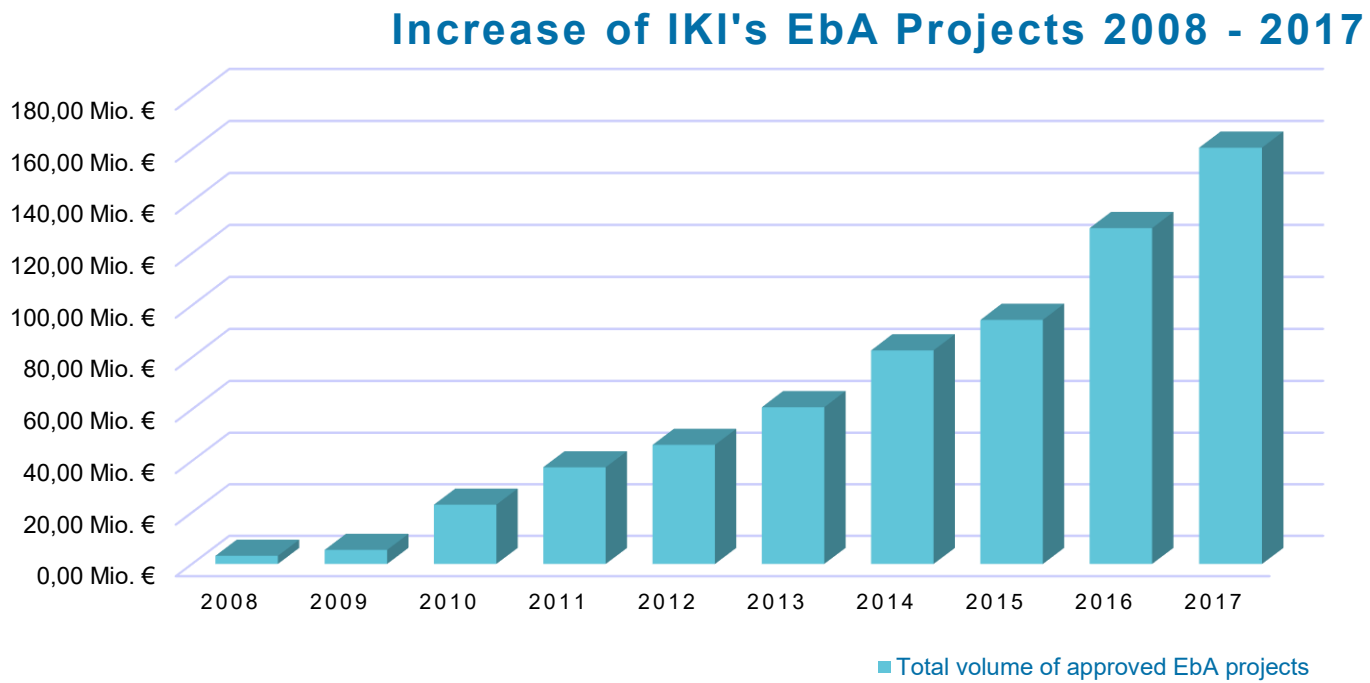
BMU

Climate Change Hazards in a Landscape



Source: [UNFCCC Online Guide for Loss and Damage (2018)]

Scaling up EbA Funding



- Current EbA portfolio: 44 projects, total volume around 170 mio. EUR

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

Project Example: Integrating natural Infrastructure into Public Investment Programmes in Peru

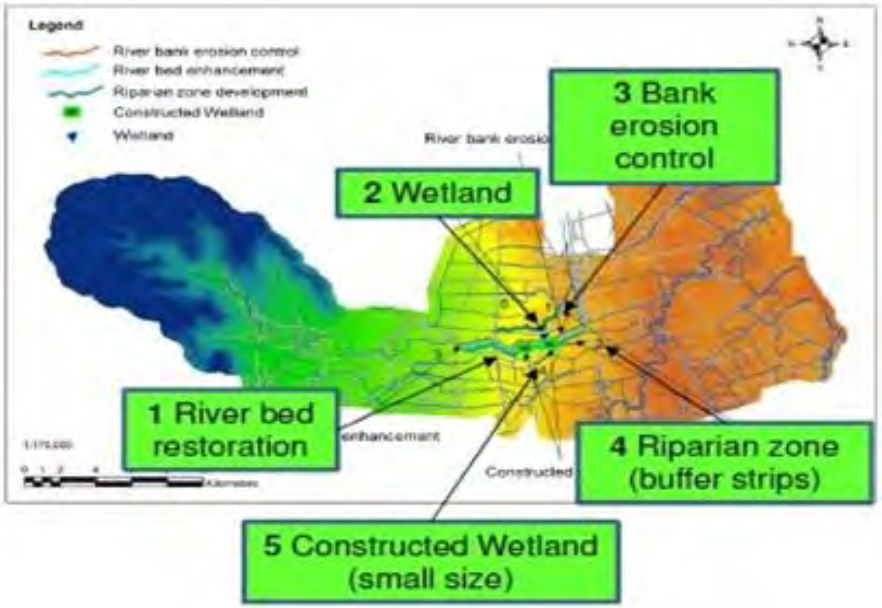
Project example: Climate Services for Climate Resilient Bridge Construction & Ecosystem-based Approaches in Costa Rica

Climate Risk Assessment

Guardia Bridge, Liberia – Costa Rica

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

Project example: Integrating EbA Solutions like the “Living Weir” into River Basin Planning in Thailand



Examples for Ecosystem-based Adaptation Measures

PANORAMA
SOLUTIONS FOR A HEALTHY PLANET

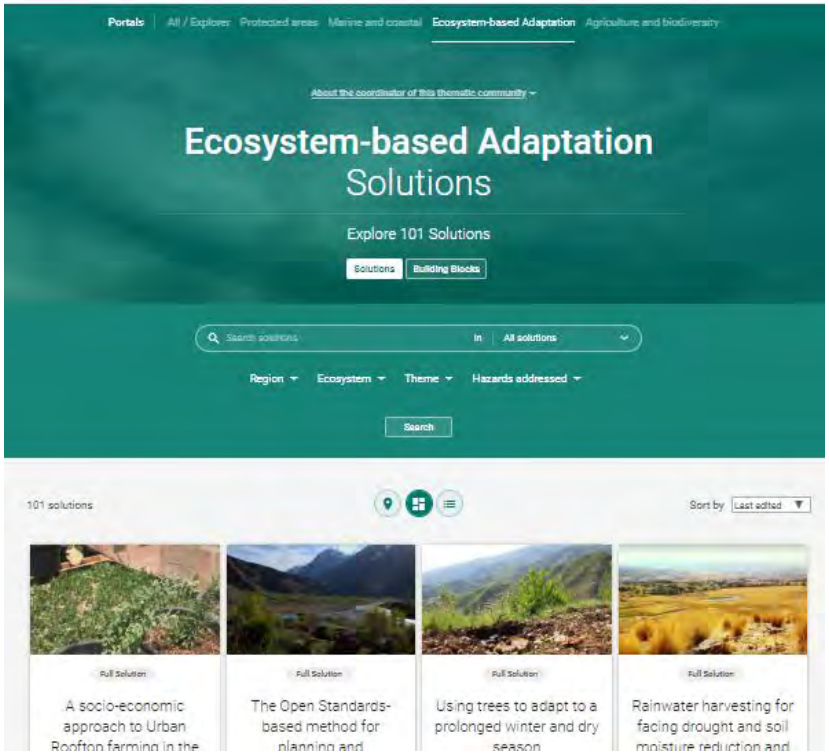
PANORAMA Partners

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
IUCN
UN environment
G·R·i·D ARENDAL A Centre Collaborating with UNEP
rare
IFOAM ORGANICS INTERNATIONAL

Development Partners

On behalf of
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
of the Federal Republic of Germany
gef

Hosted by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
giz



http://panorama.solutions

Thank you for your attention!

www.international-climate-initiative.com

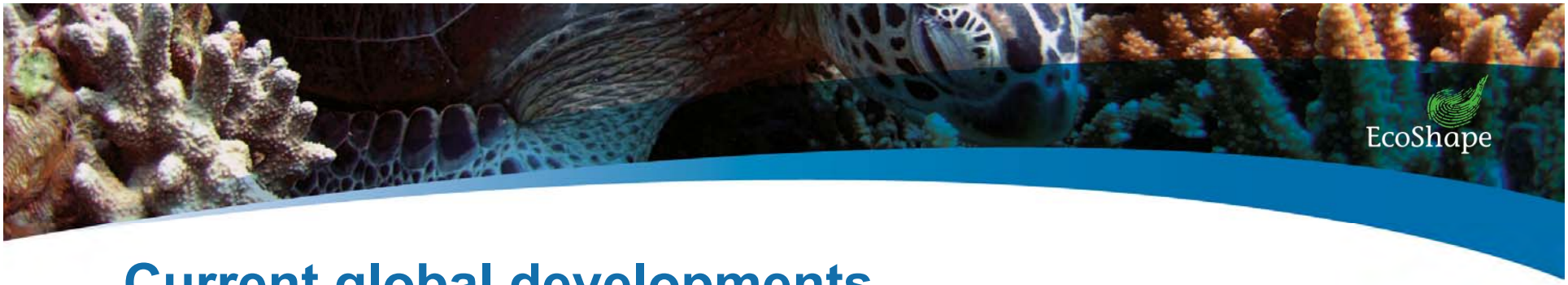
E-Mail: iki-secretariat@z-u-g.org

@iki_bmu

26 November 2018 – Sharm El-Sheikh

Tom Wilms - Witteveen+Bos partner within EcoShape

building with nature

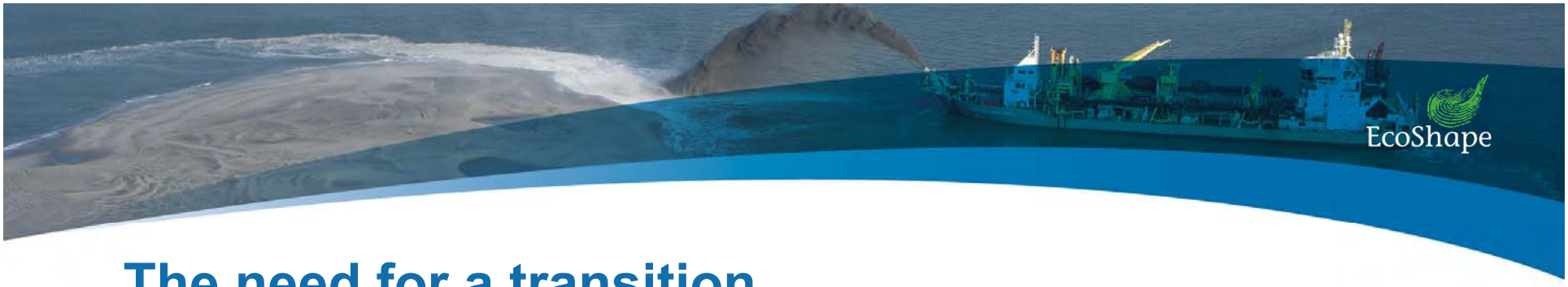


Current global developments

Current global developments

The need for a transition

Stabilization in dynamic coastal environments



The need for a transition

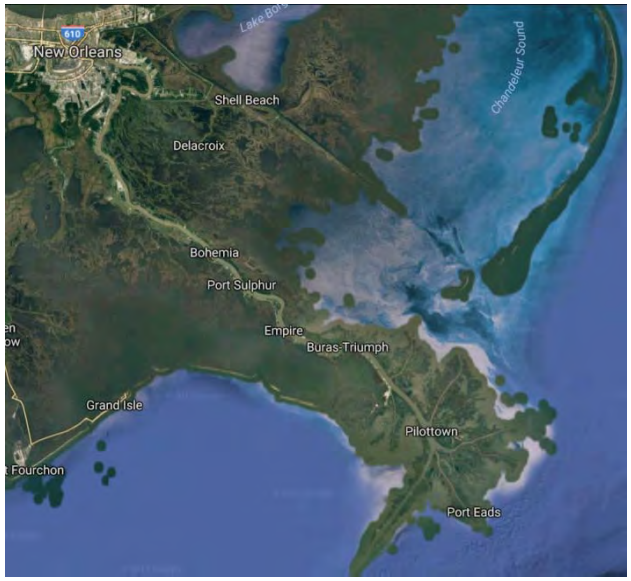
Countering erosion in muddy mangrove coasts

The need for a transition

Unsustainable harbor development

The need for a transition

Constraining rivers within dikes



Changed delta after unsustainable human intervention

Naturally shaped delta

The need for a transition

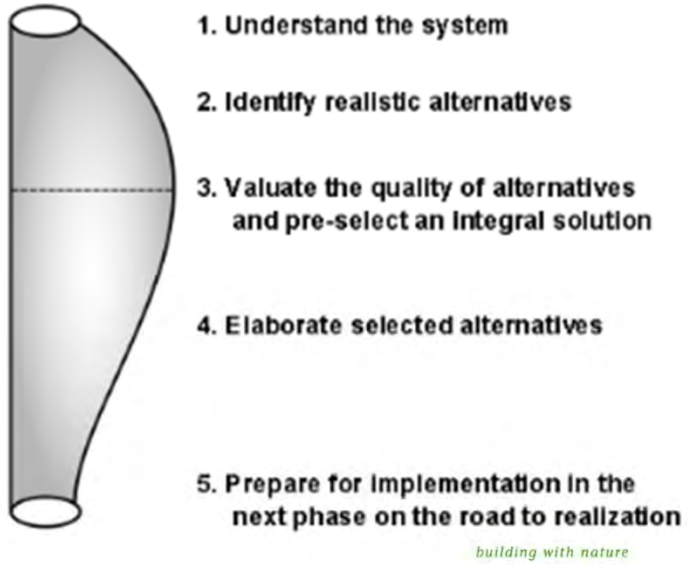
Rivers constrained in densely populated cities

Building with Nature: the concept

Developing hydraulic infrastructure:

- In harmony with the behaviour of the natural system
- By letting nature do part of the work
- In close collaboration with stakeholders and local communities
- With added value for nature, (local) economy and society

