REPORT

SUBREGIONAL CONSULTATION MEETING ON BIOSPHERE RESERVES “REVIEW AND FUTURE PERSPECTIVE”
13-14 December 2006
CAIRO, EGYPT

Organized by:

UNESCO OFFICE IN CAIRO
REGIONAL OFFICE FOR SCIENCE AND TECHNOLOGY FOR THE ARAB STATES
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The participants of The Sub-regional Consultation Meeting on Biosphere Reserves expressed their great appreciation for the Meeting organizers and hosting country. They would like to give special thanks and gratitude to the organizing committee, led by Dr. Mohamed Al-Aawah, Ecology and Earth Sciences Specialist, UNESCO Office Cairo. They appreciate especially the continuous encouragement given by Dr. Mohamed Abdulrazzak, Director of UNESCO Regional Office for Science & Technology.

The support given to the Meeting by KEY organizations in Egypt, Sudan and Yemen is highly appreciated. They include the Egyptian, Sudanese and Yemeni National Commissions, The Egyptian Environmental Affairs Agency, The Wildlife Research Center of Sudan, Socotra Conservation and Development Programme from Yemen.

They extend their appreciation to all those who participated in the discussions and provided constructive input contributing to the success of this Meeting.
I. BACKGROUND

The statutory Framework (Article 9) of the MAB Programme requires that each member country carry out periodic reviews of its Biosphere Reserves. This sub-regional meeting was proposed by UNESCO Office in Cairo to help the participating countries review and assess their Biosphere Reserves. The initiative is based on the organization of series of regional events on Biosphere Reserves in the last two years, and on the outputs and recommendation of these events. At these meetings, the needs for countries to work together in addressing issues in application of BR concept in practice and in implementing Seville Strategy become evident.

The Man and the Biosphere Program (MAB) is based on the concept that it is possible to achieve a sustainable balance between the conservation of biological diversity, economic development, and maintenance of associated cultural values. The validity of this concept is tested, refined, demonstrated, and implemented in the Biosphere Reserves.

The Arab Region Biosphere Reserves are part of an international network and include many important conservation areas, ecological research sites, and environmental education areas in the region. The areas are important for developing the data, technology, and experience needed to implement the recommendations of the United Nations Conference on Environment and Development that relate to global issues, such as biodiversity, climate change, desertification, forest management, and sustainable development. Locally, an individual BR provides means for integrating conservation, research and monitoring, education and training, and involving local populations in conservation and development issues, in an area of outstanding ecological, scientific, and educational importance.

II. OBJECTIVES

- To review the status of the existing Biosphere Reserves in Egypt, Sudan and Yemen.
- To evaluate the effectiveness of the various approaches being used to implement the MAB concept, and identify successful examples that can serve as models.
- To establish a mechanism for coordination among managers and experts within each country and among the three countries, for planning and implementing the MAB concept in the existing Biosphere Reserves of their countries.
- To assess approaches being used to encourage multisectoral involvement in ecosystem management and provide appropriate recommendations and guidance to BRs.

III. STRUCTURE AND THEMES OF THE MEETING

This workshop is planned to be as interactive as possible: participants are strongly encouraged to exchange views, identifying lessons learnt, case studies and developing best practices pertaining to the following themes:

1. Priorities and needs for improving activities in the BRs.
2. Involvement of the public in the planning/management process.
3. Implementation of the MAB concept.
IV. EXPECTED RESULTS:

- Assess the current situation of the BR’s of participating countries.
- Promote a consensus on approaches and principles in implementing BR activities in these countries.
- Assess the potential for the development of a strategy for the BR management focusing on implementation and on practical solutions at the sub regional level.
- Identify sustainable solutions for challenges in BR by exchanging experience of best practice between the countries.
II. Main Topics of Discussion

A- Opening Session

Dr. Mohamed Al-Aawah, Ecology & Earth Sciences Programme Specialist at UNESCO Office in Cairo, welcomed the guests on behalf of Dr. Mohamed Abdulrazzak, Director of UNESCO Office in Cairo, with his opening address:

Distinguished colleagues and guests, ladies and gentlemen:
Allow me first to welcome you and convey the greeting and wishes of success to this meeting from our Director and colleagues in the Office.
This meeting precedes the meeting for the Arab MAB Network meeting, which is planned to be organized here in Cairo in April of next year. In this regards, I would like to mention that the MAB Advisory Committee and ICC have indicated in their last meeting that the Arab region needs to establish new Biosphere Reserves, and I believe that this a great opportunity for the Arab Countries to submit their nominations for the establishment of BR in their countries; and we will ask members of the representative of the Arab MAB to encourage their government to do so.

Distinguished Colleagues and guests,
Please allow me to give you briefing on the EES Programme of UNESCO Office in Cairo activities for the last two years. The programme has organized several meetings and workshops related to BR in the region, to mention some, a workshop on Community Based Environmental Conflict Management in Sana’a, Yemen, June.2005, a meeting on the impact of ecotourism in BR in Sharm Al-Shiekh, Egypt, Nov. 2005, and on the Economics of BR in Cairo, Dec.2005. In Addition, the programme has supported studies on the interrelationship between biodiversity and cultural diversity in Egypt, Lebanon, Yemen and Tunisia. It also continues to support several MAB activities including the ArabMAB Network and Young researcher MAB Award.

Colleagues and distinguished guest
It’s an honor to have such a distinguished group of Managers and Experts of BR in this meeting, and we hope that your presence will make the discussion and exchange of views in this meeting fruitful and successful to achieve your noble goals.
Thank you.

B- Documentary on Wadi Allaqi- Egypt

The workshop started with a short documentary produced by UNESCO Cairo Office on Wadi Allaqi BR. Wadi Allaqi, being rich in flora, contains the highest amount of plant diversity in the eastern deserts of Egypt. More than 80 bird species (native and migrating) and 143 endemic plant species have been registered in the BR, some of which are very rare and useful in terms of medical applications. However, some of this valuable flora is threatened of extinction. The documentary also focuses on the indigenous people who inhabit the BR; the Ababda and Bishari tribes. These Beduin groups mainly live on grazing, coal collection and cultivation of medical plants, as well as offering services to camel convoys who pass through the BR during their trips from Sudan to visit camel markets. Sadly, the local people of Wadi Allaqi face shortage of many basic needs; electricity, education and medical care and the area is in need of the support of donor groups and international organizations.

