Chapter Two

BIOSPHERE RESERVES

2.1 The Concept

Biosphere reserves are "areas of terrestrial and coastal/marine ecosystems, or a combination thereof, which are internationally recognized within the framework of United Nations Educational, Scientific and Culture Organization (UNESCO) Program on Man and the Biosphere (MAB)" (Statutory Framework of the World Network of Biosphere Reserves, 1996). Reserves are nominated by national governments; each reserve must meet a minimal set of criteria and adhere to a minimal set of conditions before being admitted to the Network (UNESCO, 1996).

Each biosphere reserve is intended to fulfill three complementary functions: a conservation function, to preserve genetic resources, species, ecosystems and landscapes; a development function, to foster sustainable economic and human development; and a logistic support function, to support demonstration projects, environmental education and training, and research and monitoring related to local, national and global issues of conservation and sustainable development (UNESCO, 1996).

Physically, each biosphere reserve should contain three elements (Figure 2.1): one or more core areas, which are securely protected sites for conserving biological diversity, monitoring minimally disturbed ecosystems, and undertaking non-destructive research and other low-impact uses (such as education); a clearly identified buffer zone, which usually surrounds or adjoins the core areas and is used for co-operative activities compatible with sound ecological practices, including environmental education, recreation, ecotourism, and applied and basic research; and a flexible transition area, or area of co-operation, which may contain a variety of agricultural activities, settlements and other uses, and in which local communities, management agencies, scientists, non-governmental organizations (NGO), cultural groups, economic interests and other stakeholders work together to manage and sustainably develop the area's resources (UNESCO, 1996).

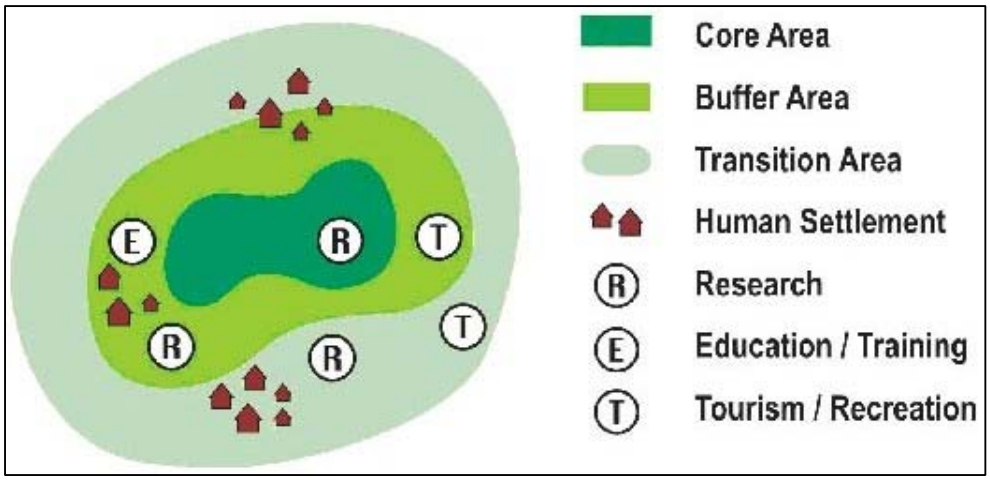

Figure 2.1 Classification of zones of a biosphere reserve (modified from www.unesco.org/mab).

2.2 Historical Overview

Biosphere reserves are designed to deal with these central questions: how can we reconcile the conservation of biodiversity and biological resources with their sustainable use?

The Biosphere Reserve network was established in 1968 as one program area of the Man and the Biosphere program of UNESCO, which operates through independent national committees in each of the 114 participating countries (refer to the website www.unesco.org/mab). The concept of biosphere reserves was initiated by a Task Force of UNESCO's Man and the Biosphere (MAB) Program in 1974. The biosphere reserve network included 324 reserves in 82 countries in 1995. As of mid-2005, the World Network of Biosphere Reserves became a collection of all 482 biosphere reserves in 102 countries (Figure 2.2) (www.unesco.org/mab).

New methodologies for involving stakeholders in decision-making processes and resolving conflicts have been developed, and increased attention has been given to the need to use regional approaches.

New kinds of biosphere reserves, such as cluster and transboundary reserves, have been devised and many biosphere reserves have evolved considerably, from a primary focus on conservation to a greater integration of conservation and development.

New international networks, fuelled by technological advances, including more powerful computers and internet, have greatly facilitated communication and cooperation between biosphere reserves in different countries.