Taking 5 steps in every phase

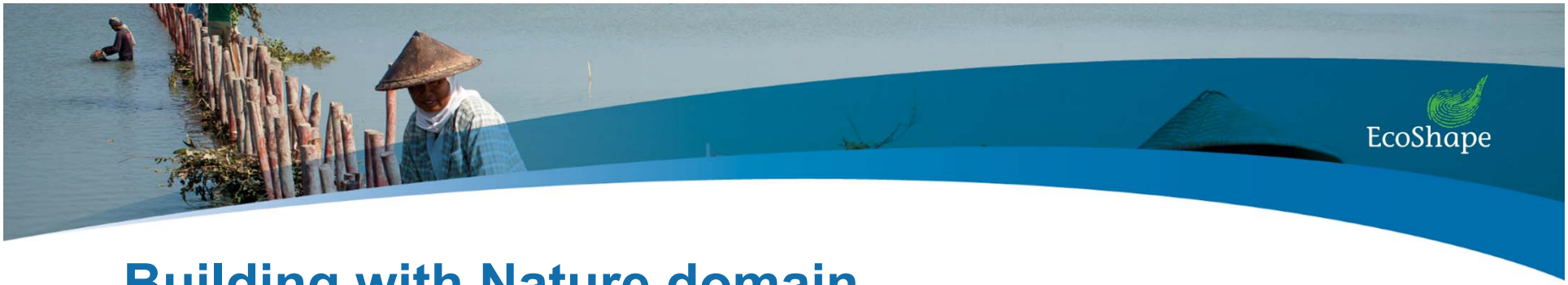


Transition

From Building *in* Nature

To Building *with* Nature

building with nature



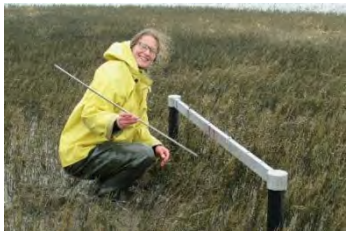
Building with Nature domain

"De Vriend et al, 2014 Journal of Hydro-environment Research"

building with nature

EcoShape Building with Nature

- Precompetitive knowledge development
- Through “learning by doing” – pilot projects
- Brings together knowledge institutes, engineering, government, contractors, NGOs
- Collaboration between environmental, social and technical sciences
- Translated into practical design guidelines
- Shared with community



building with nature

EcoShape Partners

Companies

Knowledge institutions

Dutch Diamond

NGO's

Government

Boskalis Dredging & Marine Experts
Deltares Enabling Delta Life
Alterra Wageningen UR
Witteveen+Bos
Wetlands International
NIOZ
TU Delft
Vereniging van Waterbouwers
Dordrecht
Natuurlijke klimaatbuffers
Port of Rotterdam
It Fryske Gea
Van Oord Marine ingenuity
IMARES Wageningen UR
ARCADIS Infrastructuur · Water · Milieu · Gebouwen
Royal HaskoningDHV Enhancing Society Together
HKV Lijn in Water
Wageningen University Wageningen UR
Universiteit Twente.
Ministerie van Infrastructuur en Milieu
IHC Merwede
Gemeente Harlingen
Unie van Waterschappen
provincie Zuid Holland
Europese Unie

Project Examples: Nature based flood defences

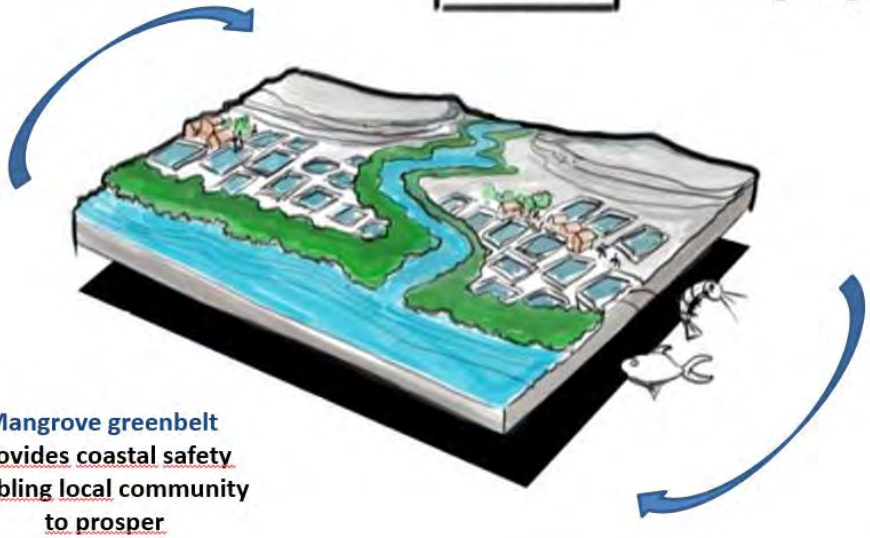
The Sand Engine*, the Netherlands*

building with nature

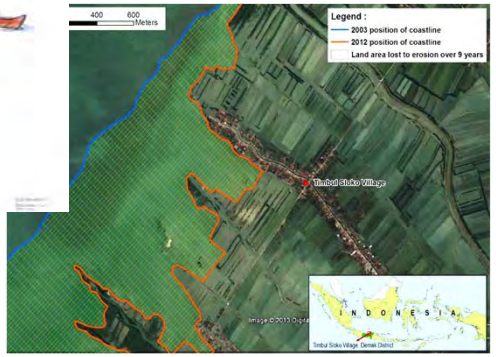
Project Examples: Ecosystem Restoration

WISE USE

A prosperous local economy enables maintenance of mangrove greenbelt



Mangrove greenbelt provides coastal safety enabling local community to prosper



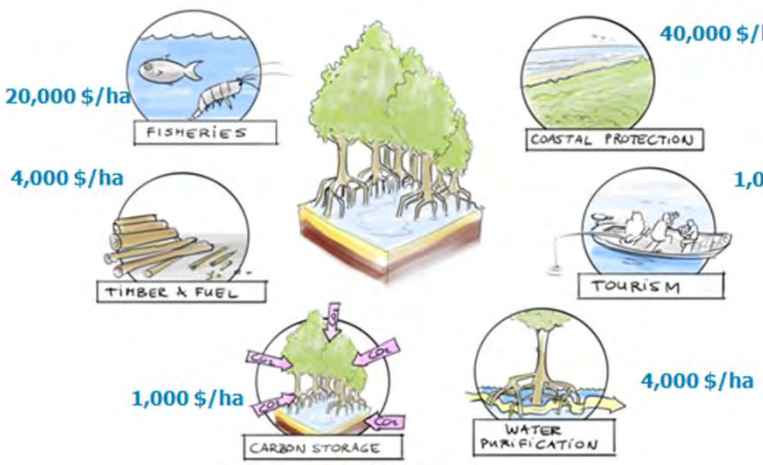
Building with Nature Indonesia - *Demak, Cental Java, Indonesia*

Key messages

Thorough system understanding and early stakeholder involvement are essential for:

- Sustainable design solutions
- Higher vital benefits
- Cost reduction
- Faster institutional process

This learning by doing
This requires from all participants
an adaptive planning cycle.



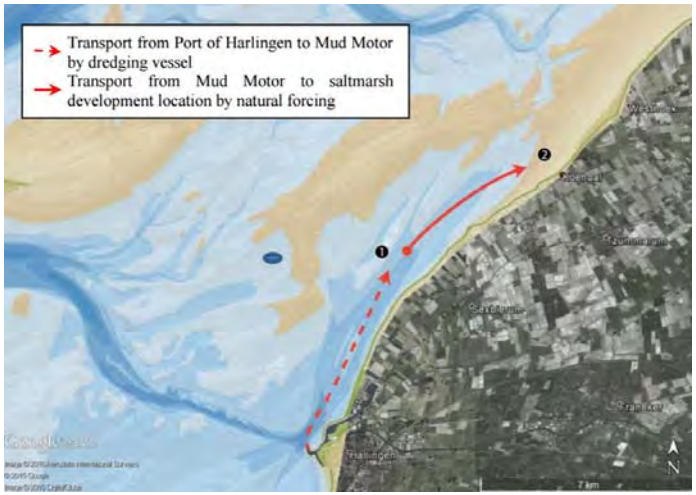
For more info visit www.ecoshape.nl

@EcoShapeBwn

EcoShape

building with nature

Project Examples: Ecosystem restoration and Sustainable harbour development



Mud motor, *Harlingen, the Netherlands*

building with nature

Project Examples: Nature based flood defences

Oyster reef, *Eastern Scheldt, the Netherlands*

Galgeplaat, *Eastern Scheldt, the Netherlands*

building with nature

Project Examples: Nature based flood defences

building with nature

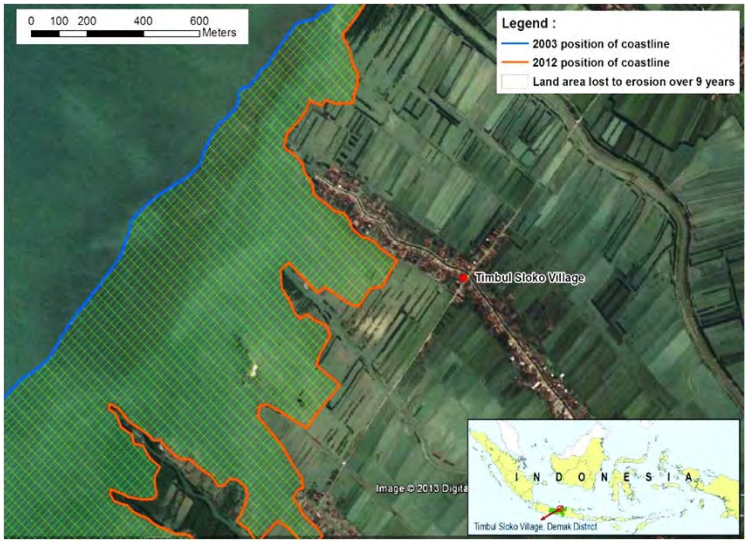
Hondsbossche and Pettemer Sea Dike, the *Netherlands*

Project Examples: Nature based flood defences

Pilot Houtribdijk, *the Netherlands*

building with nature

Project Examples: Ecosystem Restoration

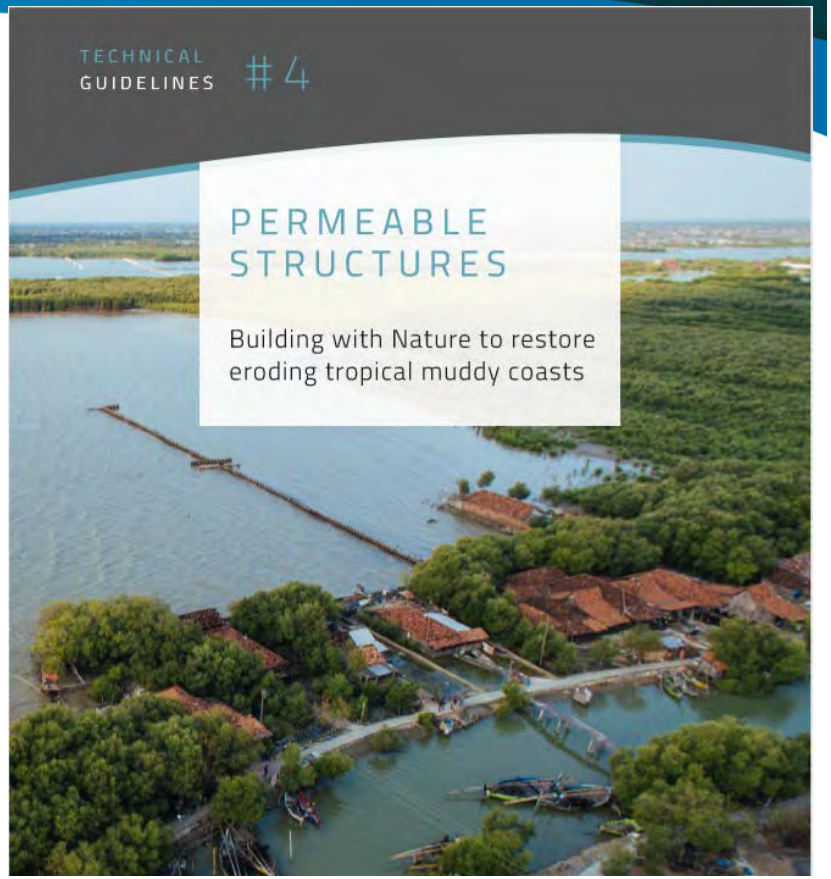


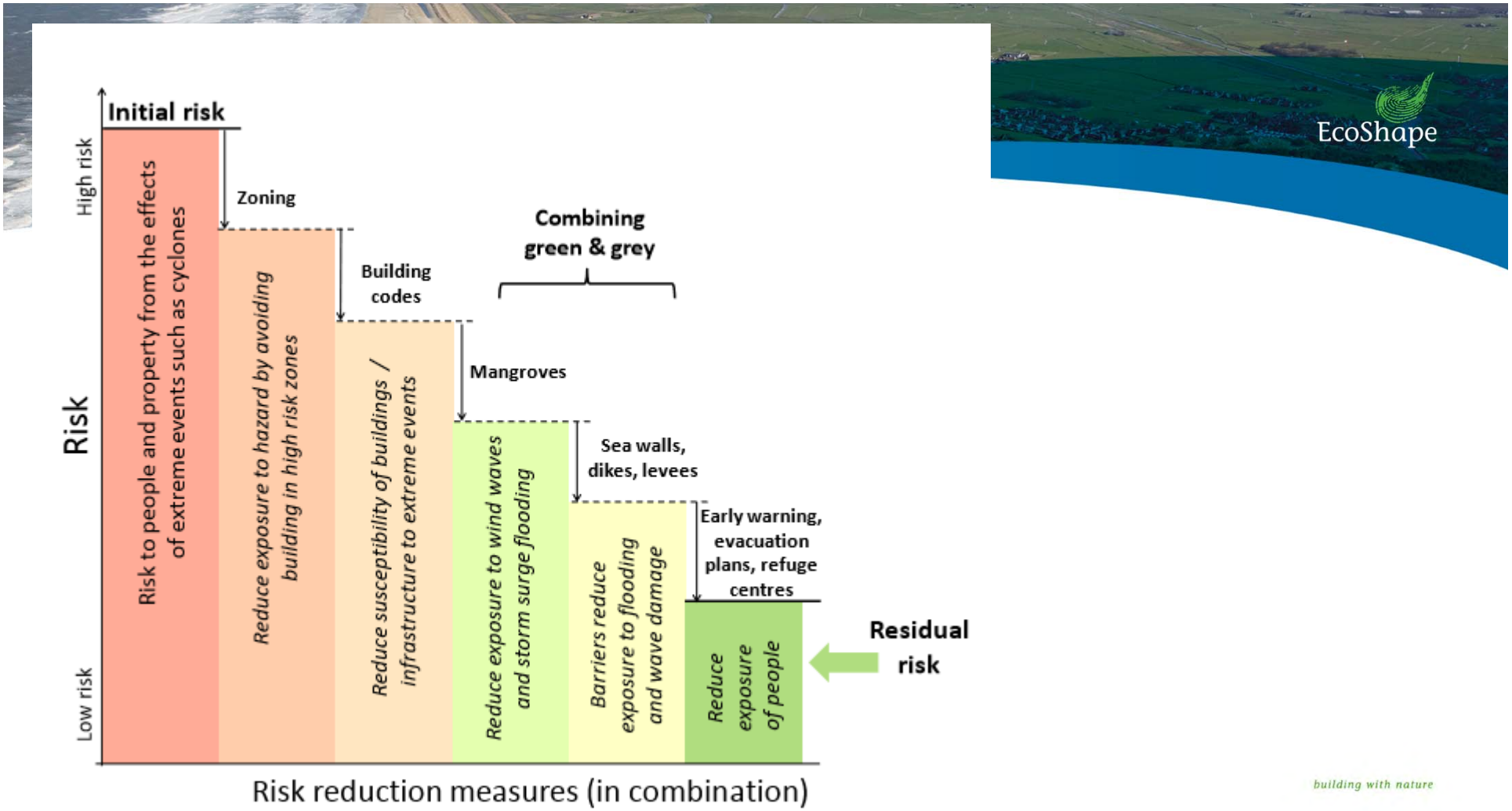
Building with Nature Indonesia, *Demak, Cental Java, Indonesia*

building with nature

Technical guidelines

1. Introduction to BwN approach
2. Systems understanding
3. Restoration Measures for silty sediment coasts (Marshes/mangroves)
4. Permeable structures
5. Ecological mangrove restoration vs mangrove planting
6. Fish pond rehabilitation through Coastal Field Schools
7. Biorights mechanism, alternative livelihoods and village planning
8. Mixed mangrove aquaculture
9. Social cost benefit analysis & business case development