The documentary was followed by a short film on environmental awareness presented by school children. Also produced by UNESCO; the movie acknowledges World Environment
Day, June 5th and features Wadi Allaqi as a BR that embraces a large number of threatened species. Declared in 1993, Wadi Allaqi lies 180 km south of Aswan, near the Egyptian-Sudanese boarder with a 300,000 km land area. This educational movie was disseminated among school children in Egypt, between ages 12-15, to spread environmental awareness on BRs. It intends to help the children develop an understanding of the surrounding environment and means of conservation.

A short discussion followed the two movies on the need to assist the inhabitants of Wadi Allaqi, to support the sustainability of their lives. A new school is planned to open its doors in the Wadi and teachers need assistance to reach this relatively isolated population.

C- Overview on Meeting Objectives:

Dr. Al-Aawah then briefed the participants on the purpose of this meeting, as a preliminary step towards The MAB Conference in Madrid, 2008. “We need a new strategy for activating the Arab MAB” he quoted.

According to UNESCO Press release of October 27 2006, twenty-five new sites, including one trans-boundary reserve straddling Spain and Morocco, have been added to the global Network of UNESCO’s Man and Biosphere (MAB) Programme, which has been pioneering the practice of sustainable development on a scientific basis for over 30 years.

Eighteen of these new reserves are located in Mexico, three in Spain and one each in the Russian Federation, Viet Nam and Malawi. The Network now numbers 507 reserves in 102 countries. Sadly, only 18 of these reserves lie in 9 Arab countries.

“This is not a UNESCO event, but a countries' brainstorming meeting for selecting more BRs in the Arab region”, Dr. Al-Aawah stated. The Arab MAB works for a noble cause, thus improving the lives of deprived populations. This is a meeting for Egypt, Sudan and Yemen, to help them come up with a new mechanism for cooperation. UNESCO is expecting new BR nominations from these countries by the next Arab MAB meeting in 2007.

III. Country Presentations

1- Findings of the MAB-ICC 2006 and Proposed Biosphere Reserves in Egypt
Dr. Boshra Salem, Alexandria University

MAB programme focuses on providing an improved understanding of natural and social processes associated with the environment. It achieves its objectives through the establishment of Biosphere Reserves (BRs). These are areas of terrestrial and coastal ecosystems promoting solutions to reconcile the conservation of biodiversity with its sustainable use. They are usually nominated by national governments and remain under the sovereign jurisdiction of the countries in which they are situated. BRs serve as a tool for conservation of biodiversity and sustainable use of biological resources. BRs in the world altogether forms the World Network of Biosphere Reserves (WNBR), which fosters exchanges between biosphere reserves, facilitates co-operative activities, including scientific research and monitoring, environmental education and training.
The year 2006 marks 30 years of biosphere reserve designations that began in 1976. (only 18 in 9 Arab countries). As of this year there are 482 sites in 102 countries that constitute today’s WNBR. These BRs may be grouped into three generations of sites:

- The first generation: from 1976 to the first International Biosphere Reserve Conference in Minsk, Belarus and the publication and adoption of the Biosphere Reserve Action Plan by the ICC during 1983-1984: These sites met the original vision of biosphere reserves as places for conservation of nature and the genetic resources they contain therein, and for scientific research, education and monitoring dedicated to that purpose. Management of such areas was, even at this early stage of the evolution of the concept, expected to be carried out in close collaboration with local communities;

- The second generation: from 1985 to the launch of the Seville Strategy and the Statutory Framework of WNBR in 1995; these sites had clearer guidance than the first generation sites on zoning and the need to integrate the three functions of biosphere reserves. Biosphere reserve nomination forms and documentation submitted by Member States become more detailed and complex during this time;

- The third generation post-1995 sites. Increasingly biosphere reserves are not seen merely as protected areas and surrounding landscapes but as complex land/seascapes units with legally protected cores and extensive buffer and transitions zones outside that are under a variety of public and private ownership regimes with numerous stakeholders influencing economic development and environmental sustainability considerations.

The UN Decade of Education for Sustainable Development (UNDESD ; 2005-2014) presents a clear opportunity to position WNBR within such a worldwide niche for the benefit of sustainable development learning and practice of present and future generations. Capitalizing on the opportunity afforded by UNDESD to biosphere reserves during the Decade is constrained by many factors:  
a) inadequate recognition of the experience of biosphere reserve managers and coordinators by planners and decision makers;  
b) insufficient appreciation of the differences between biosphere reserves and conventional protected areas that are primarily dedicated to nature conservation;  
c) impediments to interdisciplinary research and capacity building and for collaboration between policy and research professionals and stakeholder communities to address issues and problems;  
d) and incomplete awareness of the role research, learning, and adaptive management approaches, skills and competencies must play in designing knowledge based institutional arrangements necessary for sustainable development.

Three panels were convened during the ICC session, on 25 October 2006, to address the integration challenge of the biosphere reserve under the following themes:

- Conservation and sustainable use of biodiversity;  
- Socio economic, human and institutional development;  
- Science and knowledge networks for sustainable development.

The three associated themes proposed aim to provide an appraisal of key features of biosphere reserves, with a view to taking stock of experiences and practices, and to discussing major challenges of WNBR for the forthcoming years (including the contribution of WNBR to
the 2010 biodiversity target of the Convention on Biological Diversity (CBD), the UN Millennium Development Goals (MDGs)). The panel discussions will also provide recommendations for improving scientific and institutional cooperation within WNBR and for increasing its future contributions.

MAB-ICC 2006 supported the proposal made by Ms Cristina Narbona Ruiz, Ministry of Environment of the Kingdom of Spain, to host the Third World Congress on Biosphere Reserves, in Madrid (Spain) on 48 February 2008 and expressed its warm thanks to the Kingdom of Spain for its kind offer. The Council also approved the holding/hosting of the 20th MAB-ICC in conjunction with the Third World Congress on the same provisional dates. In anticipation that most MAB Focal Points will attend the Madrid Congress, it is suggested that all MAB regional networks, including ArabMAB, should try to organize their meetings in conjunction with the Congress/MAB-Council in Madrid.