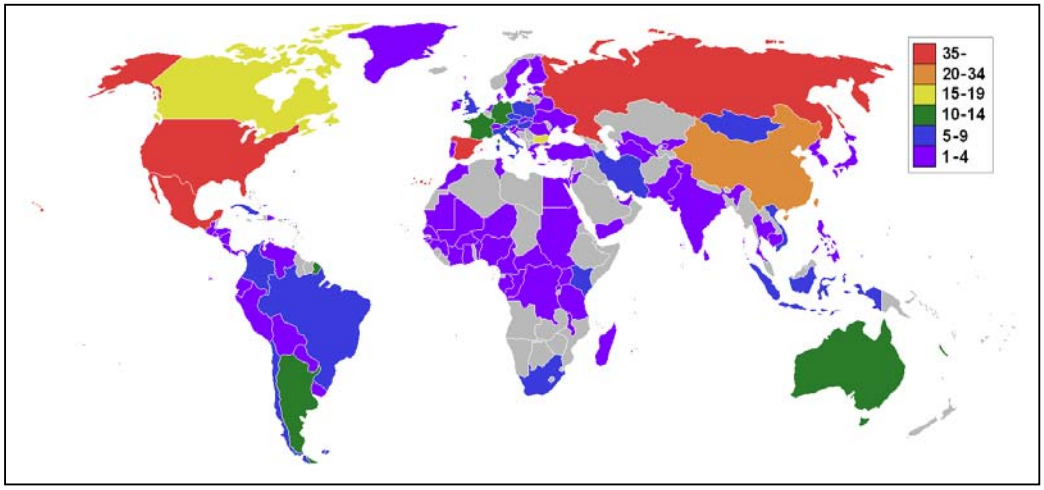

Figure 2.2 The World Network of Biosphere Reserves distributed by country (www.unesco.org/mab).

2.3 The Seville Strategy for Biosphere Reserves

The UNESCO organized the International Conference on Biosphere Reserves, held in Seville (Spain) in 1995. The Conference drew up the Seville Strategy, which is presented below.

The conference agreed that biosphere reserves are much more than just protected areas. They are working encapsulations of the model of sustainable development set out by the United Nations Conference on Environment and Development (UNCED) process, incorporating care of the environment and greater social equity, including respect for rural communities and their accumulated wisdom.

The biosphere reserves will be a means for the people who live and work within and around them to attain a balanced relationship with the natural world. They will also

contribute to the needs of society, as a whole, by showing a way to a more sustainable future.

The following ten key directions were identified by the Conference and represent the foundations of the Seville Strategy:

1. Strengthen the contribution that biosphere reserves make to the implementation of international agreements promoting conservation and sustainable development, especially to the Convention on Biological Diversity and other agreements, such as those on climate change, desertification and forests.
2. Develop biosphere reserves that include a wide variety of environmental, biological, economic and cultural situations, going from largely undisturbed regions and spreading towards cities. There is a particular potential and need to apply the biosphere reserve concept in the coastal and marine environment.
3. Strengthen the emerging regional, inter-regional and thematic networks of biosphere reserves as components within the World Network of Biosphere Reserves.
4. Reinforce scientific research, monitoring, training and education in biosphere reserves, since conservation and the rational use of resources in these areas require a sound base in the natural and social sciences, as well as the humanities. This need is particularly acute in countries where biosphere reserves lack human and financial resources, and should receive priority attention.
5. Ensure that all zones of biosphere reserves contribute appropriately to conservation, sustainable development and scientific understanding.
6. Extend the transition area to embrace large areas suitable for approaches, such as ecosystem management, and use biosphere reserves to explore and demonstrate approaches to sustainable development at the regional scale. For this, more attention should be given to the transition area.
7. Reflect more fully the human dimensions of biosphere reserves. Connections should be made between cultural and biological diversity. Traditional knowledge and genetic resources should be conserved, and their role in sustainable development should be recognized and encouraged.

8. Promote the management of each biosphere reserve essentially as a "pact" between the local community and society, as a whole. Management should be open, evolving and adaptive. Such an approach will help ensure that biosphere reserves - and their local communities - are better placed to respond to external political, economic and social.
9. Bring together all interested groups and sectors in a partnership approach to biosphere reserves, both at site and network levels. Information should flow freely among all concerned.
10. Invest in the future. Biosphere reserves should be used to further our understanding of humanity's relationship with the natural world, through programs of public awareness, information, formal and informal education, based on a long-term, inter-generational perspective.

2.4 The Strategy used in the Proposed Wurayah Biosphere Reserve

The Strategy used in the proposed Wurayah Biosphere Reserve has been extracted from the Seville Strategy for Biosphere Reserves. Goals for the used Strategy have been indentified at the application stage of the biosphere reserve concept in Wadi Wurayah and its hinterlands, these goals are:

Goal I: USE BIOSPHERE RESERVES TO CONSERVE NATURAL AND CULTURAL DIVERSITY

Objective I.1: Improve the coverage of natural and cultural biodiversity by means of the World Network of Biosphere Reserves.

Objective I.2: Integrate biosphere reserves into conservation planning.

Goal II: UTILIZE BIOSPHERE RESERVES AS MODELS OF LAND MANAGEMENT AND OF APPROACHES TO SUSTAINABLE DEVELOPMENT

Objective II.1: Secure the support and involvement of local people.

Objective II.2: Ensure better harmonization and interaction among the different biosphere reserve zones.

Objective II.3: Integrate biosphere reserves into regional planning.

Goal III: USE BIOSPHERE RESERVES FOR RESEARCH, MONITORING, EDUCATION, AND TRAINING

Objective III.1: Improve knowledge of the interactions between humans and the biosphere.

Objective III.2: Improve monitoring activities.

Objective III.3: Improve education, public awareness and involvement.

Objective III.4: Improve training for specialists and managers.

Goal IV: IMPLEMENT THE BIOSPHERE RESERVE CONCEPT

Objective IV.1: Integrate the functions of biosphere reserves.

Objective IV.2: Strengthen the World Biosphere Reserve Network.

Implementation indicators will be employed to assess the achievements of the proposed reserve at individual, national and international levels.

A special concern has been given to the Article 4 of the Statutory Framework of the Seville Strategy in the current study, because this Article contains general criteria for an area to be nominated as biosphere reserve. To match these criteria most of the information gathered from the Wadi Wurayah and its hinterlands was used and applied accordingly.