EcoShape
Initial risk
High risk
Low risk
Risk
Zoning
Building codes
Combining green & grey
Mangroves
Sea walls, dikes, levees
Early warning, evacuation plans, refuge centres
Residual risk
Risk to people and property from the effects of extreme events such as cyclones
Reduce exposure to hazard by avoiding building in high risk zones
Reduce susceptibility of buildings / infrastructure to extreme events
Reduce exposure to wind waves and storm surge flooding
Barriers reduce exposure to flooding and wave damage
Reduce exposure of people
Risk reduction measures (in combination)
building with nature

Rio Conventions PAVILION

Nature-based Solutions for Climate Change
4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Holistic green-grey infrastructure planning:
Policy entry points and governance structures

CBD-CoP 14

Sharm el Sheik, Nov. 2018

Dr. Thora Amend

conservation & development

Convention on Biological Diversity

Implemented by giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

IUCN United for life and livelihoods

FEBA Friends of Ecosystem-based Adaptation

PEDRR

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

based on a decision of the German Bundestag

Nature-based solutions to enhance resilience

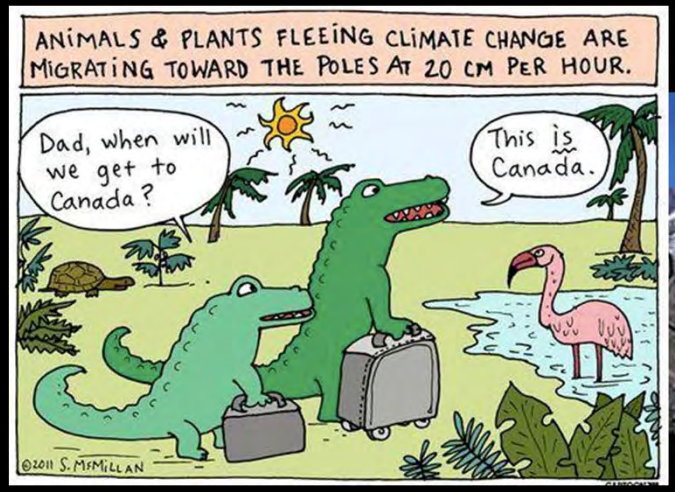
Different settings and dynamics: slow onsets or extreme events

slow onsets

Desertification,
Land degradation,
Salinization

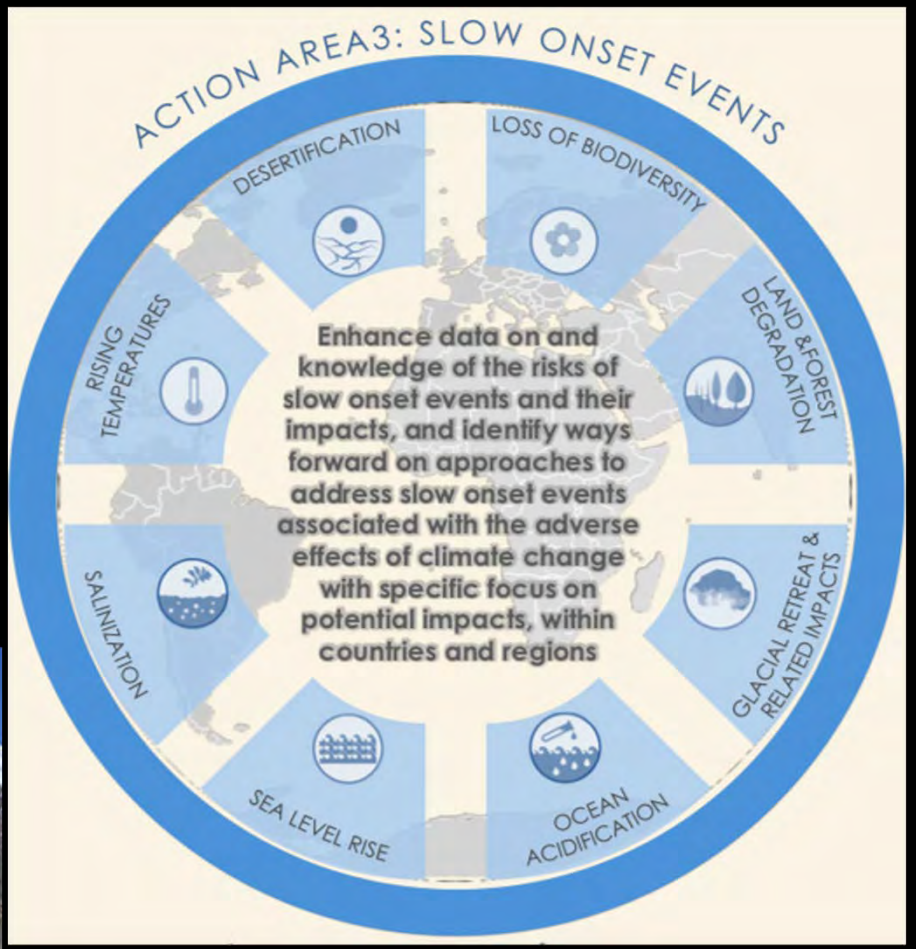
Sea level rise

Biodiversity loss



Glacial retreat

How to mainstream Ecosystem based approaches into sector strategies to combat slow-onset?



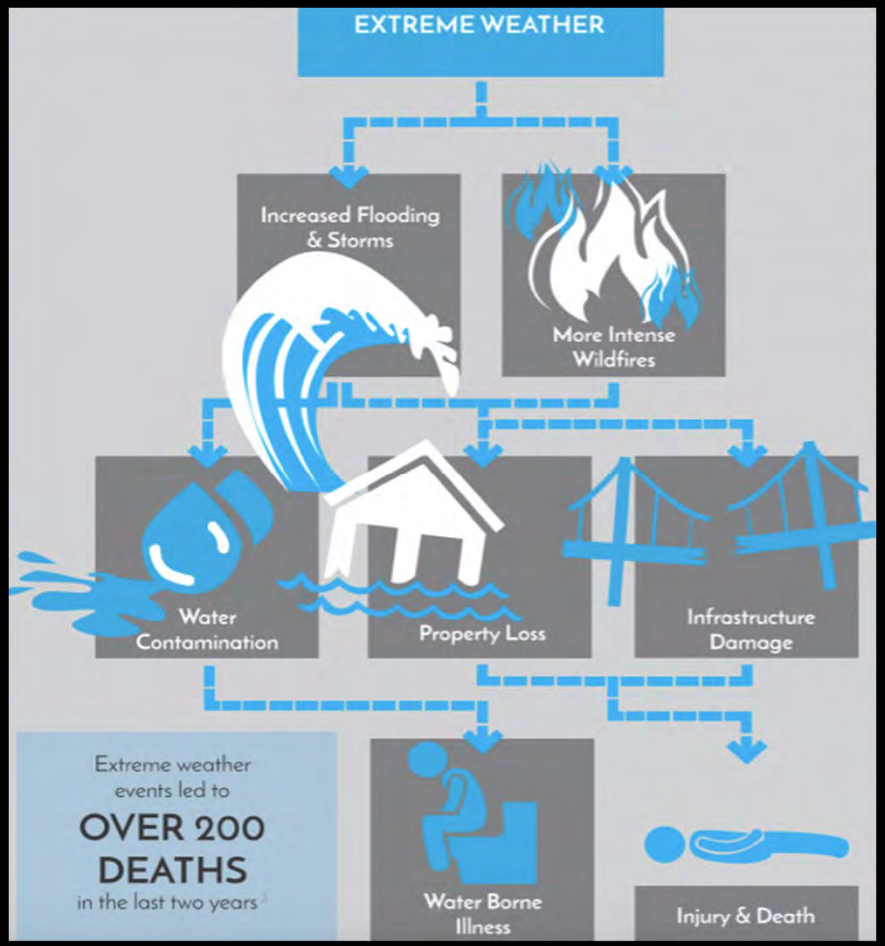
Source: UNFCCC, 2016
https://unfccc.int/sites/default/files/ld_poster_1_2016-05-02.pdf

Nature-based solutions to enhance resilience

Different settings and dynamics: slow onsets or extreme events

extreme events

How to mainstream ecosystem-based approaches into disaster risk reduction strategies ?



Modified from: climate Nexus, 2018
https://climatenexus.org/climate-issues/health/public-health-impacts-of-extreme-weather/

floods

Storms

wildfires

Nature-based solutions to enhance resilience

Ecosystem-based adaptation (EbA)

in the context of an overall adaptation strategy

Nature-based solutions examples

Full solution available on www.panorama.solutions

Mainstreaming of ecosystem-based solutions

Amend, UNDP 2016

Mainstreaming refers to the integration of (adaptation / risk reduction) objectives, strategies, policies, measures and operations so that they become part of the national and regional development policies, processes and budgets at all levels and stages.

It aims to enhance the effectiveness, efficiency, and longevity of initiatives directed at reducing climate-related risks, while at the same time contributing to sustainable development and improved quality of life.

→ mainstreaming of ecosystem-based solutions into local, municipal and national processes, as well as sector strategies, is relevant for increasing the resilience of people and ecosystems to changing climatic conditions

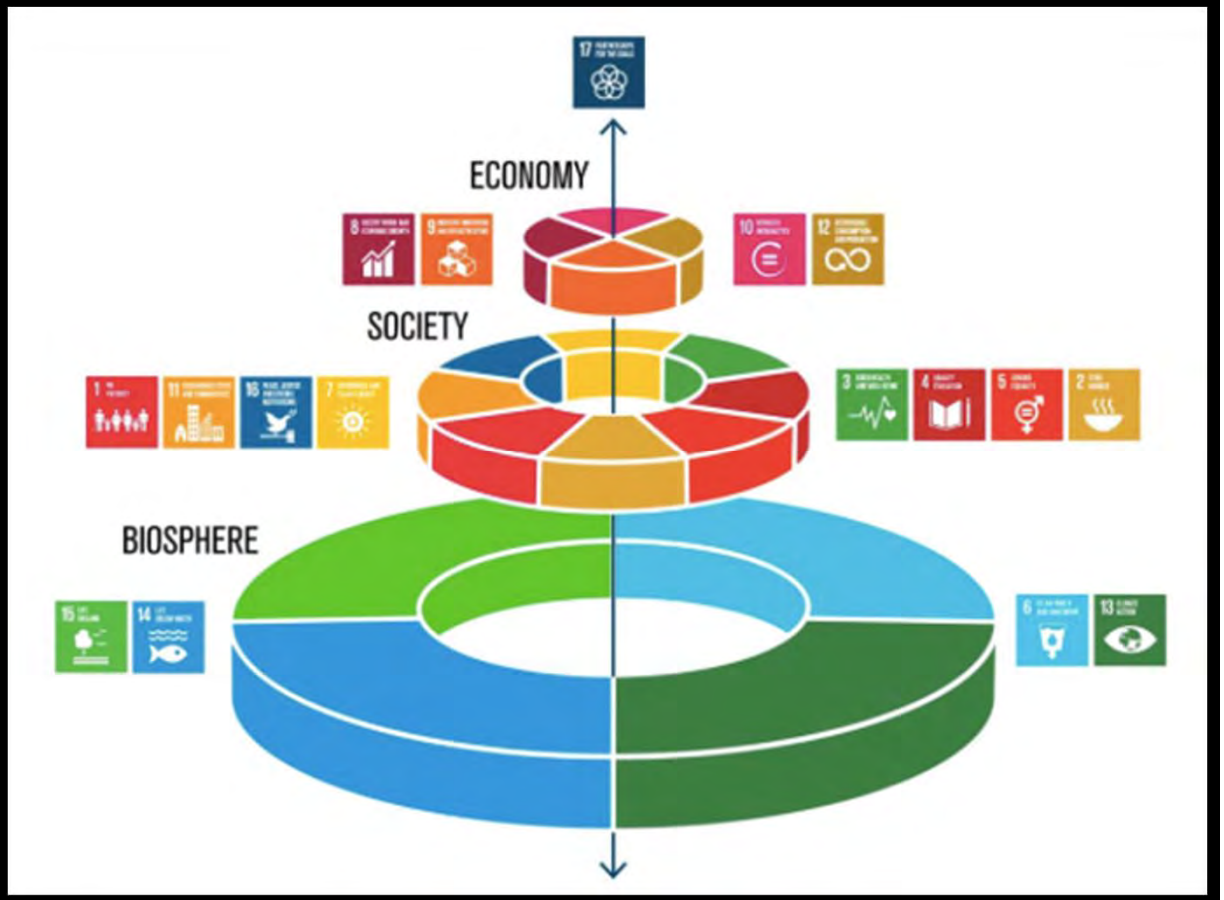
Natural solutions
for climate change adaptation + disaster risk reduction

- countries are starting to create **synergies**: alignment with SDG and other processes & policies / conventions
- >> offers still more potential for **alignment** with national and international agendas and financing mechanisms (e.g. green climate fund)

WB report 2017:

Climate change is a cross-cutting development issue that affects every aspect of sustainable development and the entire 2030 Agenda

Scaling up climate action is essential for achievement of the Sustainable Development Goals



