UNESCO Biosphere Reserves as models for enhancing biodiversity-climate-society nexus

Lead: UNESCO

Collaborators: UNESCO MAB Committee, UNESCO Chair on World Heritage and Biosphere Reserve Observation and Education (Mountain Research Initiative)

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Theme: Nexus issues, Different ways of knowing, New horizons, African science and innovation (cross-cutting theme)

Format: Dialogue event (hybrid)

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Introduction and rationale

Global development challenges are on the increase, deepening inequalities and frustrating efforts to addressing the two most urgent and interlinked environmental challenges humanity faces - climate change and biodiversity loss[1]. As a threat to achieving environmental sustainability, the world continues to suffer increasing weather and climate extreme events, deforestation and forest degradation, environmental pollution, land degradation, contaminated and dwindling water resources and loss of biodiversity. At a pivotal decade for the international biodiversity, water and climate change agendas, countries are developing ambitious strategies and targets to meet commitments of the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change.

There is evidence that conservation actions that halt, slow or reverse biodiversity loss can simultaneously slow anthropogenic mediated climate change significantly[2] and promote sustainable development. These conservation efforts, however, need to be situated within economic, cultural and social processes that ensure whole-of-society engagement to restore and revitalise ecosystems, biological and genetic connectivity over the long term.

UNESCO has been working with national governments to designate Biosphere Reserve (BRs) as sites to promote solutions reconciling climate action, the conservation of biodiversity with its sustainable use. In the 727 UNESCO BRs in 131 countries, the system-level carbon (carbon stored in perennial vegetation and soil) contributes significantly towards atmospheric C sequestration, and greenhouse gas abatement. The BRs also provide solutions for climate change adaptation and serve as learning areas for sustainable development under diverse ecological, social, cultural and economic contexts, touching the lives of more than 250 million people.

[1] Mori, A.S., Dee, L.E., Gonzalez, A., Ohashi, H., Cowles, J., Wright, A.J., Loreau, M., Hautier, Y., Newbold, T., Reich, P.B. and Matsui, T., 2021. Biodiversity–productivity relationships are key to nature-based climate solutions. *Nature Climate Change*, *11*(6), pp.543-550.

[2] Shin, Y.J., Midgley, G.F., Archer, E., Arneth, A., Barnes, D.K.A., Chan, L., Hashimoto, S., Hoegh-Guldberg, O., Insarov, G., Leadley, P. and Levin, L.A., 2022. Actions to halt biodiversity loss generally benefit the climate. *Global Change Biology*.

Developments in biodiversity and climate science, sustainable tourism, and indigenous and local knowledge systems can help shape the BRs as models for enhancing biodiversity-climate-society nexus for environmental and socioeconomic outcomes. Concerted efforts involving consultations and dialogues with experts and policy makers in the aforementioned fields is one mainstream opportunity for intensifying science in the BRs and positioning them as models for preserving the natural capital and ecosystem services of protected areas for environmental and socioeconomic goals.

Session objective

The objective of this session is to discuss transformative science-based and culturally based solutions that can be applied in the BRs to catalyse the adoption of best practices by countries for environmental and socioeconomic outcomes.

Session format

The session will be held in a hybrid format. It will compose of an opening and technical segments. The total time allocation for the session is 90 mins.

Expected output/outcome

- Stocktaking of good practices and recognition of the potentiality of BRs as a model for enhancing biodiversity-climate-society

Agenda

Time (South Africa)	Agenda item
OPENING SEGMENT [15 mins]	
13:30-13:40	**Welcome and Presentation [10 min]** UNESCO Biosphere Reserves (BRs) – concept and potentialities for enhancing the biodiversity-climate-society nexus (*Martha-Marie Vogel, virtual)*
13:40-13:45	**Presentation [5 mins]** Big facts and figures – Climate change impacts on biodiversity *(Robert Zougmore, virtual)*
TECHNICAL SEGMENT [75 mins]	
How can ecological and climate monitoring support decisions and actions for enhanced biodiversity-climate-society nexus in BRs?	
13:45-13:50	**Brief Keynote Presentation [5 mins]:** Monitoring in Mountains: The Group on Earth Observations (GEO) Global Network for Information and Observations in Mountain Environments *(Carolina Adler, Video Message, virtual)*
13:50-14:05	**Panel Discussions [15 mins]** Moderator: Samuel Partey *Panelists: Carolina Adler, Robert Zougmore and Martha-Marie Vogel*
How can local and Indigenous Knowledge enhance biodiversity-climate-society nexus in BRs?	

14:05- 14:10	**Brief Keynote Presentation [5 mins]:** Protecting biodiversity and fostering climate adaptation through indigenous knowledge - lessons for UNESCO BRs *(Richard Glover, onsite)*
14:10- 14:15	**Brief Keynote Presentation [5 mins]:** Climate Resilience of an Indigenous community in South Africa *(Mmoto Masubelele, onsite)*
14:15- 14.30	**Panel Discussions [15 mins]** Moderator: *Martha-Marie Vogel* Panelists: *Richard Glover, Samuel Partey and Mmoto Masubelele*
What important cases on ecosystem-based and gender responsive adaptation pathways exist for enhanced biodiversity-climate-society nexus in BRs?	
14:30- 14:35	**Keynote Presentation [5 mins]:** Experience from work of Nebeday in the Delta du Saloum Biosphere Reserve in Senegal *(Elisabeth Tambedou, virtual)*
14:35- 14:40	**Keynote Presentation [5 mins]:** Biosphere Reserves as Observatories for Climate Change Adaptation in Southern Africa (Be-Resilient) Project *(Prudentia Zikalala, onsite)*
14:40- 14:55	**Panel Discussions [15 mins]** Moderator: *Samuel Partey* Panelists: *Prudentia Zikalala, Elisabeth Tambedou*
Closing [5 mins] *(Samuel Partey and Martha-Marie Vogel)*	