Proposed Biosphere Reserves in Egypt:
1. Wadi Gemal – Hammata: This marine and terrestrial protected area is situated in the Red Sea Governorate. It was declared in January 2003 under Law 102/1983 for the Natural Protectorates due to its outstanding natural and cultural heritage resources. Wadi Gemal – Hammata PA is approximately 50 km south of Marsa Alam. It covers approximately 4,000 km of land area, in addition to about 1,600 km of marine waters. The boundaries encompass a segment of the Red Sea coast some 44 km long and extends west some 50 km into the Eastern Desert to the Sheikh Shazli road. The protected area also includes Qarat El Hertway Bay and the offshore reefs and islands. Two of the most notable natural features are Wadi El Gemal and Hamata Mangroves for which the Protected Area is named. Ecotourism is being actively promoted as the most compatible form of tourism at these often sensitive natural and cultural heritage sites. The PA contains a diversity of marine and coastal and desert habitats each with its own unique plant and animal life, e.g. Coral Reefs, Sea Grass Beds, Islands, Mangroves, Desert, and Man-made Environments. At present there is little local community involvement or benefit sharing from tourism. Local residents include the coastal fishing communities and the bedouins of the Ababda tribe inhabiting the desert regions of the park. While some of these communities reside in permanent settlements, others are of a more temporary nature, and come and go on a seasonal basis. Most of the local communities are extremely poor with little income earning potential. They also lack basic social services.

2. St. Catherine: Designated as a protected area nationally in 1996 and designated in 2005 as a World cultural Heritage site. Total area of the PA is 4300 km². It aims at protecting the threatened wildlife. Local community from Bedouins of 7 tribes, total population of about 6500. The core area, 345 km² is a natural area included within the block of ingenious crystalline pre-Cambrian circular ring complex formation, more than 600 million years old. Within St catherine area lies a number of satellites of outstanding cultural and natural heritage monuments associated with structures and wadis of universal importance. It is floristically one of the important centers of Endemism of plant diversity (316 plant species, 19 are endemic, 170 medicinal, ). The high diversity of flora is reflected into high diversity of Fauna; 12 species of mammals, 45 of birds, 33 reptiles. Traditional land uses include fruit gardens (400 micro gardens), handicrafts, grazing.

2- Findings and Recommendations of MAB-ICC 2006 Meeting
Biosphere Reserves in Sudan and Tools for Development
Dr. Salwa Abdel-Hameed, Wildlife Research Center, Sudan

The presentation includes a report about the Thirteen Meeting of the Advisory Committee for Biosphere Reserves which was held at UNESCO Headquarters, Paris on 5-7, July, 2006. and Biosphere Reserve in Sudan and tools for developments.

The Advisory Committee for Biosphere Reserves (twelve members) meeting reported on the main activities of the Division of Ecological and Earth Sciences and the MAB Programme, since last MAB Bureau meeting, which was held during the International Coordinating Council (ICC) in October 2005.

Several items had being discussed in details including:

1- Examination of new biosphere reserves nominations: 36 new B.R. were proposed by the member states, examined informally in two groups. 2 were proposed by Arab countries Jebal Samhan/ Oman and a Transboundry B.R. between Morocco and Spain. The Transboundry B.R. between Morocco and Spain had been approved, but Jebal Samhan/ Oman was not approved, with some recommendations and suggestions to improve the file and maps, with the assistance of UNESCO Doha Office.

2- Reviewing of 12 Periodic reports received since the last Advisory Committee meeting, of the status of biosphere reserves designated for a period of over ten years. The periodic review reports, together with any zonation and location maps, were examined by Advisory Committee members following the criteria for the evaluation of effectiveness of biosphere reserves in integrating their three functions.

3- Advisory Committee members also elected the winner for Michel Batisse Award for Biosphere Reserve Management, the 10 winners of Young Scientists Awards for research in B.R. among them Morocco and Great Apes Awards for 20 African countries among them Sudan.

4- The Advisory Committee members are invited to comment and to provide advice regarding the priority themes to be addressed in the MAB clearing-house mechanism, and on the ways of developing directions for future work of the MAB Secretariat devoted to genetic resources in biosphere reserves; and provide advice on the best means for collecting information on examples, case studies and lessons learned on conservation and sustainable use of genetic resources in biosphere reserves.

The presentation includes the objectives behind the protected areas establishment, their different values and the constraints facing them. Noting the different initiatives to overcome this constraints, as tools that foster their developments, towards better managements and conservation of biodiversity, such as the African Protected Areas Initiative of IUCN and Biosphere Reserve Concept of UNESCO. The African Protected Areas Initiative focus on Regional policy for cooperating all activities of institutions and experts towards best management and sustainable conservation of biodiversity with respect to political will and commitments of African Governments. The B.R. Concept calls for conservation of biodiversity, provision of services and sustainable development, with the involvement of all stakeholders in the management process.

The presentation also presented some facts on the status of B.R. in Sudan (Dinder and Radom), how local people depends on their resources and some factors towards their developments such as the implementation of B.R. concept, articulation of zonation pattern and management planning for functions of the three zones. Several recommendations were addressed to the Arab region such as:-

• Improve the existing B.R.- function of zones.
Ecology & Earth Sciences Programme

- Nomination of new B.R. (J. El Dair, Sanganeb and Dongonab B.R.’s in Sudan)
- Complete the work towards declaration of TBR between Arab countries such as TBR between Sudan and Egypt
- Strengthening Arab-MAB network.
- Encouragement of young scientists (for different awards)
- Exchange of experience and expertise between countries - at cluster level
- Capacity building, awareness and training in different aspects especially in data collection, monitoring and mapping.

3- Dinder National Park, Sudan
Mr. Sannad Suleman Sanad

All the world support the declaration and the establishment of protected areas network, because they are of great values to conservation and protection of all natural resources and the biodiversity they contain. They sustain the basic ecological functions of the ecosystems. Dinder National Park was declared in 1935 as the first protected area in Sudan. Sudan now has 27 protected areas with different conservation status, covering about 15862000 ha., representing 6.4% from the total area of Sudan.

The presentation covers the location of the Dinder N. Park, its area size, the climate, the distribution of the three ecological ecosystems; the riverian, woodlands and mayas (meadoes) ecosystems with their diverse flora and fauna. Dinder provides the habitat for about 17 types of large mammals, more than 250 bird species, many reptiles, small mammals, insects and fish species. Many of them are not found elsewhere. It is of an international importance as a wetland habitat for many migratory bird species.

Dinder used to be managed as a National Park. It received complete protection with law enforcement under organized system of patrolling. There are two administrative structures; with several units for management and technical activities. The management activities differ with the different seasons (dry and rainy seasons). The paper also presented the infrastructure in the park, gave figures of manpower in the park and the surrounding states and reviewed the status of tourism in the last 4 years. Many difficulties and obstacles hinder its proper management such as the natural hazards and the illegal activities by the humans such as cutting of trees, collection of firewood, honey collection, fire, encroachment of agriculture, trespassing of pastoralists... etc.

