



# Ecosystems and Technology

Innovative approaches to strengthening coastal and ocean adaptation

September 2021

*Outcomes from the virtual event organised jointly by the International Union for Conservation of Nature (IUCN), the Friends of Ecosystem-based Adaptation (FEBA) Network, the United Nations Framework Convention on Climate Change (UNFCCC) Technology Executive Committee (TEC) and the UNFCCC Nairobi Work Programme (NWP) Expert Group on Oceans, and held on 6 September 2021 as part of the TEC Technology Day event series and parallel to the IUCN World Conservation Congress.*



United Nations  
Climate Change

TEC

NAIROBI WORK  
PROGRAMME

FEBA  
Friends of Ecosystem-based Adaptation





# SESSION OVERVIEW

Innovative approaches to adaptation that integrate both technology and nature-based solutions are imperative to enhancing the climate resilience of ocean and coastal communities globally. Forward-looking, integrated and sustainable approaches are urgently needed at the scale where they can be deployed efficiently in order to respond to the increasing threats of climate change and to achieve the goals of the Paris Agreement.

Upscaling hybrid adaptation strategies is particularly urgent in ocean and coastal settings, where climate change is precipitating sea level rise and changes in marine conditions and exacerbating the consequences of unsustainable resource use to threaten marine biodiversity and livelihoods.

In this context, UNFCCC TEC, in partnership with the UNFCCC NWP Expert Group on Oceans, IUCN and FEBA, is organising a series of events to explore the main challenges and opportunities for integrating both technology and ecosystem-based adaptation to build the resilience of oceans and coastal ecosystems and communities.

This session was the first in a series of joint events on this topic as part of the TEC Technology Day and held as a side event of the IUCN World Conservation Congress. The session focused on exploring and promoting innovative approaches, learning and examples of integrating both technology and nature for adaptation outcomes.

70+  
live attendees

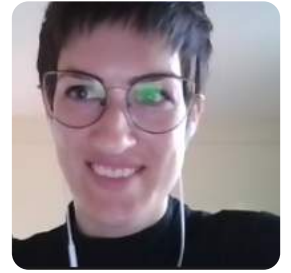
View the  
Livestream recording

Part of the  
Technology Day  
event series

and a  
  
side event

# INSIGHTS FROM SPEAKERS

Kinga Csontos of the UNFCCC TEC provided opening remarks that highlighted the purpose of the Technology Day and the work of the TEC and the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts Executive Committee on Technologies for Averting, Minimizing and Addressing Loss and Damage in Coastal Zones.



Intergovernmental Panel on Climate Change (IPCC) expert Dr. Hans-Otto Pörtner's keynote speech provided an overview of observed changes and impacts as well as projected climate risk for oceans and coastal areas as presented in the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate. Dr. Pörtner also provided information on the role of ecosystem-based approaches in building resilience in oceans.

“This is an issue of **entrepreneurial urgency**. It's not just about physical solutions; it's about people and financial infrastructure as well.”

– Sylvester Wong, *Vice President of Asia-Pacific, AECOM*



# INSIGHTS FROM SPEAKERS

A panel of five distinguished speakers reflected on how technology, conventional engineering approaches, and nature-based solutions have often been siloed through a false “either/or” dichotomy, particularly in coastal settings, where adaptation investments continue to be allocated primarily to grey infrastructure. Speakers emphasised that we need to break the siloes between technology, infrastructure, and nature-based solutions and move toward integrated measures that optimise for adaptation effectiveness, cost, durability, sustainability, and co-benefits for people and nature.



## Panellists:

- Patrycja Enet, *Marine Spatial Planning Expert North Sea focal point, MSP Assistance Mechanism and European MSP Platform (a member of the NWP Expert Group on Oceans)*
- Emily Corwin, *Director, Nature-based Engineering Solutions, Conservation International*
- Sylvester Wong, *Vice President for Asia Pacific – Cities, AECOM*
- Vivien Gornitz, *Science Analyst, NASA Goddard Institute for Space Studies' Climate Impacts / Center for Climate Systems Research Columbia University (GISS CCSR)*
- Serena Heckler, *Advisor for Ecological and Earth Sciences, UNESCO*

**Moderator:** Ali Raza Rizvi, *Global Coordinator of Adaptation and Disaster Risk Reduction, IUCN*



# INSIGHTS FROM SPEAKERS

The closing keynote from Rojina Manandhar of the UNFCCC Secretariat summarised key takeaways from the session and highlighted the role of the NWP Knowledge-to-Action Hub for Climate Adaptation and Resilience and its mandate to address key ocean-climate gaps.