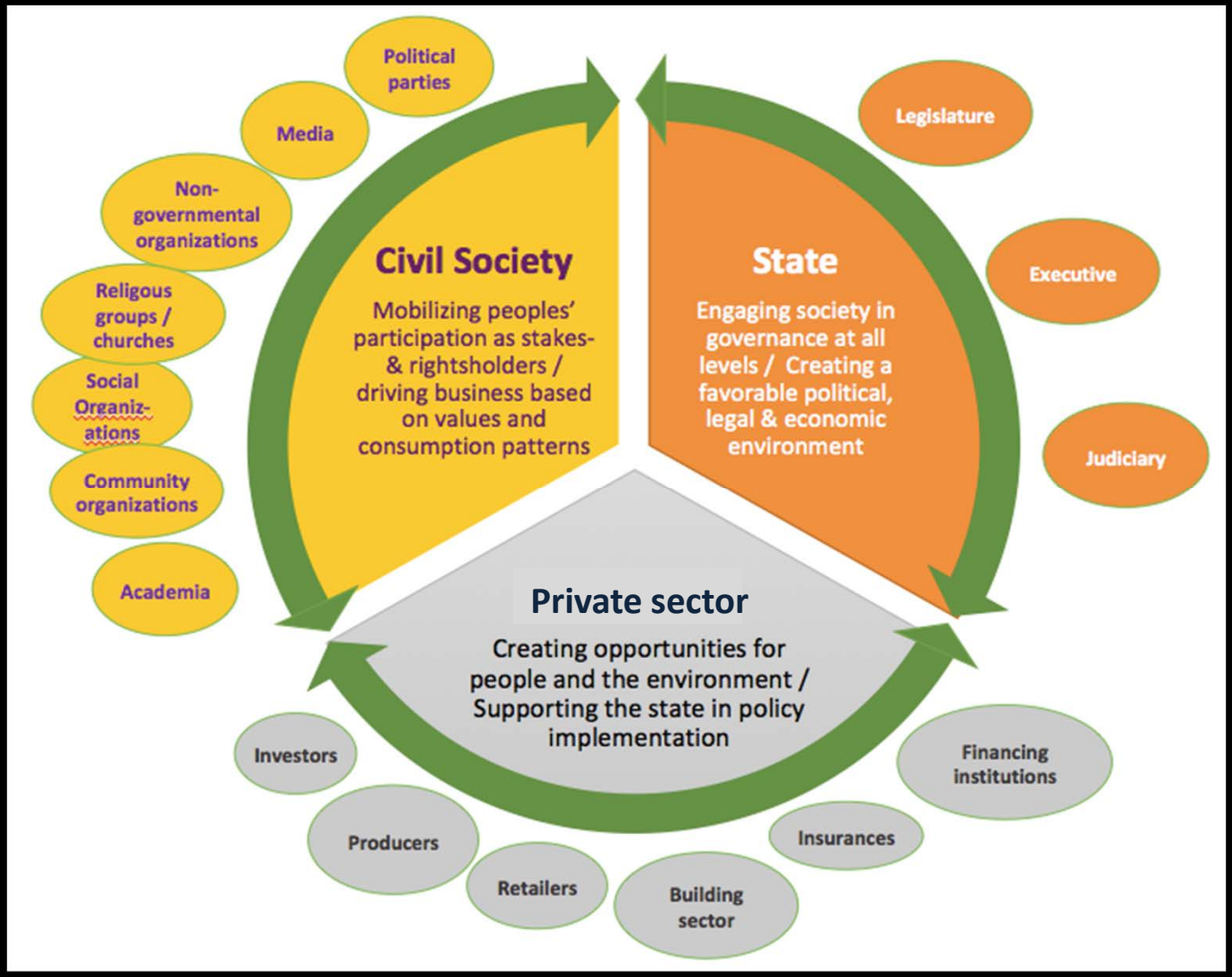
SRC & World Bank, 2017

http://www.stockholmresilience.org/research/research-news/2016-06-14-how-food-connects-all-the-sdgs.html

Natural solutions
for climate change adaptation + disaster risk reduction:

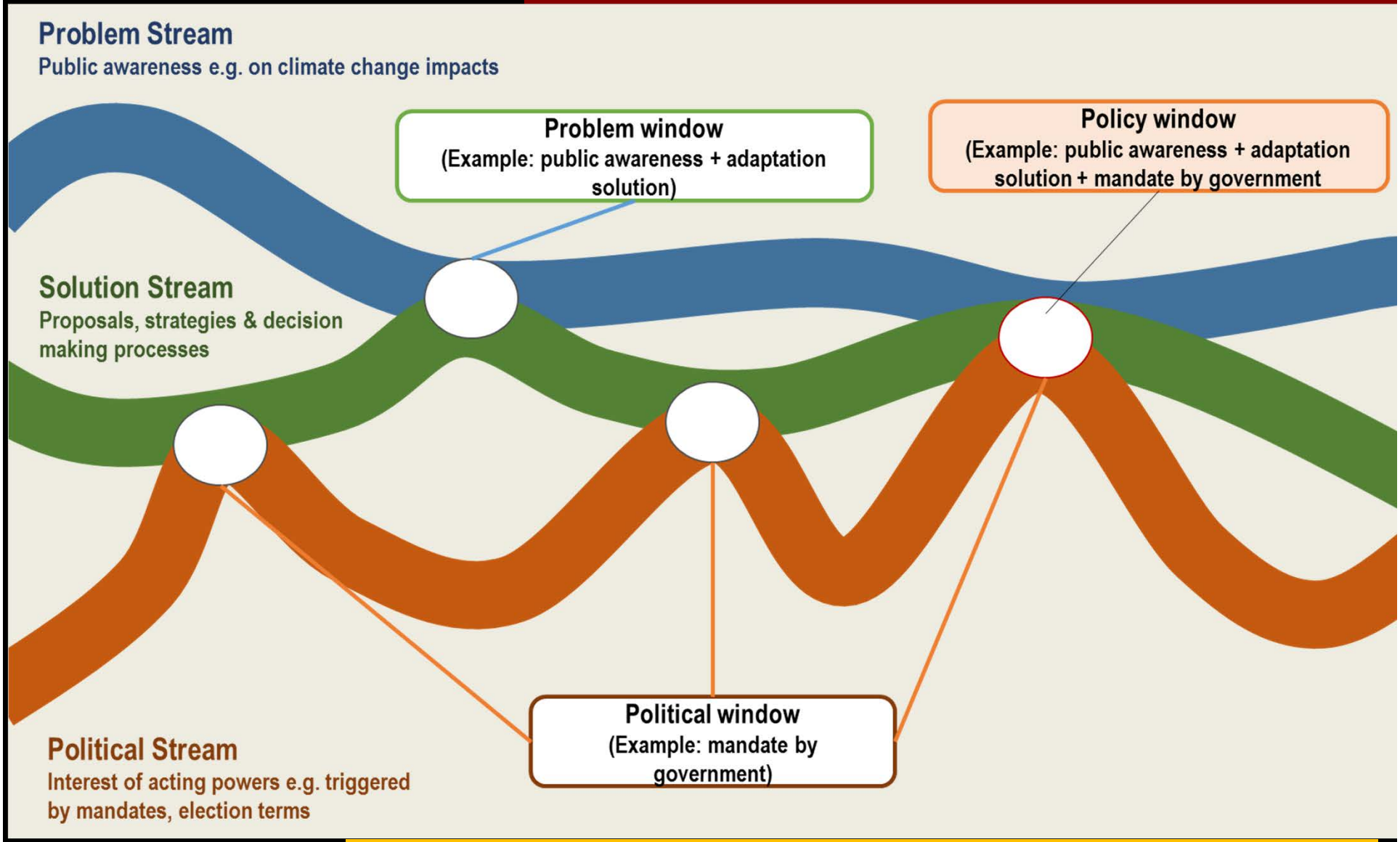
Governance means more than government!

Diversity = operation of 3 key actors



Source: GIZ-EbA, 2018, in: CBD / SBSTTA 2018

Analyzing Entry Points for EbA - Approach



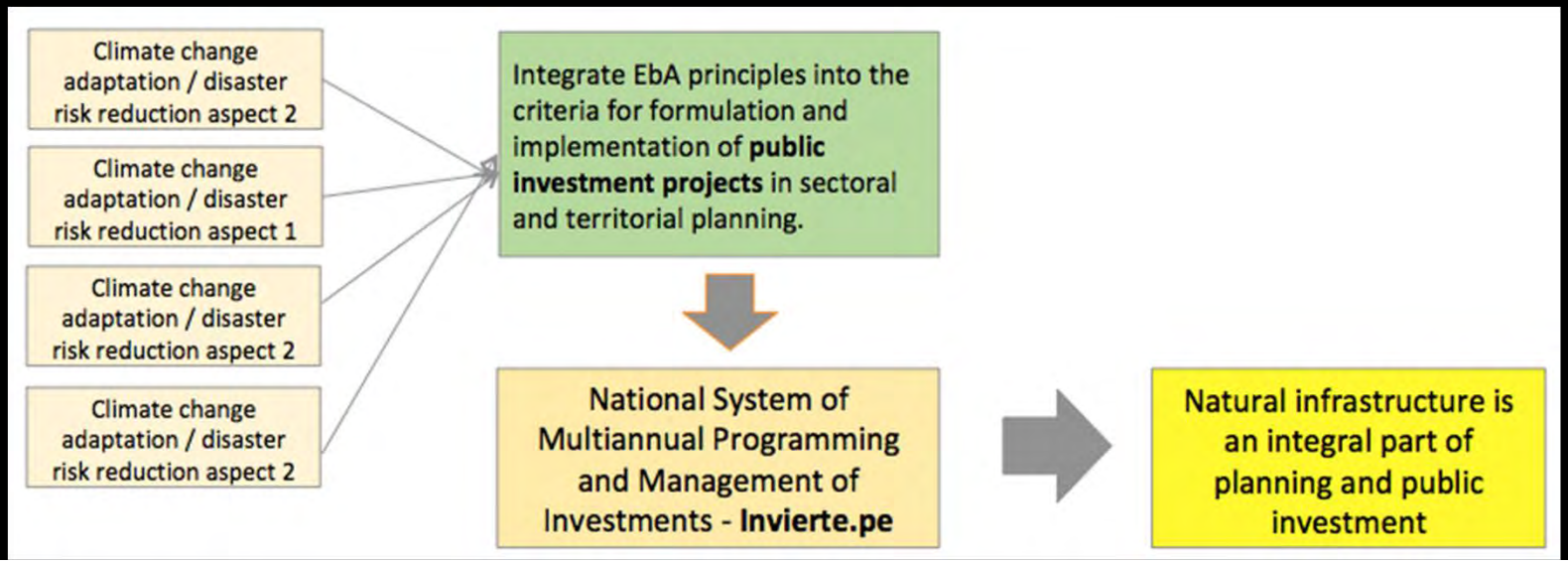
"Entry points" = windows of opportunity to influence decision-making and support change. They may occur at all levels of governance.

Example Peru – Integration of EbA in Public Investment System

✓**Problem Stream:** High awareness on climate change & El Nino impacts & ecosystem services and its values (esp. hydrological services)

✓**Solution Stream:** Regulatory and planning framework (Climate Change Law, NDC, NAP, Reform of Investment System) & adaptation options (e.g. ecosystem restoration)

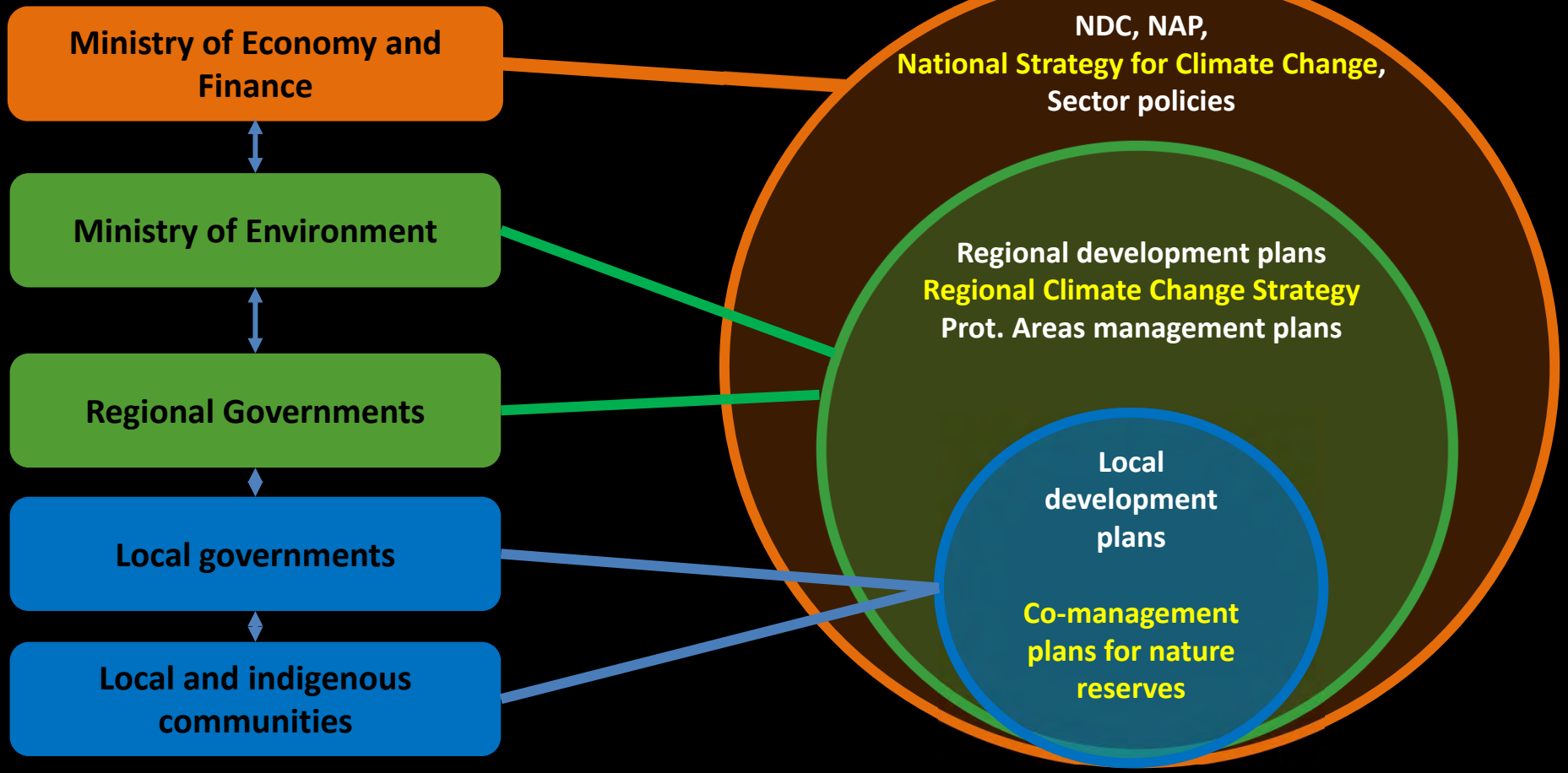
✓**Political Stream:** Clear demand from regional and local governments for solutions & political leadership by MINAM & MEF



Governance Opportunities - Example Peru

Key actors
National, Regional and Local scales

Policy and planning instruments at national, regional and local scales



Diversity of Governance - Conclusions

- ✓ In most cases, EbA is still **driven by environment sector**, mainly **state agencies**
- ✓ Discussions on **diversity of actors** are only starting.
- ✓ **Quality of governance** is not yet a topic in most EbA constellations

Basic questions to be asked:

(quality of governance, motivation of actors)

- How does cooperation in EbA projects work?
- What are roles and mandates?
- How are decisions taken?
- Who is accountable?
- Who bears the costs, who gets the benefits of an EbA measure?
  - > equity in procedures, resource distribution, and recognition of rights

- What maintains the interest of the partners in nature-based solutions or mainstreaming of ecosystem-based approaches?