Although Dinder was listed in UNESCO list of Biospher reserves (BR) since 1979, but the concept was not adopted perfectly only recently after the implementation of Dinder Development Project (2001) which was funded by GEF and UNDP. The aims of the project is the protection of biodiversity and involvement of the local communities in management of the reserve towards sustainable development. Through the project many activities were conducted such as ecological base-line surveys, the management plan which includes the zonation of the BR., training programs for managers and communities, purchasing of utilities and equipment, development of infrastructure, and environmental awareness for local communities, government authorities and decision makers in the three states surrounding the reserve. The project also raise the capacities of the local communities and help them to find alternatives via revolving funds and small grants projects. Hence, the local communities now start to understand their responsibilities towards protecting the Dinder reserve.
4- An Introduction to Socotra MAB and Ongoing EPA/SCDP Activities  
Mr. Nadim Taleb, Socotra Conservation & Development Program, Yemen

The Socotra Archipelago, Yemen, is situated in the northwest of the Indian Ocean between 12°.06 – 12°.42N and 52°.03 – 54°.32E. The Socotra Archipelago consists of four islands, of which, Socotra is the main island and covers an area of 3625 km2. The other islands are Abdulkuri (133 km2), The Brothers Samha (41 km2) and Darsa (5.412 km2) as well as two small rocky outcrops called Sabonia and Saiyal.

The maximum length of Socotra is ~130 km which the maximum width ~ 40 km. However, Ecologically, Socotra can be divided into three main zones. i) The coastal plain, varying considerably in width. ii) The limestone plateau, extending over most of the island between altitude of about 300 to 700 m dissected by a number of deep valleys within steep escarpments dropping to either the coastal plain or directly to the sea, . iii) The Hagher Mountains in the centre rising to 1550 m.

The island was isolated until the beginning of 1990 when a new sea port was constructed in addition to a new airport later in the 2000. Historically, Socotra has been inhabited for thousands of years and people had no choice but to live in balance with their natural resources. This isolation however had resulted a unique language, culture and traditions for the Socotrian people. The Socotris were able to preserve the biodiversity of Socotra until today through their excellent traditional land use management. The main natural resources for the Socotris are Fish, Livestock, palm date and medicinal plants.

Socotra facing a very strong NW monsoon resulting no access by sea for 5 months (May to September) due to strong winds and high seas.

Socotra has been described as the Galapagos of the Indian Ocean due to the high level of endemic Flora, Fauna and marine life.

A third of its plant species are endemic, whoever the total plant species was recorded so far in Socotra was 825 which 307 are no found anywhere in the world. More than 70% of its fauna are endemic. Socotra is home to 6 endemic bird species and 11 subspecies, from a total of 43 breeding species. Socotra also has the largest population of the Egyptian vulture in the world (recently considered globally threatened).

The Socotra archipelago has attracted much national and international attention in recent years. The first work in the island started in 1997 when the first GEF project (Socotra Biodiversity Project) took place in the island and worked closely with the Environmental Protection Authority (EPA). That work resulted in the Zoning Plan (ZP) for Socotra which divided Socotra into areas for conservation and development. This ZP was approved by Presidential Decree No, 275 for the year 2000. Further more Socotra waws declared Man and Biosphere Reserve by UNESCO in 2003 and thus became the first MAB in the Arabian Peninsula.
The Socotra Conservation and Development Program (SCDP) is funded by the government of Italy, UNDP and the government of Yemen, and is working with the EPA to conduct the implementation of the ZP and carrying out terrestrial and marine monitoring programs and researches. Education and awareness activities target the villagers, women, fishermens and students. EPA/SCDP also are conducting the caves research with cooperation of expedition from Belgium Republic discovered so far 43 caves in the island of which the longest cave was 10 km.

Increasing threats are due to the uncontrolled development, overgrazing, exotic species, over-fishing, fuel wood and timber over use, population increase and immigration from the main land.

5- El-Omayed Biosphere Reserve
Tamer Saber Ismail, Nature Conservation Sector, EEAA, Egypt

El Omayed Biosphere reserve is a part of the eastern physiographic province of western Mediterranean region of Egypt. It is located at 80 km west of Alexandria in the form of transect which consists of a series of elongated ridges, alternating with depressions, running parallel to the Mediterranean coast in NE-SW direction. The area is bounded by latitudes 30° 38’ and 30° 52’ N, and by longitudes 29° 00’ and 29° 18’ E. It extends for about 17.5 km from the sea shore towards the northern edge of the inland plateau.

El Omayed Biosphere reserve is located in an area representing one of the Egyptian protectorates that include a biosphere reserves which is internationally recognized within UNESCO’s Man and the Biosphere (MAB) Programme for promoting and demonstrating a balanced relationship between people and nature.

Many Nature Protectorates are designed to meet some of the most challenging issues that the world is facing as we move towards 21st century. How can we conserve the diversity of plants, animals and microorganisms, maintain healthy natural ecosystems and to reconcile conservation of biological resources with their sustainable use.

The physiographic variation in El Omayed Biosphere reserve leads to the distinction of six types of habitats. These habitats are more or less arranged in the same sequence from the northern Mediterranean coast to the south.

1. Coastal ridge, composed mainly of snow-white oolitic calcareous rocks, and overlain by dunes.
2. Saline depressions, with brackish water and saline calcareous deposits; in other places, the depressions are less saline and water table is deep (>1 m).
3. Non-saline depressions, with a mixture of calcareous and siliceous deposits of deep loess.
4. Inland ridges, formed of limestone with a hard crystallized crust, and less calcareous than the coastal ridge.
5. Inland plateau, characterized by an extensive flat rocky surface and shallow soil.
6. Inland siliceous deposits, sporadically distributed on the inland plateau and occasionally forming dunes, especially in more inland sites.

El-Omayed area is included in Emberger's Mediterranean isoclimatic zone. The UNESCO bioclimatic map (1977) designates its climate as arid with mild winter and warm summer. The area belongs to the "sub-desertic warm temperate climate" (UNESCO/MAB).

El-Omayed area encompasses a segment of the Mediterranean coastal desert a distinct habitat type and one of the richest terrestrial areas in biodiversity in Egypt. The area has high flora diversity: over 183 plant species have been recorded and listed in a study of plant uses and value in the protected area, while many other species are recorded in specific localities or micro-habitats in the region. 26 plants of these are considered to be nationally threatened and a few are restricted range and globally threatened species.

