



Proposal to re-launch the World Network of Mountain Biosphere Reserves: Recognising the role of mountains to face the challenges of global climate change

Subject: Description of the network

The Wealth of Mountains

Mountain regions represent about one-quarter of the Earth's terrestrial surface and are home to approximately 15% of the global population¹. As such, mountains are essential elements of the biosphere.

They offer a wealth of ecosystem functions and services. Mountains harbour genetic resources, biodiversity and habitats of threatened species. They regulate the climate, air quality, water flows, and contribute to protection against natural hazards and the impacts of extreme weather and climate events.

They also provide forest products, minerals and freshwater. Mountains supply more than half of humanity's drinking water, and water for irrigation, industry, food and energy production.

Mountain landscapes provide recreation and hold exceptional cultural, and sometimes sacred, value. Mountains are home to some of the world's most remarkable cultural and ethno-linguistic diversity.

Yet, such wealth is fragile. Mountain regions are particularly threatened by global climate change, and face the loss of rare and endangered species, modified water balances (including receding glaciers), and often irreversible land use changes, altering socio-economic conditions and ultimately the livelihoods of people.

The MAB Programme and biosphere reserves in mountain areas

UNESCO's Man and the Biosphere (MAB) Programme has set out clear objectives, action areas and 62 performance indicators that will guide its contributions to the 2030 Agenda for Sustainable Development, in line with the MAB Strategy 2015-2025, its implementation framework and the Lima Action Plan (2016-2025).

¹ Romeo, R., Grita, F., Parisi, F. and Russo, L. 2020. Vulnerability of mountain peoples to food insecurity: updated data and analysis of drivers. Rome, FAO and UNCCD.

The Lima Action Plan, which was adopted at the 4th World Congress of Biosphere Reserves in Lima, Peru, from 14 to 17 March 2016, gives special emphasis to the creation of regional and thematic networks, such as those relating to biosphere reserves in mountain areas.

However, although more than 400 biosphere reserves out of 714 worldwide are located in mountain areas, the MAB Programme does not presently include a specialised network dedicated to biosphere reserves in mountain areas.

Furthermore, if the MAB Programme could bring together these sites under a network dedicated to sharing experiences and producing research on the specific issues of mountain areas, such a network could improve the role of mountain biosphere reserves on the ground, as well as serve as a major strategic tool for UNESCO to foster collaboration between Member States and assist Member States in implementing the Sustainable Development Goals (SDG).

Previous MAB work in mountain biosphere reserves

Fifty years ago, when the MAB Programme was created in 1971, 14 research themes were identified to materialize the objectives of the Programme to study and protect the world's major ecosystems. One of these research themes was MAB-6, which was concerned with monitoring the impact of human activities on mountain and tundra ecosystems, with strong foundations in international interdisciplinary mountain research. The MAB-6 Thematic Area focused on: (1) resource development and human settlement in tropical mountain regions; (2) tourism, technology and land use alternatives in temperate mountains; and (3) land use in high latitude mountain and tundra ecosystems. MAB-6 quickly received attention and became one of the priorities in the MAB Programme; serving as a catalyst for research initiatives, knowledge exchange, and cooperation on mountain issues.

During the 1980's, while research continued in individual biosphere reserves, MAB's mountain activities shifted towards collaborative international projects. Several initiatives arose within the network, including two that focused on global change in mountains: GLOCHAMORE and GLOCHAMOST. They implemented an interdisciplinary, intercontinental approach that was further replicated throughout the entire MAB Programme.

Mountain activities became an innovative element in the MAB Programme that stimulated interdisciplinary mountain science. During the 4th World Congress on Biosphere Reserves, held in 2016 in Lima, Peru, a special workshop on mountain biosphere reserves was organized. The participants recognized that research was active in mountain regions and recommended the re-establishment of a network to exchange information and stimulate collaborative work. The MAB Programme recognized the critical value of mountains and decided to re-launch the World Network of Mountain Biosphere Reserves.