“It is again underlined that **accelerating and enabling innovation is critical** for an effective long-term global response to climate change and promoting economic growth and sustainable development.”

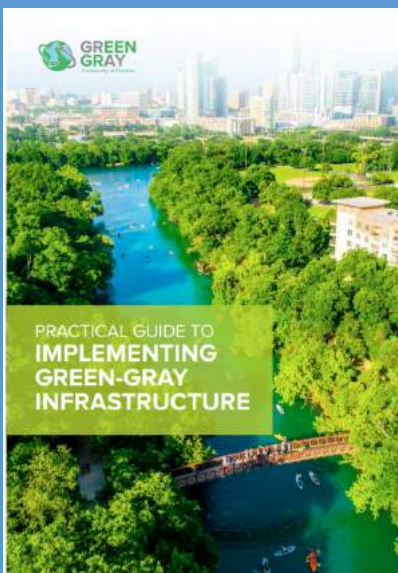
– Wanna Tanunchaiwatana, *Manager Technology Sub-division, UNFCCC Secretariat*



Closing remarks from Wanna Tanunchaiwatana, also from the UNFCCC Secretariat, linked the session to the Paris Agreement’s mandate for cooperative action on enhancing technology development and transfer and emphasised that innovation and long-term partnerships are crucial for an effective, coordinated and inclusive long-term global response to climate change that also promotes economic growth and sustainable development.

## HIGHLIGHT

### The Practical Guide to Implementing Green-Gray Infrastructure



The [Practical Guide to Implementing Green-Gray Infrastructure](#) is a tool for identifying, funding, planning, designing, constructing, and monitoring green-gray infrastructure projects, to increase the resilience of vulnerable cities, communities, and assets around the world.

Published by the Global Green-Gray Community of Practice, the Guide includes 35 case studies from around the world, identifies key challenges a practitioner may seek to resolve, and where green-gray solutions can meet project goals and integrate into different land use types.

# INSIGHTS FROM SPEAKERS

“The turning point is for the public and private sector to start designing, investing and building **outside of the comfort zone** that people have now.”

– Emily Corwin, *Director of Nature-based Engineering Solutions, Conservation International*



“Let's revitalise the knowledge that people have **in their communities** ... People have knowledge, they're observing changes, let's work with that and build knowledge co-production processes and intercultural dialogues to find those solutions.”

– Serena Heckler, *Advisor for Ecological and Earth Sciences, UNESCO*

“Using **science-based knowledge** as well as working closely with a **variety of stakeholders** and **taking a flexible adaptation approach** are the ways forward to adapting to climate change and increasing coastal resilience.”

– Vivien Gornitz, *Science Analyst, NASA GISS CCSR*



“More concrete **evidence-based targets and innovative technologies** are needed for strengthening adaptation, ensuring the coherence of efforts through a comprehensive risk management and very importantly responding to the priority technology needs as identified by governments.”

– Patrycja Enet, *MSP Expert North Sea focal point, MSP Assistance Mechanism and European MSP Platform*

# KEY OUTCOMES

**Integrated technology and nature-based adaptation approaches already exist, yet these approaches are not being implemented or mainstreamed at scale.** The potential is huge. In the next 20 years, an estimated US \$94 trillion will be spent on infrastructure globally. In order for those investments to incorporate integrated green-gray approaches, there is an urgent need for enhanced political drive.

Three key barriers to the uptake of integrated adaptation technologies were identified and discussed during the session, as well as the pathways forward to address them.

1

## **The lack of robust evidence and data about the role of natural assets in underpinning resilience inhibits uptake of integrated adaptation approaches.**

While public and private sector actors may understand the potential for integrating nature-based solutions, **they often lack the data, design parameters, and construction standards needed to mainstream hybrid approaches in infrastructure and climate investments.** Parties and practitioners should encourage and engage in cross-sectoral iterative, systemic research and mutual learning at the national level – beyond the project level – to co-develop this evidence and data as well as ensure it is shared and accessible to practitioners.