This area also has some of the highest mammal and reptile diversity in the country, with a number of restricted range and globally threatened species occurring. In addition, the area has a rich invertebrate life there is possibly a high endemism of insects and spiders. As for birds, the Protected Area is situated on internationally important flyway for birds migrating between Eurasia and Africa.

The main threats to this biodiversity are habitat destruction and over exploitation. Examples are: extensive construction of tourist developments, transforming the natural habitats by land reclamation, clearance of natural vegetation for cultivation, ad hoc quarrying and stone and dumping of its waste materials in the area. Also uncontrolled bird hunting, collection of rodents, reptiles, and others for the trade in wild animals, over grazing, over collection of fuel wood, over harvesting of some wild plants used as remedial medicines, herbs and other products.

6- Wadi Allaqi, Conservation, Deteriorating and Rationalization of Water
Ashraf Hussein Ibrahim, Nature Conservation Sector, EEAA, Egypt

General description and historical background
Wadi Allaqi is the most extensive drainage system in the Nubian Desert lies at an important geological boundary. The upstream tributaries of wadi drain some of the mountains that form a natural divide between the Eastern Desert and the Red Sea coast. These tributaries may receive occasional Rainfall and the drainage can accumulate into the main channel of Wadi Allaqi Forming torrents that discharge into the Nile.

When the Aswan High Dam was built, and Lake Nasser filled between 1967 and 1972, water entered the mouth of the Wadi, which thus became part of the lake. About 80 km of the downstream part of Wadi Allaqi was inundated and remained under water for several years. When the level of the lake fell in the 1980s, the water receded some 40 km, leaving deposits of silt on the exposed wadi bed where extensive thickets of tamarisk shrubs quickly established themselves and a new ecosystem developed.
Wadi Allaqi, the largest wadi in Egypt's south-eastern desert, was declared a conservation area in 1989 and has had protected status since then within the Egyptian Environmental Affairs Agency. Because of its arid environment and combination of two ecosystems (extreme arid desert and shores of Lake Nasser) inhabited by nomadic tribes, this area was designated a biosphere reserve in 1993 within the UNESCO Man and Biosphere Programme (MAB).

**Location of Wadi Allaqi Conservation Area**

is situated about 180km south of Aswan on the Eastern side of lake Nasser, between latitude 22 and 23 North and longitude 33 and 35 East. It extends about 275 km in a NW-SE direction. It has an average width of about 1km, being narrower upstream and broader mid – and downstream as it approaches as the lake.

**Climate**

Wadi Allaqi runs through and is part of a hyper arid, hot desert area which receives virtually no rainfall. Summer maximum daily temperatures commonly exceed 50 ºC, making this one of the hottest places on earth. The mean annual temperature is 30 ºC in winter, by contrast, minimum temperatures may approach 0 ºC and the monthly minimum is 7 ºC. Relative humidity varies between 10% and 60%.

**Human Population of Biosphere Reserve**

Two main ethnic groups are represented in Wadi Allaqi the Ababda and Bishari. The Ababda have lived in the Eastern Desert of Egypt since at least the sixteenth century. The inhabitants of the downstream part live along the lake shore and shift their settlements according to fluctuation in the level of the lake. The Bedouins of this area comprises of two groups, of which members of the Ababda tribe make up about.

The construction of the High Dam (1969) and the formation of the Lake Nasser attract Bedouin tribes. They moved to the shores of lake to take the opportunity of available water and grazing lands. Three Ababda tribes and one Bishari settled near the lake shores.

In 1989 was 220 to 250 inhabitants in downstream and now reach about 800 inhabitants in both up and downstream.

**Vegetation**

Vegetation occupies a very limited area that is a narrow wadi channel, the Wadi Allaqi area is floristically rich and supports possibly the highest plant biodiversity within the Eastern Desert. So far (Springuel and Murphy 1989) recorded 89 species of higher plants, (Springuel and Sheded 1994) recorded 127 species although (El soghier 1993) recorded 67 species, (Springuel and Sheded1994-2000) recorded 139 on the other (Ibrahim 2006) recorded 98 species, and he was discussed this fluctuations due to human impacts, constraints, and the sever aridity and no rainfall since 1995.

The vegetation of the main channel is essentially an open scrubland of sparse and scattered acacia trees. There are no other plants except a few perennial species during the rainless period. However, after rain there is a profusion of annual plants on the floor of the wadi.

The vegetation of upstream part of Wadi Allaqi is rich in trees and shrubs. In certain localities the plant growth acquires a form that may be described as a desert open forest with many acacia trees and thorny Balanites aegyptiaca, Salvadora persica is also common.

<table>
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<td>99 species</td>
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</table>
Mammals And Reptiles

More than 20 species and subspecies of mammals exist in Wadi Allaqi, of which 13 have been recorded and about eight have only been sighted. Five of the 13 recorded species are endangered. Three of these are endemic: Dipodillus mackilligom, the cat Fells margarita, and the bat Pipistrellus article. The other two are the wild ass and the Barbary sheep. This area probably supports the largest populations of Dorcas gazelle in Egypt (rapidly declining elsewhere in the country). In January 1996 more than 300 individual Dorcas gazelles were counted in the upstream part of Wadi Allaqi. There are many reptiles including a large population of venomous vipers. Crocodiles are observed occasionally on shores of Lake Nasser.

Birds according to our great activities in birds monitoring, birds number access between 2000 to 2006 to 80 species however, Ostriches have been not seen since 1991.

Mineral Resources
Wadi Allaqi was a major center of gold production in Pharaonic times. There are several old mines in the area, some of which may be economically viable. Copper and copper-nickel were also excavated in ancient times; deposits occur in the north of the Wadi. Chromite, uranium, talc and graphite are found in several locations.

What are the cultural elements that could attract tourism to Wadi Allaqi the biosphere reserve
The Indigenous Knowledge of the nomadic society created from living in close contact with plants and animals and they build their knowledge on many years of trial and error experimentation. The inhabitants of Wadi Allaqi depended on the natural resources of the wadi, which created a culture of intimate relation between humans and available biota.

Historical And Archeological sites as the ancient gold mines which is located in Umm Quareigat and has a long history extended from the Middle Kingdom. The most accessible site in wadi is Wadi Gabgaba which was one of older phase of River Nile. Some sites in Wadi Allaqi consist of clusters of rock carvings on the sand stone escarpments bounding the sites of the wadi.

