

Julia Marton-Lefèvre

Biosphere Reserves – A Visionary Tool for Addressing Today's Challenges

The concept of biosphere reserves had an important impact on our perceptions of the man-biosphere-relationship and on the necessity of reconciling conservation and use. The concept paved the way for contemporary approaches to protected areas and for implementing international conventions such as Agenda 21, the Convention on Biological Diversity and the Ramsar Convention.

A cornerstone of the concept of sustainable development is the conviction that nature and humans can co-exist in a harmonious way. This belief, however, was not widely spread when the concept of biosphere reserves was first proposed in the mid 60s. In fact, at that time many conservationists hesitated to adopt the notion and they questioned its success. But the concept was well-supported by results from scientific research in the late 60s and 70s which had shown that supposedly virgin habitats such as forests in the Congo and the Amazon Basins were in fact the result of interaction between human beings and their environment over millennia.

The Biosphere Conference organized by UNESCO in 1968 represented the first intergovernmental conference seeking to reconcile both, conservation and use of natural resources - a notion that was adopted by the Convention on Biological Diversity more than 20 years later. The aim of the conference was to promote the need for humans and nature to interact in a positive way. The "Man and the Biosphere" (MAB) programme was officially launched in 1970 and formally endorsed by the UN Conference on Human Environment in Stockholm in 1972. One of the most ambitious projects within this programme was the establishment of a coordinated, global network of biosphere reserves. This project was well received and has been very successful so far. Nowadays, 529 biosphere reserves cover more than 5 million square kilometres in 105 countries (UNEP-WCMC and IUCN, 2006). This success is the result of the commitment by governments and NGOs but it should also be seen as a tribute to the visionary thinking and hard work of

Michel Batisse who can be considered to be the "father" of biosphere reserves.

The contribution of IUCN

From the outset, IUCN has been associated with the development and application of this concept. Many IUCN members have been engaged in promoting and establishing biosphere reserves. A number of IUCN field projects have been launched such as the one resulting in the development and implementation of an integrated management plan for the Saloum Delta Biosphere Reserve in Senegal. IUCN also contributes to the work of

the Advisory Committee for Biosphere Reserves which supports the work of the International Co-ordinating Council of the MAB Programme. In preparation for the International Conference on Biosphere Reserves (Seville, Spain 1995), IUCN carried out an evaluation of the coverage and management effectiveness of biosphere reserves. A number of technical and policy recommendations from this evaluation were formally included in the Seville Strategy and the Statutory Framework of the World Biosphere Network. Thus, IUCN is in a privileged position to assess the importance and impacts of the biosphere reserves concept and its application.



Photo © Lutz Möller

New paradigm for protected areas

What did we learn? First of all, as noted above, the concept of biosphere reserves has influenced the overall understanding of the relationship between humans and nature and has emphasized the need to find a balance between nature conservation and sustainable use. Today, this is a widely accepted concept which has been included in a number of international and regional agreements. It is also a key principle in what IUCN called the "new paradigm for protected areas" which was discussed and endorsed at the 5th IUCN World Parks Congress (Durban, South Africa, 1993).

Biosphere reserves have played a seminal role in influencing the development of tools that are essential in achieving the key goals contained in Agenda 21 as well as in a number of international conventions such as the Ramsar Convention, the UNESCO World Heritage Convention and

the Convention on Biological Diversity. In all these agreements the need to ensure adequate planning and management of biodiversity is of paramount importance. They all call for proper ecological zoning and a management system that responds to the environmental and socio-economic needs of each particular area. Both concepts, zoning and management, have been tested in biosphere reserves all over the world and have had a deep impact on the practical work in protected areas.

Moreover, the idea of having core zones in which protection is enhanced through the establishment of buffer zones, where environmentally-friendly economic activities are implemented, has led to a number of crucial principles. These concern the development of biological corridors and other forms of ecological connectivity in, around and between protected areas (Ponce, C; 1998). These principles have, inter alia, been guiding most of the activities implemented by the government of Madagascar and

several NGOs in order to protect the remnants of tropical rainforest and its biodiversity. There is little doubt that the experience and the knowledge obtained from the management of biosphere reserves in relation to zoning and connectivity have greatly influenced both, the concept and the application of the ecosystem approach promoted by the Convention on Biological Diversity.

Other important issues that were influenced by the theoretical as well as the practical approach to biosphere reserves are those related to the need for inter-institutional coordination and a multi-disciplinary approach to planning and management. This is reflected by numerous projects such as those implemented in the woodlands of Mata Atlântica in Brazil (Lino/Dias, 2005), but there are also an increasing number of innovative initiatives that reach far beyond the national level: Several projects implemented in East Europe address transboundary management of shared ecosystems (Guziová,

UNESCO Biosphere Reserve Sian Ka'an

Mexico

"The place where the sky was born" – this is the meaning of Sian Ka'an in the language of the Maya. This biosphere reserve lies to the east of the Yucatan peninsula in the Mexican state Quintana Roo. The reserve covers an area of 5,281 km². It was included into the world network in 1986 and in 1987 designated in addition as a World Heritage Site. Mangroves, dunes, marshes, forests and huge coral reefs, parts of the second largest barrier reef in the world, form this coastal landscape.