Overarching goals

The World Network of Mountain Biosphere Reserves will involve all actors working in mountain biosphere reserves, mainly biosphere reserve managers/coordinators, mountain specialists, scientists from universities and research centres, local communities, UNESCO programmes/sections (UNESCO Global Geoparks, Disaster Risk Reduction Unit, the

International Hydrological Programme, World Heritage Convention), other UN agencies and programmes, associations and non-governmental organizations.

The overarching goals of the network will be to:

- i. Increase research in mountain biosphere reserves and the applications of scientific and indigenous/local knowledge to improve the management of the sites;
- ii. Promote research “for” mountain biosphere reserves, rather than “on” mountain biosphere reserves. For example, biosphere reserve management committees/organisations may establish agreements with research institutions/scientists to ensure that they recognize the biosphere reserve as a project partner and align their research plans and undertake research in collaboration with the biosphere reserve;
- iii. Support exchanges of scientific and indigenous/local knowledge between scientists, indigenous and local communities, and other relevant stakeholders; and improve exchanges of knowledge and best practices among scientists, biosphere reserve coordinators/managers and policy-makers - in order to favour science-based decisions and facilitate adaptive governance for mountain biosphere reserves.

Strategic guidelines

In order to reach these overarching goals and in line with the Lima Action Plan, the World Network of Mountain Biosphere Reserves will follow the below strategic guidelines:

- a. Develop strategic research for mountain biosphere reserves in a coordinated manner, and facilitate exchanges between mountain experts, biosphere reserve managers/coordinators, local communities and other relevant stakeholders;
- b. Improve the governance of social-ecological systems constituted by mountain biosphere reserves;
- c. Increase knowledge on climate change adaptation mitigation, and disaster risk reduction strategies in line with the implementation of SDGs;
- d. Encourage citizen science to improve research, knowledge exchanges and site management;
- e. Recognize and honour the cultural value held in mountain regions;
- f. Support international collaboration between mountain biosphere reserves, particularly in transboundary mountain biosphere reserves;
- g. Attract financial and logistic support from the public and the private sectors for research, management activities in mountain biosphere reserves, and the nomination of new mountain biosphere reserves.

Governance of the Network

The MAB Secretariat proposes to follow a network model similar to that of the World Network of Island and Coastal Biosphere Reserves. With such a model, the coordination of the World Network of Mountain Biosphere Reserves will be carried out by the MAB Secretariat with the support of one or two Technical Secretariats.

Technical Secretariats will be hosted by mountain biosphere reserves or universities and research institutes working in close collaboration with mountain biosphere reserves. Their main role will be to support the MAB Secretariat in planning and implementing the Network's activities.

Each Technical Secretariat will allocate the critical mass of human and financial resources towards operating the Network and implementing its activities for at least three years. The MAB Secretariat will support the Network in seeking extra-budgetary funds for additional activities.

The Steering Committee, renewed every three years, shall be composed of:

- a. one representative of the MAB Secretariat;
- b. one representative for each Technical Secretariat;
- c. one national MAB focal point or representative of the hosting Member State for each Technical Secretariat;
- d. one mountain biosphere representative of each UNESCO region (advisors with no vote).

The Steering Committee shall:

- a. adopt rules and regulations;
- b. approve the medium and long-term activities of the Network;
- c. approve the annual work plan of the Network;
- d. examine the annual reports submitted by each Technical Secretariat;
- e. meet in ordinary session at regular intervals, at least once every calendar year; it shall meet in extraordinary session if convened by its members;
- f. Establish working groups for specific thematic activities.

Research themes and working groups

A number of mountain scientists have been consulted to identify themes of interests for the Network. Following these consultations, the Steering Committee will identify priority research themes and geographical areas for the Network, and establish dedicated cross-disciplinary working groups. Each working group will be led by a chair and vice-chair, who will report to the Steering Committee. Relevant themes for the Network include:

- Citizen science and grassroots innovation;
- Climate change research;
- Cross-border cooperation and science diplomacy;
- Cultural values and languages;
- Disaster risk and impact assessments;
- Education;
- Governance;
- Indigenous and local knowledge;
- Sustainable management;
- Water and forest resources.