Special Language Of Beshari Bedouins which called Beja can be one of cultures that may attract the tourists particularly who are interesting in languages.

Bedouins Handicrafts Also One Of Main Culture Elements That May Attract The Tourists. The Bedouins use the row materials from their environments to make several products used in their life, for example, women make nice carpets (which called Shamlla) from sheep wool to cover on the tents and on the ground during the cold season. They also make bags to keep things, ropes. Sheep and goats leathers also used in their handicrafts. The leather products are packets, Querba (leather bag used to keep the water clean and cold), Kabouta (pot made by palm leaves and weaved by leather) and leather wire which characterized of being stronger than wool and used in some products. Pots in different sizes, plates and baskets made out of palm trees leaves which stained by different colors or
used by their native colour. Most the women particularly the old are well skilled in weaving, tapestry and embroidery.

**Fishing Tourism** due to the presence of Lake Nasser shore line and Wadi Allaqi Khors.

**Birds Watching**, wildlife tourism and photography Wadi Allaqi famous by more than 70 species of birds so it can be attract tourists who love the.

Education/environmental tourism: Educating visitors about the functions of a Biosphere Reserve, what it protects, why it exists.

**A trek across the desert** (e.g. the journey to Gebel Elba through Wadi Allaqi) Desert Safari.

**Health tourism** - based on the clean, quiet environment, spiritual heritage and medicinal plant/herbal treatment

Scientific tourism: e.g. assisting scientists in conducting conservation research, ethno-botanical studies, searching for and working with traditional groups to identify these properties.

**Activities in Wadi Allaqi**

During the last ten years, several activities invaded Wadi Allaqi Biosphere Reserve. These activities display different seasonal characteristics, largely, are influenced by environmental variables Semi-nomadic population occupies the downstream part of the wadi. The keeping of livestock is central to the economy of households in Wadi Allaqi.

**Land uses and activities in the core areas**

**Grazing**

The livestock transhumance of local nomadic communities is the only activity allowed in the core areas of Wadi Allaqi Biosphere Reserve. At present, the main function of the core area is protection of biodiversity with minimal or no human activity (function of EEAA mangers).

Grazing can be considered as a natural process in the dry lands, which have been used for pasture for millennia. But now and according to no fall it be as a over grazing process.

**Trade in charcoal and collection of medicinal plants**

These activities provide an important source of income for the most households in Wadi Allaqi. Charcoal is produced in relatively small quantities and acacia trees are the preferred material (Briggs 1989).

Charcoal production is one of the main activities of the nomads in the South Eastern Desert and particularly in Wadi Allaqi. It is a winter activity because of a very summer weather. The total amount of charcoal, which Aswan received during the last decades from bedouins living in Wadi Allaqi area, approximately 12 ton per year. If there is no grazing, the charcoal production can increase, (Springuel et al. 2003). Nowadays increases occur also in the collection of medicinal plants, which considered an important source for the household cash income.

**Agriculture**

It consists of small-scale agriculture by local bedouins. Large-scale agriculture is found along Lake Nasser shoreline in Turgomy area, and in other areas near Ra?as El khor, which is a semi-limited region in north-west corner and in the south parts of the Biosphere Reserve.

**Fishing**

Due to the presence of Lake Nasser fishing activities appear and done by non Bedouins of Wadi Allaqi.

**Rationalization of Water** according control of uses of water through water wells in Wadi Allaqi, control of rain fall and collecting rainfall throughout wells, etc.
Discussion:

The following issues were debated:

• BRs are threatened by lack of funding resources i.e. budgetary constraints.
• Global warming changes the biological structure of species, and thus endangers their existence. Updates and revision on bio-species is periodically needed.
• Natural disasters threaten BRs and protected areas. Thus, monitoring of the earth system is needed, to plan policies to protect these natural resources from disasters.
• BRs are challenged by population pressure.
• Wadi Gemal – Hammata in Egypt could be nominated as a marine BR. It has the potential for human development.
• Dhana Reserve in Jordan is a successful model for other BRs. It fits the ideal BR concept. It includes income generating activities. Dhana is the first BR in the Arab region to offer camping activities for visitors. Dhana is managed by NGO’s.
• Most development activities come from individual efforts and NGO’s.
• Dindar in Sudan is one of the oldest protectorates in the region. What are the obstacles that hinder Dindar from becoming a BR.
• In Socotra, Yemen, inhabitants started cultivating vegetables and fruits, the thing which threatens flora and fauna of the reserve. More awareness is needed for decision makers and local people.
• Arab countries are more fortunate than African countries because of increasing conflict areas in Africa, which negatively affect protected areas.
• Several protected areas are not recognized by the MAB Network. The network needs to embrace these areas. More effort is expected on the Arab MAB side.
• UNESCO recommends nominating new transboundary BRs.
IV. Experts’ Presentations

1- Ecotourism and Economics of Biosphere Reserves in Arab Countries
Dr. Samir Ghabbour, Inst. of African Research and Studies, Cairo University

This paper discusses the question of feasibility of ecotourism in Arab Biosphere reserves, depending on eight documents: 3 papers by Eagles (1998), Dogse (2000) and Abdel-Aziz (2003), one document on Guidelines of the World Heritage Convention about tourism in World Heritage sites, and the recommendations of three recent meetings dealing with issue:
1 – The Regional Arab Meeting on the Impact of Ecotourism on Biosphere Reserves, that was held at Sharm El-Sheikh in Nov. 2005.
2 – Workshop on Quality Economics in Arab Biosphere Reserves, held in Dec. 2005,
3 – Results of the 19th MAB-ICC held in Paris, Oct. 2006,
In addition, a synopsis of what the Egyptian Government is doing to encourage ecotourism in Egyptian World Heritage sites was also discussed.
The paper reaches the following conclusions and recommendations:
1 – Adoption of the recommendations and suggestions emanating from ecotourism experts and the World Heritage Center at UNESCO, to activate and organize ecotourism in Arab Biosphere Reserves.
2 – Preparation of Arab regional recommendations and suggestions for the Third World Conference of Biosphere Reserves to be held in Madrid in Feb. 2008.
3 – Request Arab National UNESCO Commissions and Arab National MAB Committees to participate actively in all international meetings held under the umbrellas of MAB Programme and the World Heritage Convention.
4 – Follow-up of the issue of quality economics and what it includes regarding copyright of trade marks of Arab Biosphere Reserve products, and issuing of certificates, charters, and editing of national laws and regulations adapted for Arab countries, in order to promote products of Arab Biosphere Reserves in international markets.