With over 4,000 species of plants and 336 species of birds, the area boasts a substantial biodiversity. For many species of waders and two endangered species of ocean turtles, it serves as breeding territory. Sian Ka'an is not only of importance for its biodiversity but also for its history. Located a few kilometres to the south of the famous Maya-Tempel Tulum, 23 Maya sites have been discovered in the area. The Maya still represent the majority of the 2,000 residents of this biosphere reserve.

Tourism, immigration and development put a lot of pressure on the biosphere reserve. The management and preservation of natural resources are therefore top priorities. Furthermore, agricultural methods are being tested in order to conserve the delicate character of the soil.

Further information:

<http://www.unesco.org/mabdb/br/brdir/directory/biores.asp?mode=all&Code=MEX+05>

Photo © Flickr Creative Commons: Stevo



1998) while Spain and Morocco have successfully established an intercontinental coastal and marine biosphere reserve, an initiative that was supported by the IUCN Centre for Mediterranean Cooperation.

Sources of hope

Furthermore, biosphere reserves have a great influence on socio-economic issues and therefore play an important role in relation to poverty reduction and the achievement of the Millennium Development Goals. In many cases, biosphere reserves are sources of hope for local communities and indigenous peoples that perceive them as a viable option for enhancing their livelihoods. This is probably the most important success story of the MAB programme. Many examples give proof of this, such as the Sierra Gorda Biosphere Reserve in Mexico that successfully managed to provide a number of alternative economic options for the local population, and the Fitzgerald River Biosphere Reserve in Southern Australia which has helped to revitalize the local economy (West, 2001).

Finally, the contribution of biosphere reserves to the understanding of dynamics in ecosystems has also been important for global efforts concerning the conservation of biodiversity. From the outset, environmental and socio-economic research has been a key objective of the MAB programme. The global network of biosphere reserves has indeed contributed to assessing the "health" of our planet and the impacts of human development, such as climate change. An excellent example of this is the research programme implemented in the Amazon Basin which has substantially contributed to understanding and guiding conservation and development efforts in this critical area of biodiversity (UNESCO, ANCB, EBB, CYTED and IUCB, 2000).

New challenges

Although there are impressive achievements today, there are still huge challenges ahead of us. One priority will be the conservation of marine biodiversity because up to now the protection of the oceans is fragmentary. It is necessary to counter the decline in fish stocks and the predicted impacts of climate change



Photo © Gertrud Hein

on marine ecosystems and on the millions of people living in coastal areas.

Therefore, biosphere reserves should become models for the implementation of mitigation and adaptation strategies which address the threats of climate change. In a world that is increasingly affected by armed conflicts and intolerance, biosphere reserves could help to promote intercultural exchange between nations and peoples, thus also becoming a tool for conflict-resolution and peace-keeping efforts. These are difficult challenges but it is essential to address them in order to build a better world. In my opinion, there is little doubt that biosphere reserves have been, are and will continue to be a powerful tool for achieving IUCN's vision of "A just world that values and conserves nature."

Literature:

Guziová, Z. (1998). Across the Frontiers: Biosphere Reserves in Bioregional Management of Shared Ecosystems in Central Europe. In IUCN; UNESCO and MAB Programme. Biosphere Reserves: Myth or Reality, S. 11-17.

IUCN (1995). An Evaluation of the Coverage' and Management Effectiveness of Biosphere Reserves. Seville, Spain, S. 48f.

Lino, F. / Dias, H. (2005). The Forest and Water Programme in the Atlantic Forest Biome, Brazil. MAB Programme Working Paper Nr. 34. Paris, Frankreich, S. 76f.

Ponce, C. (1998). Biosphere Reserves from a Conservationist's Standpoint: theory and practice. In IUCN; UNESCO and MAB Programme. Biosphere Reserves: Myth or Reality, S. 17-21.

UNESCO, ANCB, EBB, CYTED and IUCN (2000). Experiencias de Monitoreo Socio-Ambiental en Reservas de la Biosfera y otras Áreas Protegidas en la Amazonia. UNESCO Regional Office for LAC, Montevideo, Uruguay, S. 432f.

West, G. (2001). Biosphere Reserves for developing quality economies: the Fitzgerald Biosphere Reserve, Australia. In PARKS Magazine, Vol. 11, Nr. 1, Biosphere Reserves. Nature Bureau, UK, S. 10-18.

Worboys, G.L. and Kothari, A. (2006). Managing Protected Areas: A global guide, EARTHSCAN, London. World Heritage Areas, Biosphere Reserves and Ramsar Sites (UNEP-WCMC and IUCN), S. 735-755.

Dr. Julia Marton-Lefèvre has been Director General of the World Conservation Union (IUCN) since January 2007. Before taking this post, she headed the UN-Peace-University (UPEACE) in Costa Rica, was director of LEAD International and Executive Director of the International Council for Science ICSU.