Enabling factors

&

for EbA mainstreaming

Barriers

Enabling factors		Barriers
✓ Leadership at national & sector levels with political power to allocate domestic funds for promotion of EbA. ✓ Building partnerships through national dialogues and mechanisms for intersectoral collaboration on climate change.	Institutional framework	❖ Difficulty in finding a common language, methodologies and tools for EbA. ❖ Overlap of institutional mandates at national, regional and local scale.
✓ Established coherent policy framework for climate change and nature conservation. ✓ Guidelines for public project investments promote green infrastructure.	Policy framework	❖ Limited horizontal and vertical coherence of policies. ❖ Implementation of the Regional Strategies on Climate Change and articulation with other policies.
✓ Capacity building program on climate change is institutionalized and provides tailored trainings for local public officials on integrating EbA in development planning.	Awareness and capacity	❖ Limited technical capacity of national institutions to specifically support the evaluation and implementation of EbA initiatives.

Lessons learnt from EbA implementation

- EbA is a **people oriented concept** actively using nature-based solutions to reduce vulnerability.
- Effective EbA requires a **systemic ‚landscape/seascape' view across different sectors**.
- EbA is **a process** and needs to be integrated into existing policies, strategies and decision making processes.
- The EbA elements are **not entirely new**, but linked with other similar approaches (landscape approach, CBA, DRR, CBNRM).
- New elements are: **addressing current and future climate risks with nature based solutions**.
- **You don't have to call it ‚EbA'!**









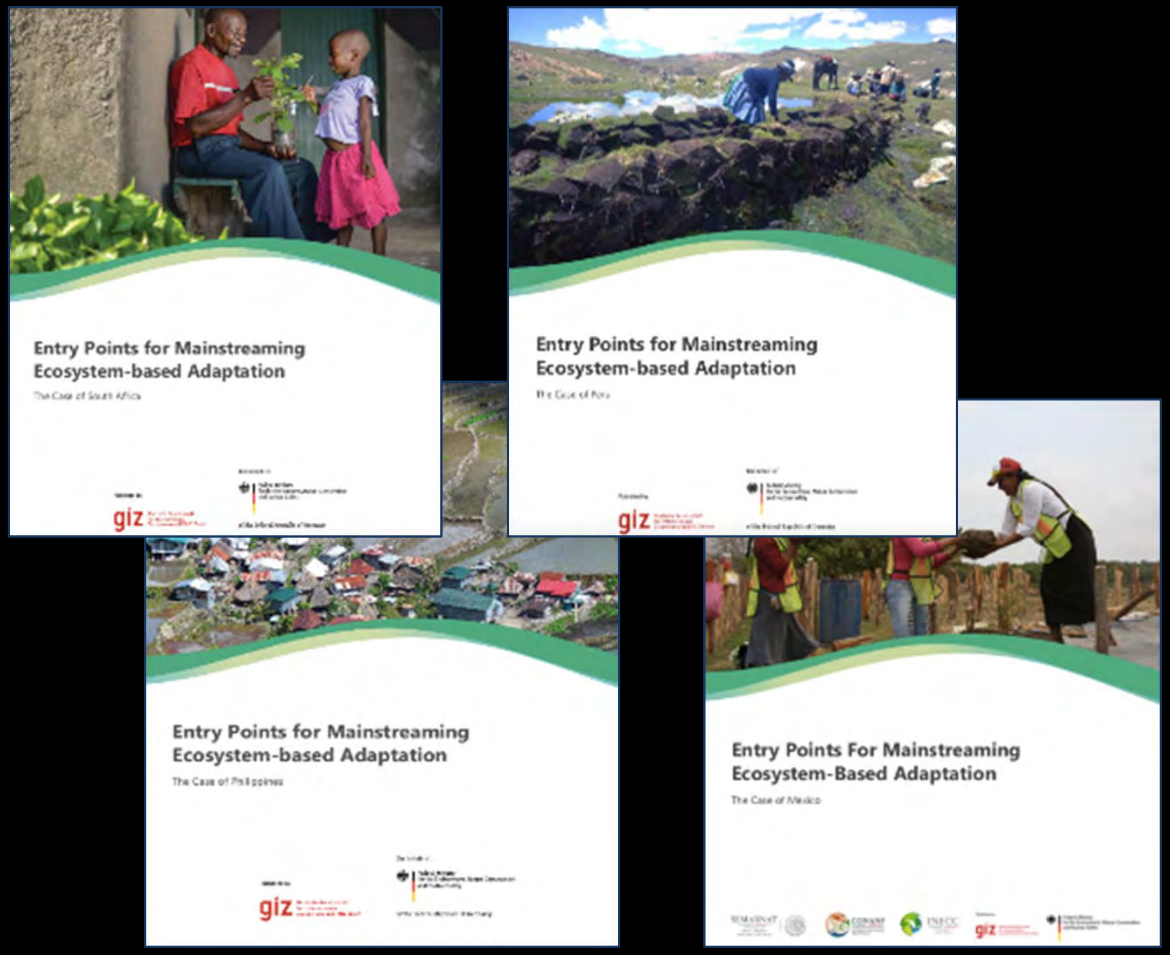
AdaptationCommunity.net

Publications

Entry points for EbA mainstreaming

GIZ, 2018

Country reports (South Africa, Philippines, Peru, Mexico)



Study coordinator: Dr. Thora Amend

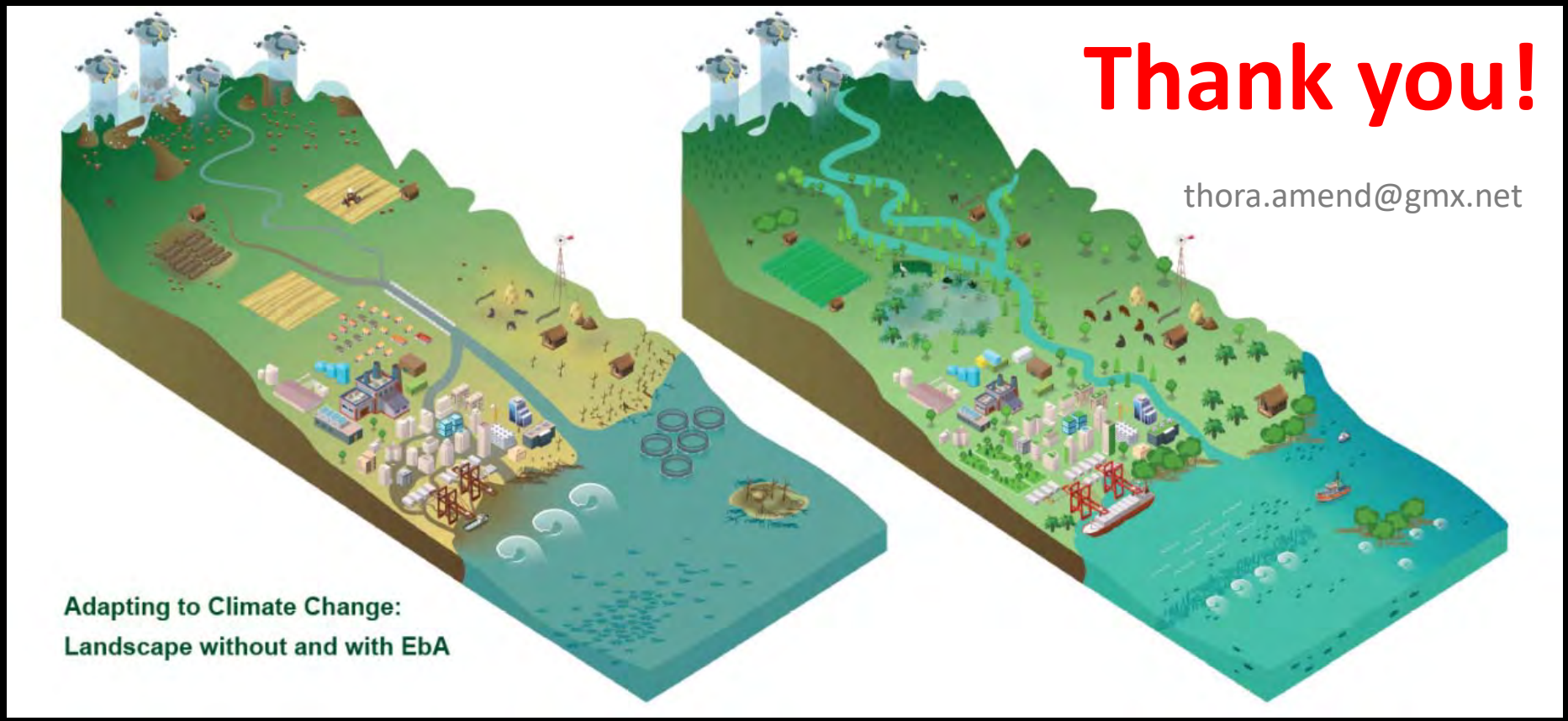
Mexico: Alejandra Calzada
Peru: Dr. Lili Ilieva
Philippines: Emma Ruth Ramos
Vietnam: Ha Huong, Kathleen Schepp
South Africa: Dr. Tony Knowles, Christie Bragg

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Access to all publications on-line

Natural solutions
for climate change adaptation + disaster risk reduction:

> make our sea- and landscapes as well as people and their infrastructure more resilient!



Thank you!

thora.amend@gmx.net

Source: GIZ, 2018

Rio Conventions PAVILION

Nature-based Solutions for Climate Change
4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Green Infrastructure

Greening Infrastructure

Challenges and opportunities to address interactions and avoid or minimize trade-offs between biodiversity and infrastructure

Oscar Guevara

Climate Adaptation Specialist
WWF
WCPA

WWF

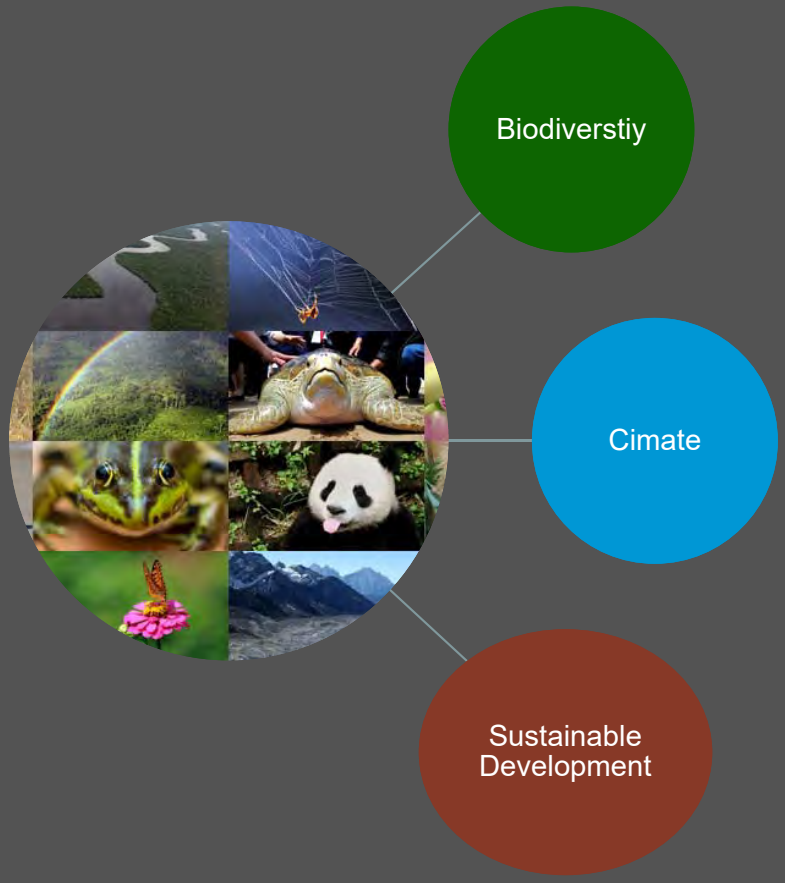
Biodiversity conservation and infrastructure development

IUCN WCPA

New Deal for Nature

Climate change, Sustainable development, water, land use and biodiversity present one integrated challenge that requires a unified response

An integrated global approach for putting biodiversity loss and nature restoration at the top of the global agenda



Convention on Biological Diversity

PARIS2015 UN CLIMATE CHANGE CONFERENCE COP21·CMP11

SUSTAINABLE DEVELOPMENT GOALS

Rio Conventions PAVILION

Nature-based Solutions for Climate Change
4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

CONVENTION ON BIOLOGICAL DIVERSITY

CBD/COP/14/WG.2/CRP.11
20 November 2018

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Fourteenth meeting
Sharm El-Sheikh, Egypt, 17-29 November 2018
Agenda item 22

MAINSTREAMING OF BIODIVERSITY IN THE ENERGY AND MINING, INFRASTRUCTURE, MANUFACTURING AND PROCESSING SECTORS

Draft decision submitted by the Chair of Working Group II

Convention on Biological Diversity

Distr.
GENERAL

CBD/SBSTTA/21/INF/11
8 November 2017

ENGLISH ONLY

SUBSIDIARY BODY ON SCIENTIFIC,
TECHNICAL AND TECHNOLOGICAL ADVICE
Twenty-first meeting
Montreal, Canada, 11-14 December 2017
Item 6 of the provisional agenda*

BIODIVERSITY AND INFRASTRUCTURE: A BETTER NEXUS?