2- Proposed Egypt-Sudan Transboundary park (Elba-Nibia)
Irina Springuel and Ahmed Belal
UNESCO-Cousteau Ecotechnie Chair on Environment and Sustainable Development at the Unit of Environmental Studies and Development (UESD), South Valley University

The protected areas that meet across international borders (border parks, transfrontier parks, international peace parks, international parks, transnational parks transfrontier protected areas) have aims to confirm, strengthen or re-establish good relations with neighboring States; to prevent escalation of border disputes; and to improve the management of a shared ecological unit or migratory species. They can provide ecological models as well as political symbols of effective conservation. Border parks have three main functions: 1) the promotion of peace, 2) the protection of the environment and the improvement of resource management, 3) the preservation and enhancement of cultural values, especially the protection of transboundary people.

The proposed area for establishment the transboundary park is the southern Egypt – northern Sudan border, from the Lake to the east till the Red Sea at latitude: 21-23° N longitude 31-37° E. This area comprises four important ecoregions (ecosystems) shared by both countries: 1) inland water: Lake Nasser - Lake Nubia; 2) dry rivers (desert wadis) Wadi Allaqi basin; 3) mountains :Gebel Elba and 4) marine: Red Sea.
Each of the four ecoregions described in this presentation (lake, mountains, watershed and sea with reefs) comprise a single entity in many respects, including its biodiversity components and minority indigenous peoples (mainly Bisharin tribe) who nomadically live on both sides of the border. On the Egyptian side, there already exist two protected areas: Gebel Elba region; and Wadi Allaqi. Both join the frontier with Sudan. The later one is a Biosphere Reserve within the UNESCO MAB network. There is also strong transboundary cooperation existing between Sudan and Egypt in the management of Lake Nasser and Lake Nubia.

The main objectives for the establishment of Egypt-Sudan transboundary park given bellow as following: conservation of biodiversity and particularly increasing protection for migratory species which regularly cross the international countries boundary; improving protection of internationally shared water recourses, both inland and marine: Lake Nasser-Lake Nubia, Red Sea; protection of indigenous minority peoples; promotion of a fuller and easier enjoyment of recreation experiences. Main benefits of this transboundary reserve and beneficiaries are discussed at the end of presentation.

3- Experiences With Management Planning of Socotra BR
Dr. Paul Scholte, Socotra Conservation & Development Program, Yemen

Between 1996 and 2000, the Socotra Conservation and Development Programme (SCDP) conducted biodiversity inventories, consultations with local communities and authorities resulting into the Conservation Zoning Plan of the Socotra Archipelago, signed by the President of the Republic of Yemen. The terrestrial Zoning Plan (3788 km²), divides the Archipelago in nature sanctuaries (core zones, 2.5 %), national parks and areas of special botanic interest (buffer zones, 73%) and resource and general use zones (transition zones, respectively 24 and 1.4 %). The ambitious marine zoning plan, with a size of over 18 000 km², is predominantly composed of resource use reserve (90%), and national parks (9%), the remaining being nature sanctuary (1 %).

In the following years detailed management plans were formulated and subsequently implemented of the principal nature sanctuaries (core zone) and selected national parks (buffer zone). A recently conducted (internal) evaluation, shows the progress that has been made in conserving the environment while also increasing benefits for local people, through the set-up of community-run campsites and related activities. Even more important was the gain of experiences of communities and programme staff alike. In the revised plans, more emphasis will be paid to the impact of the rising number of tourists on the environment (including solutions such as waste collection and solar energy). Increasingly the need is felt to address
the lack of regeneration of some of the island’s principal trees (dragonblood tree and frankincense). In the workplans for the next years, attention will also be paid to further evaluate and supervise the continuing development of ecotourism, and manage the protected areas, a.o. by microzoning.

An informal review of the zoning plan was subsequently made, focusing on its success and applicability. Whereas the zoning plan had been successful in countering ‘ad-hoc’ activities such as road construction in nature sanctuaries, it proved less useful to negotiate developments that were not specifically described in the zoning plan (e.g. road construction in buffer zones). After six years the zoning plan remains relevant, although new insights in the functioning of ecosystems (e.g. global warming) and increasing ecological knowledge suggests that parts of the buffer zone are more important than previously thought and merit being part of the core zone.

Expectations of the respect of the zoning plan were (unrealistically) high, most likely because the responsibility in its implementation has remained exclusively with the Environmental Protection Authority. Although the zoning plan is signed by the President of the Republic, none of the other ministries or local authorities feels responsible for its implementation.

We propose to elaborate adaptations to the zoning plan, with, for the time being, new definitions on the use of the buffer zones mainly, thus avoiding a new adoption process by the highest authorities. In addition, efforts should be undertaken to develop operational guidelines of the zoning plan with and by the local authorities, in which EPA-SCDP will play a facilitation role mainly. The upcoming World Heritage nomination process will be important to attract attention and funds for these new initiatives, whereas linkages with the MAB network will be important for further development of the community involvement, a.o. by exchange programs of local community leaders. The experiences of the Socotra Biosphere reserve are increasingly being used for the development of protected areas on the mainland, some of which may be proposed as part of the MAB network as well.

5- Moghra Oasis as a Potential Biosphere Reserve
Dr. Boshra Salem, Alexandria University

Moghra is an oasis in the hinterland of the El-Omayed area in the north western coastal region of Egypt, where El-Omayed Biosphere Reserve (OBR) exists. It is a small uninhabited oasis situated on the north eastern edge of Qattara Depression and centered by a brackish-water lake. The lake is surrounded by wet salt marshes. Sand formations are dominant in the western and southern sides of the Moghra Lake. Moghra oasis is considered as one of the most important Egyptian inland-water bodies. Its importance stems from dependence of the local inhabitants of El-Omayed area on it as an alternative rangeland in dry season, where the water resources support a dense vegetation cover and increase the grazing capacity of Moghra’s rangeland.

This places the region under a growing pressure of overuse and exploitation of its resources, especially the vegetation cover.

Moghra oasis has received little attention concerning studying and evaluating its natural resources. Little is known about the conservation status of this area. Through remote sensing techniques and image analysis using the unsupervised classification, 6 major land cover classes, representing the most prevailing land cover types in Moghra Oasis was distinguished.
Through field studies and surveys, nine major habitats were distinguish in which the plant communities were combined.