2

## **Real and perceived risks restrict access to finance for applying and scaling up integrated adaptation approaches.**

Despite significant opportunities, capital investments in integrated adaptation technologies are constrained by real and perceived risks. Solutions to manage these risks include developing financial strategies to distribute the risk and enable innovation and engaging the insurance sector during project design and implementation. Funding during early-stage project development to incentivise integrated adaptation technologies and solutions, alongside financial and insurance strategies, can help manage risk for designers, builders, and investors.

3

## **Policy and regulatory frameworks limit the feasibility of implementing integrated adaptation approaches.**

Facilitating the uptake and implementation of innovation and integrated green-grey approaches in infrastructure development requires building enabling policy and regulatory frameworks across national climate policies and funding mechanisms, local land-use regulations, marine planning and zoning, building codes, and engineering guidelines. **Regulations need to be adaptable to create space for innovation.** It doesn't matter how innovative or effective a project will be if the ability to fund, permit or approve it is in not place. Parties can start building the mechanisms needed to shape sustainable, effective and integrated adaptation strategies through their Nationally Determined Contributions, National Adaptation Plans, marine spatial planning and other country-level plans.



# NEXT STEPS

The next joint event on this topic will take place in mid-October 2021. Under the guidance of the Subsidiary Body for Scientific and Technological Advice (SBSTA) Chair, the session will focus on interaction with Parties and Non-Party stakeholders and UNFCCC constituted bodies and mechanisms on potential uptake of integrated technological and ecosystem-based approaches to support countries in implementing their National Adaptation Plans and Nationally Determined Contributions. The event is being held as a part of the SBSTA Chair lobby.



To learn more and register for the next event, visit:

[FEBA Events](#)

[Technology Day Events](#)



Follow organisers on Twitter for insights and updates:

FEBA: [@FriendsofEbA](#)

NWP: [@AdaptXChange](#)

**“Long-term partnerships** are needed to respond to the increasing threat of climate change and to achieve the goals of the Paris Agreement ... [and] are also critical to promote and scale up innovative approaches to build the resilience of ocean and coastal communities.”

– Rojina Manandhar, *Programme Officer Adaptation Division, UNFCCC Secretariat*





# LEARN MORE

## TEC

The Technology Executive Committee (TEC) is the policy arm of the Technology Mechanism under the United Nations Framework Convention on Climate Change (UNFCCC). It focuses on identifying policies that can accelerate the development and transfer of low-emission and climate resilient technologies. The TEC and the Climate Technology Centre and Network (CTCN) form the Technology Mechanism, which also serves the Paris Agreement.

## TECHNOLOGY DAY

“Technology Day” (TD) is a series of events taking place in 2020 and 2021 whose objective is to promote innovative approaches to deploy, disseminate and scale up adaptation technologies in various key sectors.

## NAIROBI WORK PROGRAMME

Oceans, coastal areas and ecosystems, including mega deltas, coral reefs and mangroves are amongst the priority areas under the Nairobi Work Programme (NWP), the UNFCCC knowledge-to-action hub for adaptation and resilience. The NWP expert group on the ocean has worked together since 2019 to find synergies to strengthen adaptation knowledge networks and address support of specific knowledge needs for Least Developed Countries (LDCs) and Small Islands Developing States (SIDS), while also collaborating with the constituted bodies under the UNFCCC process.

## FEBA

Friends of EbA (FEBA) is a global collaborative network of 90+ agencies and organisations involved in Ecosystem-based Adaptation (EbA) working jointly to share experiences and knowledge, to improve the implementation of EbA related activities on the ground, and to have a stronger and more strategic learning and policy influence on EbA. FEBA works to synthesise multi-stakeholder knowledge on EbA; disseminate this knowledge by convening the global EbA community around high-level events, technical workshops, and expert working groups; and raise awareness and understanding of EbA in adaptation planning processes and multilateral policy frameworks. The CBD COP recognizes FEBA as a key partner “to support Parties in their efforts to promote ecosystem-based approaches to climate change adaptation” (Decision 14/5).



The Global Green-Gray Community of Practice is a collaboration across the conservation, engineering, finance, and construction sectors to generate learning and innovation to achieve climate adaptation benefits for communities, their future generations, and biodiversity. The multi-disciplinary Community of Practice has grown to over 100 member organizations spanning the globe, representing non-profit, academic, government and private organizations. The Community of Practice is working to: share ideas and facilitate collaboration; innovate and pilot new approaches; expand science, engineering, and policy activity; and implement and learn from projects in a multitude of geographies and settings.