POLICY PAPER ON MAINSTREAMING BIODIVERSITY CONSERVATION INTO THE INFRASTRUCTURE SECTOR FOR THE TWENTY-FIRST MEETING OF THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE

WWF

Biodiversity conservation and infrastructure development

IUCN WCPA WORLD COMMISSION ON PROTECTED AREAS

Greening Infrastructure

What infrastructure services provided by natural ecosystems

- Contain flooding
- Air and water regulation
- Air and water purification
- Prevent soil erosion
- Regulate and lower noise
- Reduce oscillations between floods and droughts
- Increase real estate values
- Reduce spending on human health
- Provide for recreation
- Enhance productivity
- Provide for education and R&D
- Create greener jobs
- Lower fire hazards regulation
- Control air, soil and water pollution
- Defend coastlines
- Lower soil erosion

Reference: CBD/SBSTTA/21/INF/11

Biodiversity conservation and infrastructure development plans have to intertwine throughout the infrastructure development cycle through:

- Assessment of infrastructure needs
- Integrated master planning at the appropriate scale
- Environmental and social safeguards
- Procuring and contracting
- Financing
- Construction
- Operation
- Decommissioning

Reference: CBD/SBSTTA/21/INF/11

Green Infrastructure

Rio Conventions PAVILION

Nature-based Solutions for Climate Change

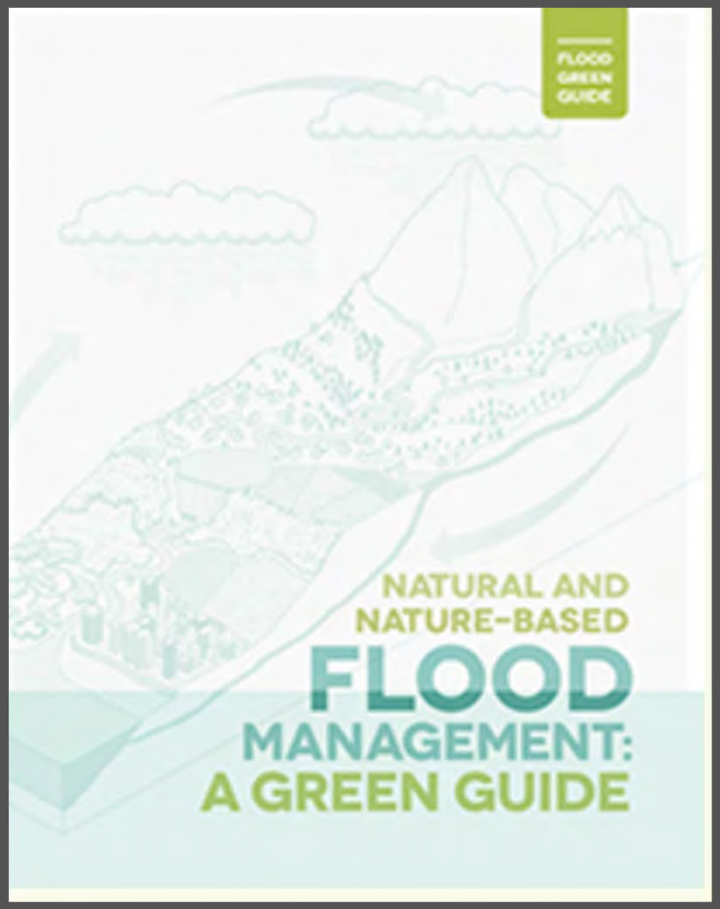
4th Ecosystem-based Adaptation Knowledge Day

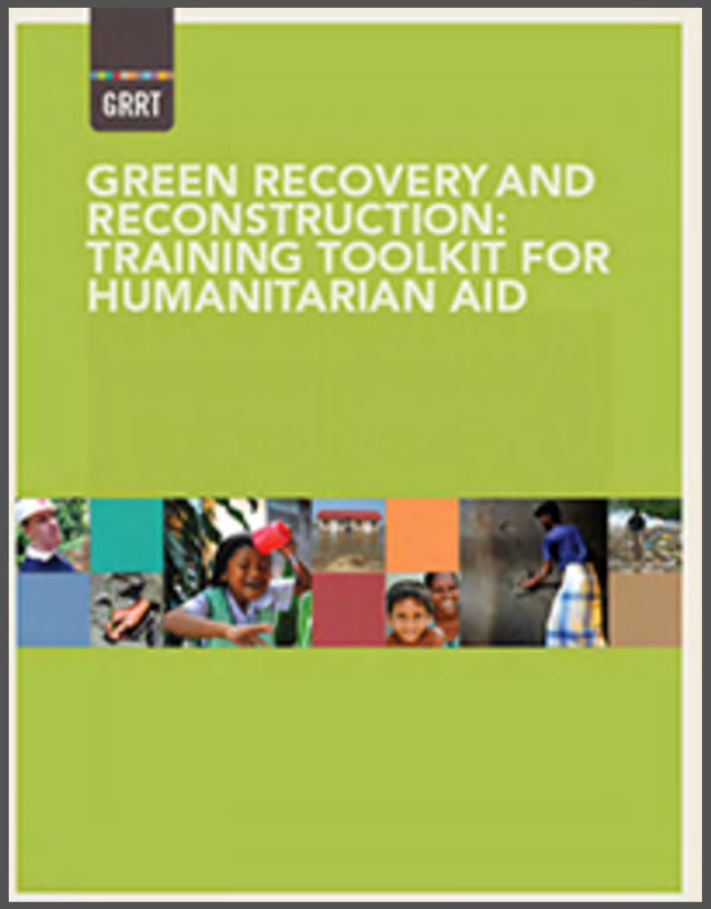
UN BIODIVERSITY CONFERENCE

Biodiversity conservation and infrastructure development

WWF

IUCN WCPA WORLD COMMISSION ON PROTECTED AREAS


FLOOD GREEN GUIDE
NATURAL AND NATURE-BASED
FLOOD MANAGEMENT: A GREEN GUIDE


GRRT
GREEN RECOVERY AND RECONSTRUCTION: TRAINING TOOLKIT FOR HUMANITARIAN AID

Rio Conventions PAVILION

Nature-based Solutions for Climate Change

4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Natural & Nature-based Flood Management: A Green Guide

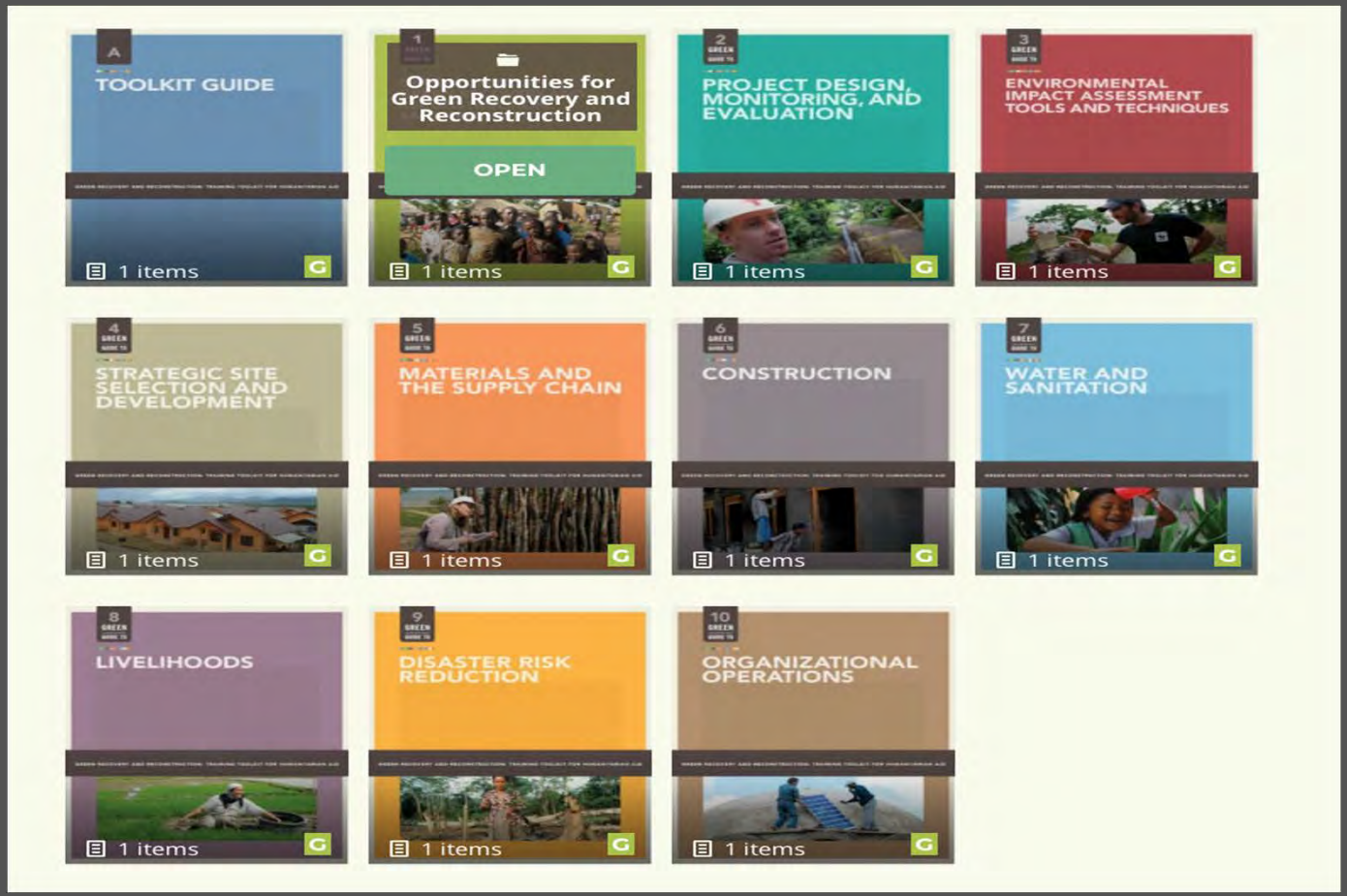
The Flood Green Guide and training program supports local communities' flood management efforts using an integrated watershed approach

.

WWF

Biodiversity conservation and infrastructure development

IUCN WCPA



Green Recovery & Reconstruction: Training Toolkit for Humanitarian Aid:

A training program designed to increase awareness and knowledge of environmentally responsible disaster response approaches.

.

Rio Conventions PAVILION

Nature-based Solutions for Climate Change
4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

MINAMBIENTE | MINTRANSPORTE | WWF

Colombia´s Green Road Infraestructure Guidelines

1. Planning and Sectorial Policy

2. Pre-feasibility, Feasibility stage (Phase 1,2,3)

3. Construction, operation and maintenance.

WWF

Biodiversity conservation and infrastructure development

IUCN | WCPA

Rio Conventions PAVILION

Nature-based Solutions for Climate Change
4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Oscar Guevara

Climate Adaptation Specialist
WWF
WCPA

WWF

IUCN WCPA WORLD COMMISSION ON PROTECTED AREAS

Towards a more water secure South Africa: investing in built and ecological infrastructure

Mahlodi Tau

4th EbA Knowledge Day

26 November 2018

SANBI
Biodiversity for Life
South African National Biodiversity Institute

South Africa's 2030 Development Agenda

Poverty, unemployment

Service Delivery

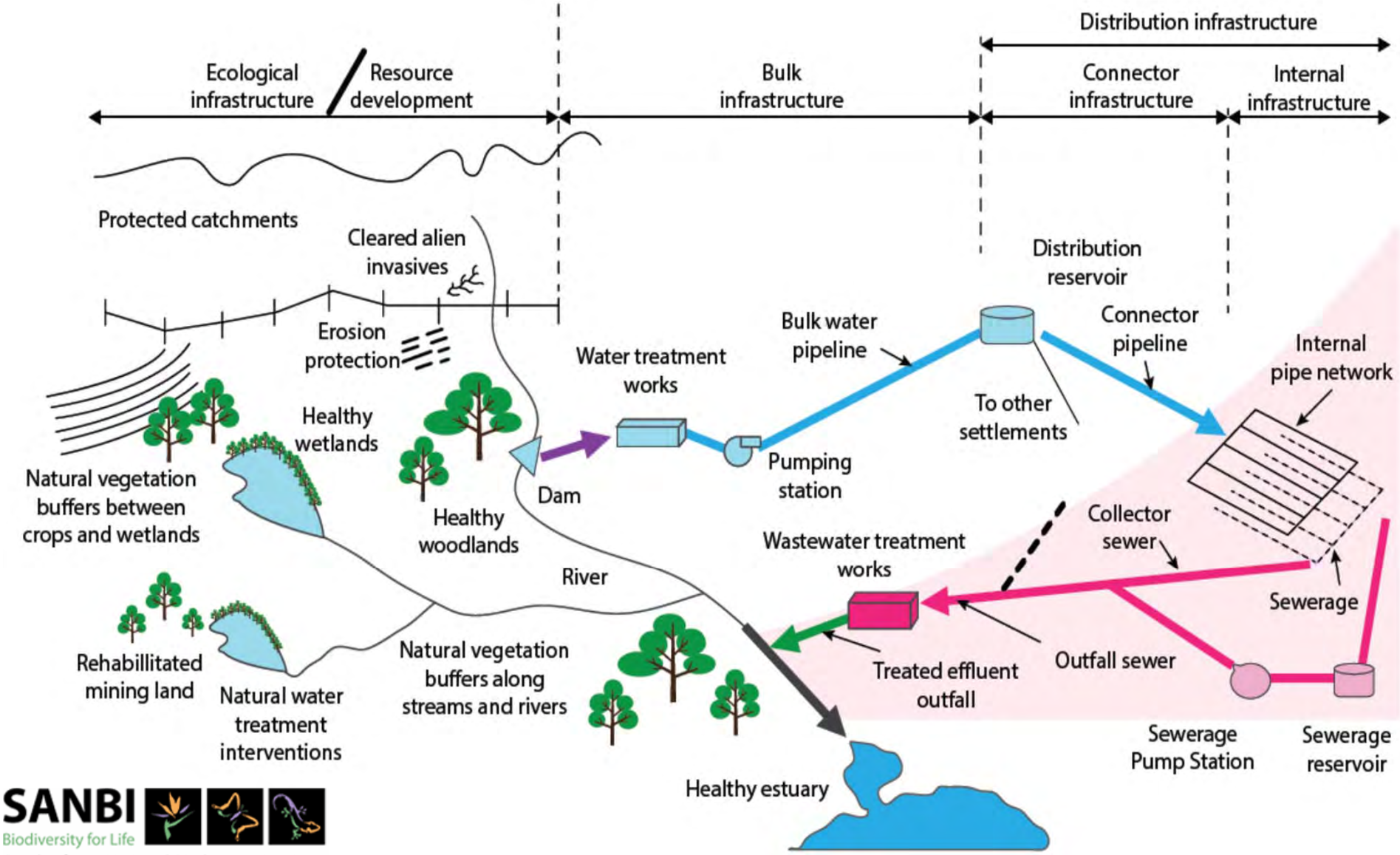
National Infrastructure Plan 2012

- Investment of R1trillion (~$100 billion)
- Government's long-term priorities of job creation, poverty alleviation and service delivery