It was noticed that sand dune slopes support the largest number of species compared to the other habitats (11 species). Followed by the sand dune slopes is the salt marshes which support the growth of 9 species. In contrary the gravel desert and sand plain habitats supports the lowest number of species (3 and 5 respectively). The dominant soil grade in Moghra area is grade 5. This soil type is unsuitable for agriculture under current conditions, but it can be elevated to grade 3 to be slightly suitable by some agricultural practices. Salinity will be still the limiting factor for unsuitability.

By the end of the 21st century, the plant life in the oases of Egypt will have completely changed: large acres are expected to be reclaimed and cultivated. In literature, 30 species recorded in Moghra, only 23 were recorded. The remaining 7 species has disappeared from all habitats and was not possible to find them in the studies stands in Moghra. The main and usual threats on the habitats are represented in the grazing pressure exerted on the vegetation cover in the oasis. There is a some proposed project to reclaim some areas near the oasis and to establish some desert resorts that would destroy the natural habitats and replace new man made ones and change the species composition and pollute the area. An additional threat is the continued natural drying of the area (perhaps induced by global warming), which might result in the complete loss of wetland habitats and their replacement with salt flats and sand areas similar to those seen widely in the Sahara Desert.

It is recommended to nominate Moghra Oasis as a BR in its own, or alternatively, it could serve as an additional core area linked to OBR by an ecological corridor.
V. Recommendations

The participants of the meeting achieved a consensus on several recommendations, the most prominent of which were the need to:

- Establish new Biosphere Reserves in the Arab region.
- Give additional attention to the improvement of the existing BRs in regard to socio-economic and resource surveys and research programmes.
- Promote regional cooperation by strengthening coordination between the Arab MAB and all institutes and organizations in the region involved in natural protected areas conservation and management.
- Encourage the MAB National Committee members to work closely with the National Commission for UNESCO, other relevant Government Ministries and NGO’s to ensure recognition and support of the MAB concept in the region.
- Encourage young researchers in the region to participate in the MAB awards.
- Reinforce the involvement of decision makers by organizing at least one high-level meeting on BRs in the region to strengthen MAB concept and facilitate active governmental involvement in the programme.

Specifically the workshop participants recommended:

- Focusing on the establishment of new BRs in the region for the next Arab MAB Network meeting.
- Organize a training workshop to assist member countries on filling the BR nomination files.
- Active involvement of the Arab MAB in the upcoming MAB Congress, Madrid 2008, and generally in other world events in this regard.
- Encouraging involvement of local communities and indigenous people in BR activities in the region.
- Promoting the establishment of a trans-boundary BR in the region. In this regard, The Egyptian and Sudanese MAB members are encouraged to take the necessary action to declare Wadi-Allaqi BR as the first trans-boundary BR.
### Annex-1

**Agenda**

**Wednesday 13 December**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>09.30-10.00</td>
<td>Opening Ceremony &amp; Speech</td>
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<tr>
<td>10.00-10.30</td>
<td>Environmental Educational Film on Wadi Allaqi Biosphere</td>
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<td>UNESCO Cairo Office</td>
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<td>10.30-10.45</td>
<td>Coffee Break</td>
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**Session I**

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<tr>
<td>10.45-11.00</td>
<td>Overviews on Objectives of the Meeting</td>
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<tr>
<td>11.00-11.30</td>
<td>Presentation on the Findings and Recommendations of MAB ICC 2006 Meeting &amp; Nomination of New BRs in Egypt</td>
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<td>Egypt - Dr. Boshra Salem</td>
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<tr>
<td>11.30-12.00</td>
<td>Presentation on the Findings and Recommendations of MAB Advisory Committee and ICC, 2006 Meeting &amp; Nomination of New BRs in Sudan</td>
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<td>Sudan - Dr. Salwa Abdel-Hameed</td>
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<tr>
<td>12.00-12.30</td>
<td>Presentation on Ecotourism &amp; Economics of Biosphere Reserves</td>
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<td></td>
<td>Egypt - Dr. Samir Ghabbour</td>
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<tr>
<td>12.30-13.00</td>
<td>General Discussion including Transboundary BR between Egypt &amp; Sudan</td>
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<td>13.00-14.00</td>
<td>Lunch Break</td>
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**Session II (Biosphere Reserves’ Managers Presentation)**

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<tr>
<td>14.00-14.15</td>
<td>Presentation on Dandar BR</td>
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<tr>
<td></td>
<td>Sudan - Mr. Sanad Sulliman Sanad</td>
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<tr>
<td>14.15-14.30</td>
<td>Discussion</td>
</tr>
<tr>
<td>14.30-14.45</td>
<td>Presentation on Socotra BR</td>
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<td>Yemen - Mr. Nadeem Mohamed Abdullah</td>
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<td>14.45-15.00</td>
<td>Discussion</td>
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<tr>
<td>15.00-15.15</td>
<td>Presentation on Al-Omayed BR, Current Status &amp; Future Plans</td>
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<td>Egypt - Mr. Tamer Saber</td>
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<tr>
<td>15.15-15.30</td>
<td>Discussion</td>
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<tr>
<td>15.30-15.45</td>
<td>Presentation on Wadi Allaqi BR</td>
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<td>Egypt - Mr. Ashraf Salem</td>
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**Thursday 14 December:**

**Session III (Biosphere Reserves’ Experts Presentations)**

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<td>Sudan - Mr. Abdul Hafez Al-Jack</td>
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<td>12.00-12.15</td>
<td>Discussion</td>
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<td>12.15-12.45</td>
<td>Presentation on Al-Omayed BR &amp; Al-Moghra Protected Area</td>
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<td>Egypt - Dr. Boshra Salem</td>
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<tr>
<td>12.45-13.30</td>
<td>Discussion</td>
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<tr>
<td>13.30-14.30</td>
<td>Lunch Break</td>
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<tr>
<td>14.30-15.30</td>
<td>Recommendations and Closing Ceremony</td>
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**Annex-2**
### List of Participants

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<th>Affiliation</th>
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<tr>
<td>1</td>
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<td></td>
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<td></td>
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<tr>
<td>8</td>
<td></td>
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<tr>
<td>9</td>
<td></td>
<td>Mr. Tamer Saber Ismail</td>
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<tr>
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<td></td>
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<td>Director Dandar BR Khartoum, Sudan</td>
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Annex-3
Workshop Photo Gallery