Initial operational development

Until the Steering Committee approves its first work plan, the World Network of Mountain Biosphere Reserves will initiate its operations as follows:

- The Network will foster research and support knowledge exchanges on questions relevant to mountain biosphere reserves in both natural sciences (i.e. ecology and climate science) and social sciences (i.e. socio-economic studies and anthropology);
- The Network will contribute to education and training courses to mountain biosphere reserves through virtual courses, such as the Mountains 101 course (<https://www.coursera.org/learn/mountains-101>) and through collaboration with universities/research centres, UNESCO Chairs and Category 2 Centres related to mountain ecosystems;
- Mountain biosphere reserves will be encouraged to contribute directly to university courses on biosphere reserves and protected areas, e.g. Master Programme on Management of Conservation Areas (<https://www.fh-kaernten.at/weiterbildung/bauingenieurwesen-architektur/unesco-chair>);
- The research produced within the Network will be eligible for publication by the International Journal of UNESCO Biosphere Reserves, which is a digital open access subscription-free publication (<https://biospherejournal.org>), and in the “eco.mont - Journal on Protected Mountain Areas Research and Management” (<https://ecomont.mountainresearch.at/>);
- Until the necessary funds are available, virtual meetings between peers will continue in order to exchange experiences and work together on the development of the Network. Proposals for workshops/side events organised by the Network should aim to integrate such events into national and international conferences, both within the MAB Programme and outside.

Partnerships

The World Network of Mountain Biosphere Reserves will seek to establish partnerships with institutions to potentiate its efforts towards the development of its outreach and impact.

Firstly, a partnership with the Mountain Research Initiative (MRI) has been established to:

- Link the Network to the global scientific community of MRI;
- Jointly promote research on mountain biosphere reserves;
- Receive support from MRI on data/information sharing;
- Offer visibility of the support of MRI to UNESCO's MAB Programme;
- Use synergies in communication and dissemination of news/opportunities/calls as they arise;
- Liaise for events related to mountain biosphere reserves.

Partnerships should aim to increase the impact of the Network's activities. In that regard, it would be useful to establish synergies between the Global Mountain Safeguard Research (GLOMOS) Programme from the United Nations University Institute for Environment and Human Security (UNU-EHS) and this Network. Indeed, GLOMOS was launched with the exact purpose of

translating research on global mountain regions into opportunities for implementing United Nations international frameworks for sustainable development.

Activities to date

Since discussions on relaunching the World Network of Mountain Biosphere Reserves began in the summer of 2020, considerable progress has been made towards its establishment, including:

- Two meetings of an international group of interested parties, including scientists and mountain biosphere reserve managers from different regions, the MAB Secretariat and a number of UNESCO Field Offices. The meetings have led to the development of this document;
- The preparation of a scientific paper on past, current and future activities within the MAB Programme in mountain areas, which was accepted for publication in a special issue of the peer-reviewed journal *eco.mont*. The paper is due to be published later in 2021;
- The preparation of a chapter on mountain biosphere reserves for the book “Safeguarding mountains: A global challenge”, to be published by Elsevier in 2022;
- The preparation of a Memorandum of Understanding between UNESCO and MRI, and a survey of MRI members with regard to their current activities and future interests in mountain biosphere reserves;
- A webinar jointly organised by the MAB Secretariat and Euromontana, the European association for mountain areas, on 14 January 2021, on “Smart mountains: how can biosphere reserves contribute to the Green Deal?”, and further discussions regarding cooperation between the two organisations;
- Discussions between the Afromontane Research Unit, University of the Free State, South Africa, and UNESCO regarding formal support for the Southern African Mountain Conference, planned for March 2022.

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