Ecological infrastructure =

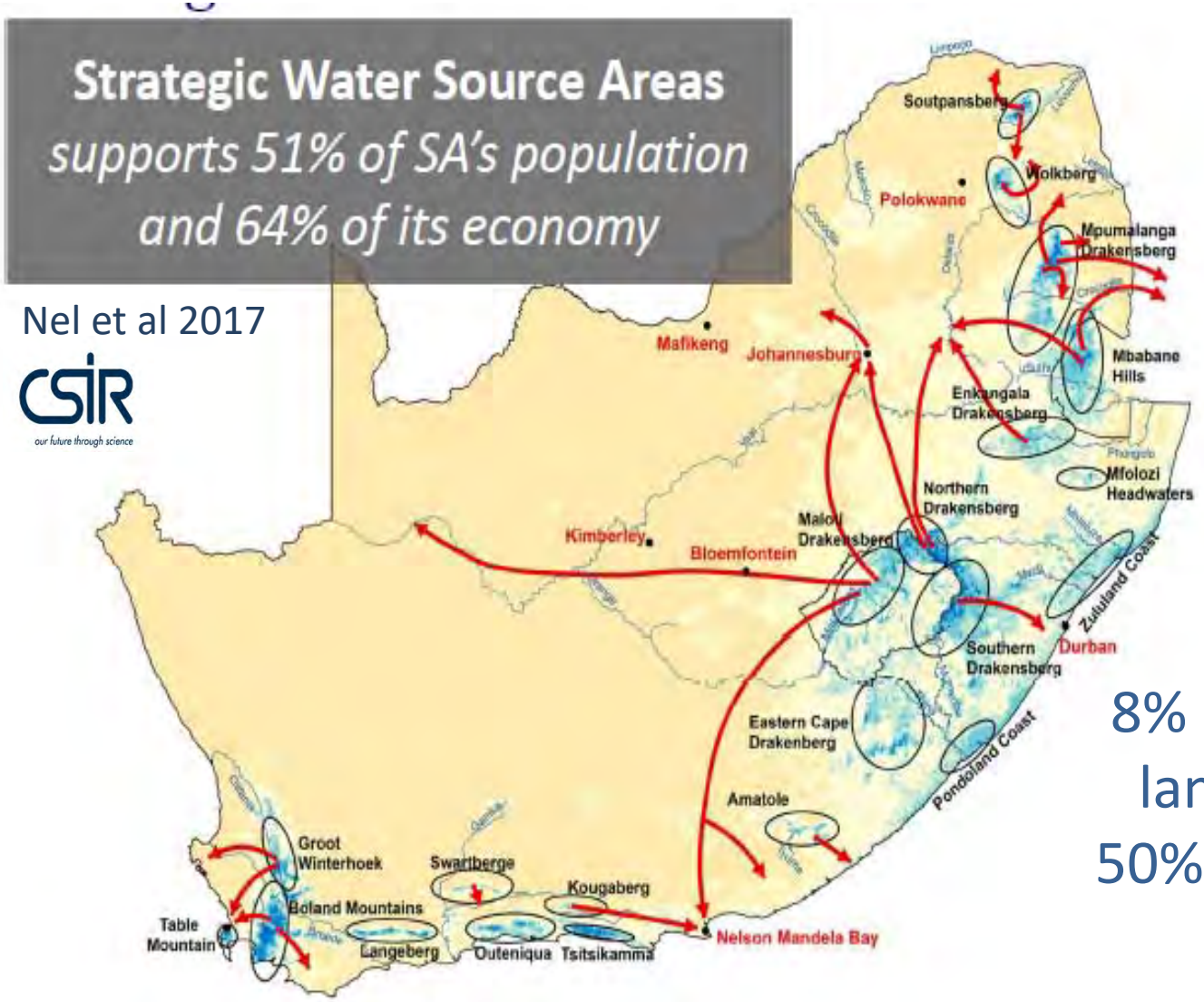
Naturally functioning ecosystems that generate and deliver valuable services to people

Influencing the national agenda: Ecological infrastructure for water security



SANBI
Biodiversity for Life
South African National Biodiversity Institute

Strategic Water Source Areas



8% of South Africa's land area delivers 50% of surface water

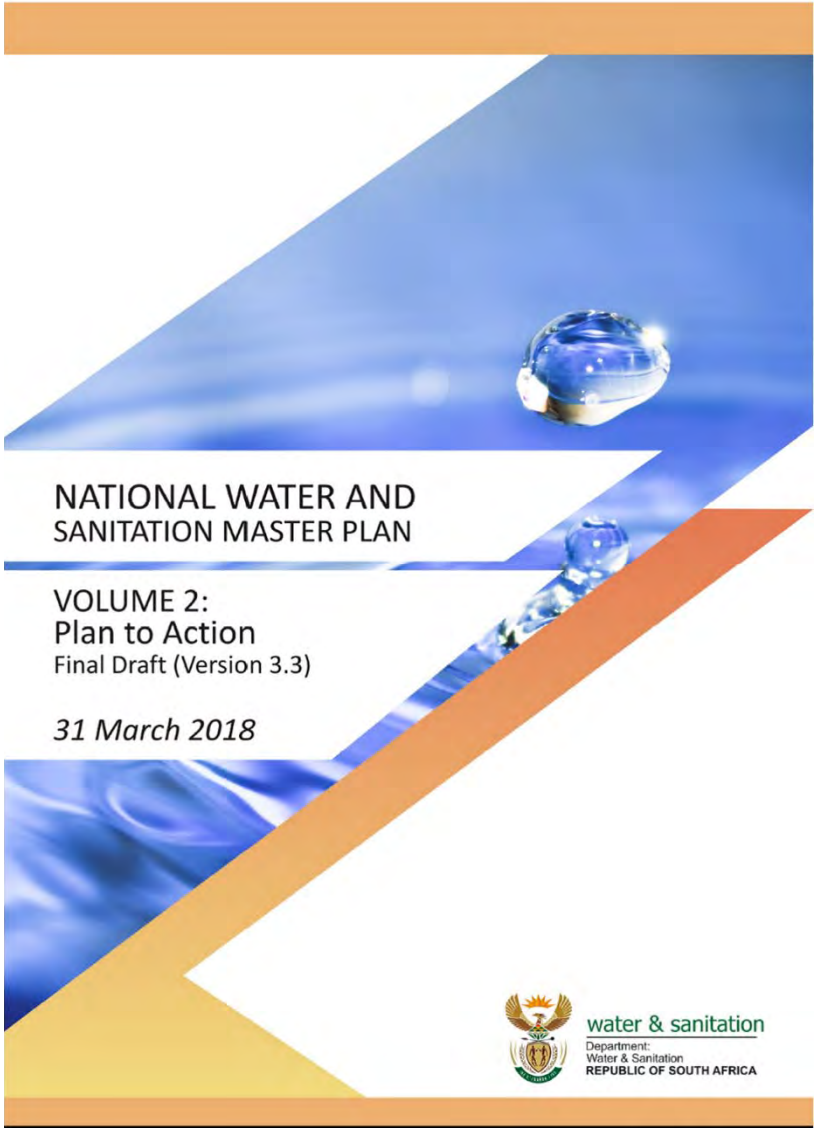
SANBI
Biodiversity for Life
South African National Biodiversity Institute

Community of practice on ecological infrastructure for water security

Influencing policy and planning

NWRS - These areas form the foundational ecological infrastructure on which a great deal of built infrastructure for water services depends. They are thus **strategic national assets** that are vital for water security, and need to be acknowledged as such at the highest level across all sectors.

Water and Sanitation Master Plan: A call to action



- DWS National Call to Action - National Water and Sanitation Master Plan
- Long term plan, aligned to National Development Plan
- Chapter 8: Protecting and restoring ecological infrastructure
  - Recognizes the role of and importance of the Strategic Water Source Areas
- Ecological Infrastructure for Water Security project – a flagship project of the National Water and Sanitation Master Plan
- A collaborative effort between DEA, DWS, DBSA , SANBI and key partners

SANBI
Biodiversity for Life
South African National Biodiversity Institute

Lessons learnt

- Linking biodiversity with a clear development priorities of job creation and water security
- SWSAs has been an innovation that has united the efforts of govt, civil society and academics
- Evidence of a shift in the traditional approaches to water resource management and planning
- The power of social learning and targeted technical and operational capacity
- The concept support climate and disaster-resilient water security development
- Opportunities exist to integrate EbA approaches into water resource management

SANBI
Biodiversity for Life
South African National Biodiversity Institute

Rio Conventions PAVILION

Nature-based Solutions for Climate Change

4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Market Place

Convention on Biological Diversity

Implemented by giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

IUCN United for life and livelihoods

FEBA Friends of Ecosystem-based Adaptation

PEDRR

Supported by: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, based on a decision of the German Bundestag

Topic	Presenter	Institution
„GreenWatersheds – Finance 4 Adaptation. Mobilizing capital for ecosystem-based adaptation“	Annelie Fincke	OroVerde
Building with Nature – EcoShape	Tom Wilms	Witteveen + Bos
SIMA (Decision Support System at Macro-Basin Scale)	Juanita Gonzalez	TNC
Valuing the benefits, costs and impacts of Ecosystem-based Adaptation Measures	Arno Sckeyde	GIZ
Building back safer and greener: natural solutions for climate change adaptation and disaster risk reduction	Lili Ilieva	Conservation & Development
PANORAMA Solutions – Ecosystem based Adaptation from mountains to oceans	Mathias Bertram	GIZ

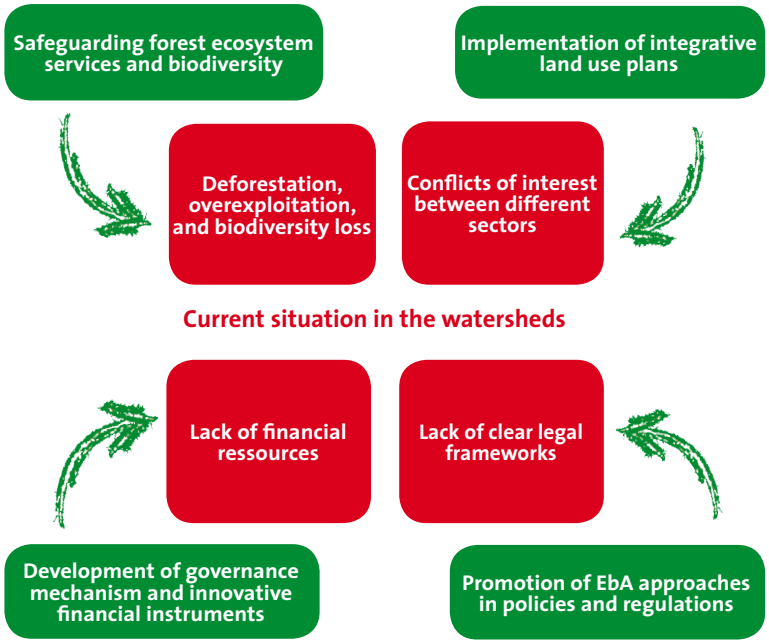
GreenWatersheds - Finance 4 Adaptation

Mobilizing capital for aligning ecosystem-based with engineering-based solutions

Applying an integrative and cross-sectoral approach, OroVerde works with local partner organisations in Guatemala, the Dominican Republic, Cuba and Mexico. Ecosystem-based adaptation (EbA) measures in 4 watersheds will be developed in a participatory approach together with the local population. The GreenWatersheds project will further work on governance mechanisms and innovative financial instruments to enable the implementation of EbA measures. Promotion of related policies and regulations, and exchange of experiences as well as dissemination of lessons learnt from local to international levels will complement the activities.

The project will be implemented in 4 watersheds of 4 countries

Approach



Project data

Duration

5 years (2018 - 2022)

Supported by:

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

based on a decision of the German Bundestag

Partner institutions

Dominican Republic: Centro para la Educación y Acción Ecológica, NATURALEZA (CEDAE)

Guatemala: Fundación Defensores de la Naturaleza (FDN)

Cuba: Unidad Presupuestada de Servicios Ambientales (UPSA)

Mexico: Pronatura México, A. C.

Contact:

OroVerde - Tropical Forest Foundation
Burbacher Str. 81
53129 Bonn
Germany

Contact persons:
Dr. Elke Mannigel (emannigel@oroverde.de)
Annelie Fincke (afincke@oroverde.de)

Forests provide important hydrological ecosystem services.

Participatory community workshop.

Infrastructure such as hydroelectric plants are also impacted by climate change and can benefit from EbA approaches - a potential for cooperation.

Forest restoration activites in risk areas strengthen the resilience.

BUILDING WITH NATURE

Concepts tested by EcoShape

www.ecoshape.org

STIMULATING DUNE HABITAT DEVELOPMENT
NATURE BASED FLOOD DEFENCE

Monitored at the Hondsbossche Dunes

TIDAL PARKS
RESILIENT DELTA CITIES

Applied at the Tidal Park project in Rotterdam

SANDY FORESHORE
NATURE BASED FLOOD DEFENCE

Piloted and implemented at the Houtribdijk

MEGA NOURISHMENT
NATURE BASED FLOOD DEFENCE

Extensively studied at the Sand Motor in Kijkduin

SALT MARSH DEVELOPMENT ON A BANK CREATED WITH SEDIMENT
SUSTAINABLE PORT DEVELOPMENT

Experimented in the Marconi salt marsh development project in Delfzijl

MUD MOTOR
SUSTAINABLE PORT DEVELOPMENT

Executed and researched in the Mud Motor project in Harlingen

CLAY RIPENER
SUSTAINABLE PORT DEVELOPMENT

Piloted in the Clay Ripener project in the Eems Dollard estuary

VEGETATION RECOVERY
ECOSYSTEM RESTORATION

Implemented and researched in Demak, Indonesia

NATURAL ISLANDS
ECOSYSTEM RESTORATION

Applied and studied in the Marker Wadden project in Markermeer

This project has a positive effect on

- Flood risk management
- Recreation
- Biodiversity / Nature development
- Local economy
- Health and well being
- Water quality
- CO_2 sequestration
- Climate regulation
- Water infiltration
- Water storage
- Navigability
- Building material
- Food (shrimp/fish)

EcoShape

Sistema de apoyo a la toma de decisiones en Macro-cuencas
(Decision Support System for Great River Basins)

A platform to support development, conservation and adaptation in the Magdalena River Basin, Colombia

SIMA has being implemented by TNC in the Magdalena River Basin, Colombia, to promote Integrated River Basin Management considering climate information. It allows us to **avoid impacts on the connectivity of 1,070 km of rivers and the resettlement of 7,000 people**; while strengthen capacities and knowledge of environmental authorities and hydropower generators. SIMA has also provided **science based evidence and supported awareness on the importance of floodplains for climate adaptation.**

SIMA connect stakeholders to their Basins by:

- Improving their knowlege of their Basin as a whole system and their understanding of the role of nature in their lives and economies.
- Sharing evidence based on information.
- Improving transparency in decision-making.
- Supporting the creation of new green and gray solutions.
- Incorporating knowledge and promoting participation of local communities.

