UNESCO's Man and the Biosphere (MAB) Programme with its World Network of Biosphere Reserves

Thomas Schaaf

UNESCO, Division of Ecological and Earth Sciences,
1 rue Miollis, F-75732 Paris Cedex 15, France.
Tel : (+33-1) 45.68.40.65
Fax : (+33-1) 45.68.58.04
Email : t.schaaf@unesco.org
http://www.unesco.org/mab/

Keywords: UNESCO; Man and the Biosphere (MAB) Programme; environmental conservation; research; sustainable development; global change.

Executive Summary
This 'global programme background paper' gives a brief overview on UNESCO and its Programme on Man and the Biosphere (MAB), in particular with regard to its activities related to research on mountain environments and conservation, and its role in launching ICIMOD as an international organization. It then informs on the World Network of Biosphere Reserves as a tool for environmental conservation, sustainable development and research on human-environment interactions. Biosphere reserves also serve as study and monitoring sites for the "Global Change in Mountain Regions (GLOCHAMORE)" Research Strategy.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) was created in 1945 to build peace in the minds of men. The organization deploys its action in the fields of Education, Natural Sciences, Social and Human Sciences, Culture, Communication and Information. Today, UNESCO functions as a laboratory of ideas and a standard-setter to forge universal agreements on emerging ethical issues. The Organization also serves as a clearinghouse – for the dissemination and sharing of information and knowledge – while helping Member States to build their human and institutional capacities in diverse fields. In short, UNESCO promotes international co-operation among its 193 Member States and six Associate Members through its Headquarters in Paris and its over 50 field offices, including its office in Kathmandu (Nepal).

Within the natural sciences, three scientific intergovernmental and international programmes are particularly concerned with the promotion of mountain research and development: the International Hydrological Programme (IHP), the International Geoscience Programme-IGCP, and the Man and the Biosphere (MAB) Programme.

The MAB Programme is a scientific research programme on the structure, functioning and dynamics of ecosystems. It uses an ecosystemic approach (e.g. focusing on mountain ecosystems, on drylands or on humid tropical ecosystems). The hallmark of the MAB Programme is its holistic and interdisciplinary study approach: in order to assess the interrelationships between people and the environment, use is made of both the classical natural sciences (e.g. biology, soil sciences, forestry etc.) but also of the social and economic sciences (e.g. economics, human geography, sociology).

Soon after the official launching of UNESCO's MAB Programme in 1972, an expert panel was created in 1973 to elaborate the scientific content of projects to be proposed under the MAB Programme. One such project came to be known as “MAB Project Area 6: “Impact of Human Activities on Mountain and Tundra Ecosystems”, which provided the framework for international scientific collaboration in major mountain ranges of the world, such as in the Alps, the Andes, the Carpathians, the Caucasus and the Hindu-Kush Himalayan region.

As regards the Hindu Kush-Himalayan region, one of UNESCO-MAB’s greatest accomplishments was the setting up of the International Centre for Integrated Mountain Development (ICIMOD): In 1975, UNESCO-MAB organized a “MAB Regional Meeting on Integrated Ecological Research and Training in the South Asian Mountains, in particular the Hindu Kush – Himalayas” which was held in Kathmandu. At this meeting, the Government of Nepal proposed to host in Kathmandu a Regional Centre for Integrated Mountain Development in the Hindu Kush – Himalayas. Based on the meeting’s recommendations and proposals, the 19th Session of the UNESCO General Conference (1976) authorized technical support under the MAB Programme for the creation of such a Centre. With financial assistance provided by the governments of Germany and Switzerland, feasibility studies were worked out by UNESCO which resulted in the signing of an agreement in 1981 between UNESCO and the Government of Nepal, thus providing the legal basis for this international autonomous centre. ICIMOD was finally inaugurated in December 1983 and its substantial work began as from September 1984 onwards.

Since its inception some 35 years ago, the MAB Programme has kept pace with new scientific, environmental and societal developments. Since the early 1990's, the MAB Programme has shifted its focus on the realisation of three important thrusts: (a) environmental conservation, (b) scientific research, and (c) sustainable development. In bringing together these three components physically on the ground, one can speak of a "biosphere reserve". Biosphere reserves try to demonstrate that environmental conservation can be used for the promotion of sustainable development through partnership with local people on natural resource management and based on scientific research and findings. This is realised through a specific land use system which takes into account topographic, biological, economic and socio-cultural specificities of a site. Biosphere reserves have three different, but interrelated functions.

(a) Conservation function: Biosphere reserves provide protection of indigenous genetic resources, plant and animal species, ecosystems and landscapes of value for the conservation of the world's biological diversity.

(b) Development function: Biosphere reserves seek to combine conservation concerns with sustainable use of ecosystems resources through close co-operation with local communities, taking advantage of traditional knowledge, indigenous products and appropriate land management.

(c) Logistic function: Biosphere reserves are linked through a global network; they provide facilities for research, monitoring, education and training for local purposes as well as for international or regional comparative research and monitoring programmes.

The articulation of these three functions is translated on the ground through a zonation pattern The zonation includes a core area (or areas) devoted to strict environmental protection according to pre-established conservation objectives. The core area is surrounded by or contiguous with a delineated buffer zone (or zones) where only activities compatible with the conservation objectives can take place. Finally, a broadly defined transition area encircles the core and buffer areas where co-operation with the population and sustainable resources management practices are developed.

Biosphere reserves, collectively referred to World Network of Biosphere Reserves, are much like laboratories where new and optimal practices to manage nature and human activities are tested and demonstrated. They outpace traditional confined conservation zones, combining core protected areas with zones where sustainable development is fostered by local dwellers and enterprises.

Today (Nov. 2008), there are 531 biosphere reserves in 105 countries. About 40% of all biosphere reserves are located in mountain areas of the world.

A world-wide network to study global change processes in mountains has been set up since October 2003. It is based on some 25 mountain biosphere reserves in all continents that serve as monitoring and study sites. A “Global Change in Mountain Regions (GLOCHAMORE) Research Strategy” has been worked out to:

- detect signals of global change;
- identify the consequences of global change impacts on mountain environments and human livelihoods;
- suggest responses to global change impacts at local and regional scales.

The structure of mountain biosphere reserves provides ideal global change “testing sites” with core protected mountain areas surrounded by lower-elevation buffer zones that are more strongly influenced by human activities. The GLOCHAMORE Research Strategy is adapted for implementation in mountain biosphere reserves in both developed and developing countries. This was achieved by actively involving biosphere managers throughout the development process of the strategy. UNESCO-MAB with its partners is in the process of implementing the GLOCHAMORE Research Strategy the world over. Several biosphere reserves in the Hindu-Kush Himalaya region and adjacent mountain ranges are already part of the GLOCHAMORE initiative; additional sites are welcome to join in.

Website references

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http://www.unesco.org/mab/

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UNESCO-MAB’s work on mountain-related issues:
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GLOCHAMORE Research Strategy (pdf file for download):
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