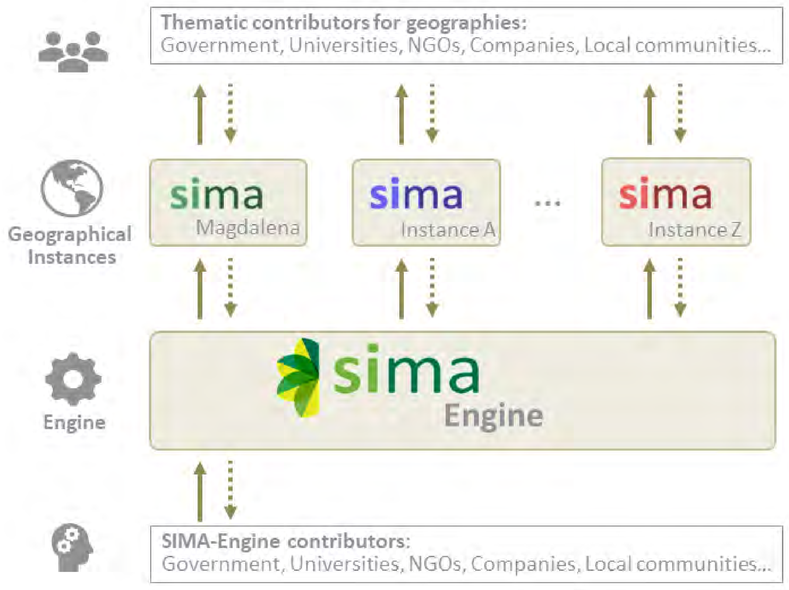
Juliana Delgado, Science Coordinator • TNC, NASCA • **jdelgado@tnc.org**
Juanita González, Climate Change Specialist • TNC, NASCA • **juanita_gonzalez@tnc.org**

Ciénaga de Zapatosa, Colombia. ©Diego Lizcano, TNC

What is SIMA?

It's a free and open tool, web based and design in a collaborative environment, which incorporate models and analytical tools to estimate cumulative and long-term impacts on environmental, social and economic values, within a large scale river basin.

We differentiate between the **SIMA-Engine** which is the abstract system that incorporate all it´s functional capacities, from the **Geographical Instances** which are the configuration of the system for specific geographies.

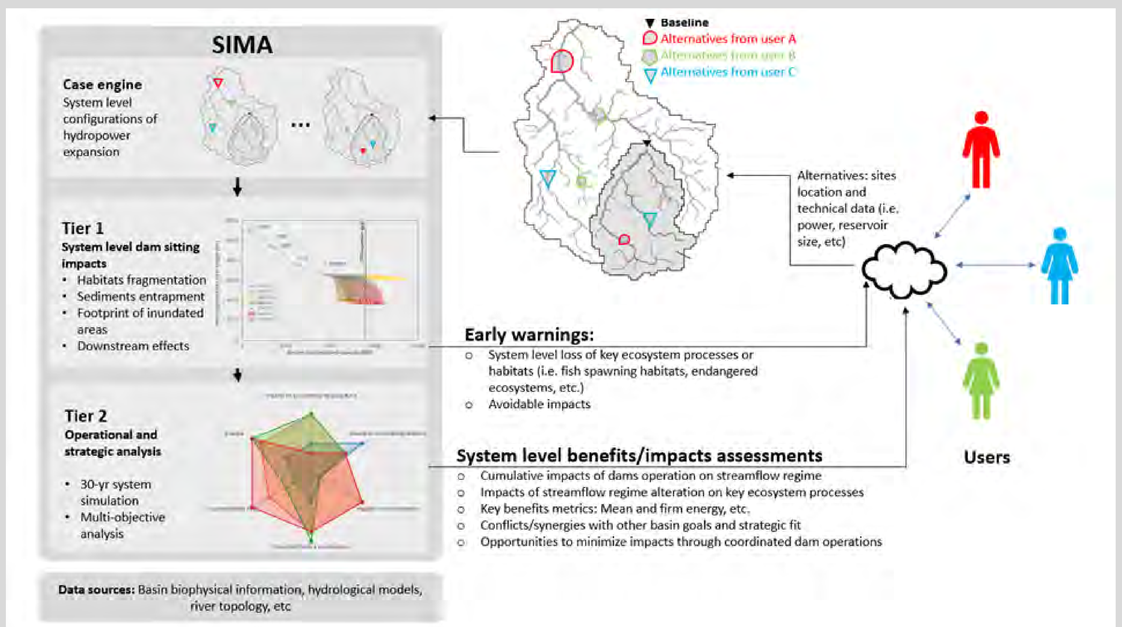


Planning hydropower:

We are implementing tools and concepts from **Hydropower by Design**, a framework to improve sustainable development of this sector, using two levels of analysis incorporated in SIMA:

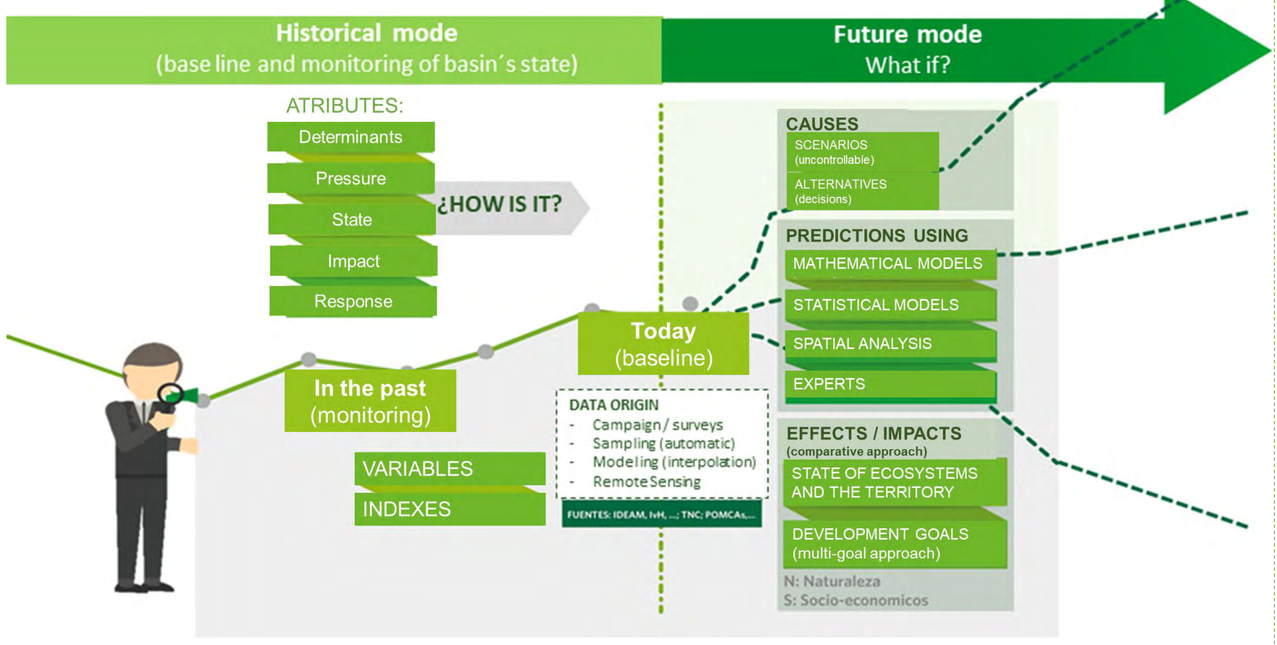
Tier 1. Mostly spatial analytical tools that allow us to explore randomly a high number of alternatives, and

Tier 2. which are mathematical modelling and multi-objective analysis tools that allow us to explore more deeply specific cases.



Understand the past and explore possible futures

The **Historical mode** allow us to know the current status of the basin and monitoring changes over time. The **Future mode**, is the capacity to explore and compare expected effects of possible interventions in the basin using mathematical modelling, and is an innovative contribution to strengthened decision-making.



Future mode allows to take better decisions for development, conservation and climate adaptation

SCENARIOS

- **Population Growth**
  - Energy demands
  - Agricultural demands
- **Climate**
  - Historical
  - Climate Change Scenarios
- **Land-Use Change**

ALTERNATIVES

- **Large-Scale Infrastructure:**
  - Irrigation
  - Hydropower
  - Flood control (like dikes)
  - Cover restoration
- **Infrastructure Operating Rules**

Comparative Strategic Analysis

EFFECTS / IMPACTS

- **Freshwater systems**
  - Changes in Flow regime
  - Floodplain dynamics
  - Water availability
  - Hydropower generation
  - Water use and consumption
  - Fragmentation of river habitats
- **Terrestrial systems**
  - Cumulative impacts on areas of environmental, social, economic and cultural importance

The Nature Conservancy

Supported by:
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
based on a decision of the German Bundestag

FUNDACIÓN MARIO SANTO DOMINGO. Por el Desarrollo Social de Colombia

CREACUA Fundación Centro Recuperación de Ecosistemas Acuáticos

Other entities from Colombia government, international cooperation, academy and research institutes, had also support and collaborate with the development of SIMA.

Google.org

SIMA is a winner of the Google Impact Challenge for innovation technology with social impact

We are scaling-up SIMA in three ways:

- Improving general capacities
- Transferability to other basins in the world
- Increasing users by improving their experience and creating partnerships for collaboration.

Valuing the Benefits, Costs & Impacts of Ecosystem-based Adaptation (EbA) Measures

Tools for enhancing climate adaptation decision-making

A sourcebook and training module for adaptation planners, managers and investors

Why valuation?

Even though EbA is recognised to hold considerable potential to strengthen climate adaption, it is still yet to be fully mainstreamed into development policy and practice. Valuation can provide convincing – and usually much-needed – evidence of the benefits of investing in ecosystem-based approaches, in themselves, and in comparison (and combination) with grey measures. It offers a tool to guide better-informed decision-making which results in the delivery of more inclusive, effective and sustainable climate adaptation actions.

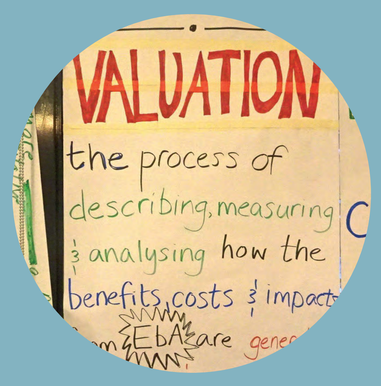
What the resources seek to deliver

GIZ has developed two resources to assist in building awareness, knowledge and capacity about why, how and in which contexts EbA valuation can be used to inform, guide and influence adaptation decision-making. The **sourcebook** combines information on valuation theory and methods with real-world examples and practical steps for commissioning, designing and implementing EbA valuation studies.

The 2.5 day **training** module uses a mixture of interactive lectures, open discussions, groupwork and case studies to familiarise participants with EbA valuation approaches and methods, and share learning on the process of planning, delivering and using the process of EbA valuation in a wide range of decision-making contexts.

What the sourcebook and training module cover

1 Basic valuation concepts and principles



2 Identifying needs, niches and opportunities to apply EbA valuation in decision-making

3 Categories of methods for valuing EbA

- Biophysical effects
- Risk exposure and vulnerability
- Livelihood and wellbeing impacts
- Economic costs and benefits
- Social and institutional outcomes

4 Tools to enhance the strategic impact of valuation and leverage decision change

5 Practical steps in commissioning, designing, managing and delivering EbA valuation studies

6 Real-world examples of EbA valuation experiences, lessons learned and best practices

Published by

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

of the Federal Republic of Germany

This project is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) supports this initiative on the basis of a decision adopted by the German Bundestag.

PANORAMA
SOLUTIONS FOR A HEALTHY PLANET

What if we could learn from each other's success?

Ecosystem-based Adaptation Solutions under the PANORAMA Partnership

Helping people to adapt to climate change by using nature

EbA Solutions …

are tools, methods, processes and approaches that work and inspire action, and

- address challenges of current and future climate change impacts to sustainable development and human wellbeing
- are scalable
- have a positive impact on people, ecosystems and the services they provide

The 'Solutioning' Approach – Learning from inspiring experiences world-wide

- Solutions consists of a combination of building blocks (BB 1– BB 4) that determine the solution's success (success factors)
- may be adapted and/or recombined with others to address specific challenges in different socio-cultural, ecological, political or economic contexts, sectors, or geographies.

Let's focus on what works! Contribute to PANORAMA

➔www.panorama.solutions

Global Project – Mainstreaming EbA – Strengthening Ecosystem-based Adaptation in Planning and Decision Making Processes

➔Contact: Dr Arno Sckeyde (Project Director) BMUB Global Project Mainstreaming EbA (GIZ) • arno.sckeyde@giz.de

This project is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) supports this initiative on the basis of a decision adopted by the German Bundestag.

PANORAMA Partners

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

IUCN

UN environment

GRID ARENDAL A Centre Collaborating with UNEP

rare

Development Partners

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

gef

Rio Conventions PAVILION

Nature-based Solutions for Climate Change

4th Ecosystem-based Adaptation Knowledge Day

UN BIODIVERSITY CONFERENCE

Expert Dialogues

Convention on Biological Diversity

Implemented by giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

IUCN United for life and livelihoods

FEBA Friends of Ecosystem-based Adaptation

PEDRR

Supported by: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

based on a decision of the German Bundestag

Expert dialogue: Controversial Statements for Group Discussion

1) 'Government has to sit in the driver's seat' - If national or subnational governments do not take leadership, NbS mainstreaming into infrastructure planning & implementation will not succeed.

2) 'Crisis leads to behavior change by decision makers' - An apparent crisis (e.g. water scarcity, extreme weather events) will lead to a mind shift among all stakeholders and strengthened adaptation efforts (including a better management of ecosystems).

3) It's the economy, stupid!' – Without a monetary valuation of NbS benefits (incl. ecosystem services) you will not be able to compare green with grey infrastructure.

4) 'No private sector, no sustainability in green and grey infrastructure measures' – public funds will never be sufficient for sustaining (ecosystem-based) and infrastructure based adaptation solutions. It is only the private sector which can ensure long-term financial sustainability.

Expert dialogue: Controversial Statements for Group Discussion

5) 'NbS are driven by conservationists and will never be attractive for the grey sector' – 'Real world' development challenges need concreted well-communicated answers, and not a complicated concept that few people understand.

6) 'NbS for climate change are too far away from current needs realities of people – They have other issues to deal with than potential future climate risks.

7) 'NbS for climate change take too much time to show impacts, compared to grey infrastructure' – *Decision makers (governments and private sector alike) cannot wait for the restoration of ecosystems, they need adaptation measures now.*

Photo credit: TU / F. Scotti 2014