PART I

EXECUTIVE SUMMARY

This document provides an overview of the results of a process of identifying and prioritizing capacity building requirements to enhance Egypt's compliance with the Convention on Biological Diversity and other related environmental conventions. This has been achieved through assessment processes, generating awareness, developing consensus and fostering high level support to facilitate implementation of the identified capacity building measures. Issues identified included: the root causes of biodiversity loss; in-situ conservation and sustainable use of biological components; taxonomy; threatened and protected species; hunting management; incentives; traditional knowledge, and evaluation of management effectiveness in Protected Areas. Priorities were given to implementing selected work programs on inland, coastal and marine biodiversity.

A multidisciplinary advisory committee was established to review the current state of biodiversity conservation measures in Egypt, and the steps taken to achieve the global 2010 target of significant reduction in biodiversity loss. Consultants were hired to review existing legislation, policies, measures taken, research and monitoring; to assess available information at the Nature Conservation Sector; to analyze institutional and stakeholder participation; to examine selected work programs on biodiversity conservation, and to evaluate past and ongoing projects. Consultants visited Protected Areas, conducted field work and interviewed NCS staff. They prepared action plans and proposed projects for funding. Their reports were discussed and approved through a consultation process in the form of workshops and meetings. This was followed by implementing specific tasks related to biodiversity conservation.

Evaluation of management effectiveness in Protected Areas (PAs) has shown that the PAs system comprises a good representation of Egypt's habitats with high biological, economical and social values. However, important issues that need immediate action include modernizing the NCS into an autonomous authority; well-defined policies for nature conservation in Egypt; recruitment and training of more staff; development of adequate and accessible information; enhanced internal and external communication; sustainable funding; more management plans, and more management resources (transport, infrastructure and equipment). Immediate actions were taken regarding the institutional reform of NCS. A policy framework for nature conservation was also prepared, including vision, mission and mandate. In addition, a policy for managing PAs was prepared including governance, planning, management, monitoring and management performance. Specific policies for public and private sector partnerships, monitoring and research evaluation have also been prepared. A training strategy was proposed based on global issues and future conservation challenges and aimed at enhancing Egyptian PAs management. A Communication, Education and Public Awareness Strategy and Action Plan (CEPA) was prepared, followed by updating the existing Clearing House Mechanism (CHM) in Egypt. Numerous presentations were developed to train managers and the public. Egypt participated in many conferences and meetings related to biodiversity conservation.

Assessment of conservation and sustainable utilization of wildlife in Egypt during the last few years has shown that measures taken, such as protection, rehabilitation and restoration programs, law enforcement, monitoring and research, documenting successful management tools such as mooring, captive breeding programs, gene banks, enclosures, plantation of Acacia and mangroves, and increasing incentives have improved the livelihood of local communities in the Protected Areas and have helped to conserve biodiversity resources. Participatory and precautionary approaches have been applied, resulting in a considerable increase in populations of threatened species and improving their habitats.

Assessment of traditional knowledge has shown that the concept of a "pristine" indigenous environmental knowledge is illusory, and that a more appropriate term is "local environmental knowledge". Men's and women's environmental knowledge differ, even within the same household, and a key factor is spatial scale.

The Global Taxonomy Initiative (GTI) is in the early stages of implementation in Egypt. Animal taxonomic studies include a few groups of invertebrates and vertebrates, whereas plants are relatively better known. Young taxonomists are very few. Taxonomic literature and facilities are inadequate, information inaccurate and in need of updating. Important specimens exist only in foreign institutions, due to the lack of a National Natural History Museum. An action plan for establishing a natural history museum in Egypt was prepared, including funding plans. Taxonomic research is limited. Appropriate immediate actions were taken, resulting in an improvement of the taxonomic database in Egypt. The database now contains more than 250,000 records on plants and animals.

Invasive species represent the second leading cause of species extinction and biodiversity loss, leading as well to considerable socio-economic and health impacts. A total of at least 49 invasive species have been identified in Egypt. Community-based management of some selected invasive species (e.g. Prosopis juliflora) was successful in Protected Areas. However, existing capacities, legislation, programs are very limited. A strategic action plan was prepared dealing with prevention, detection, control, rehabilitation and restoration, education, new legislation, management and coordinated activities.

Hunting management has been given high priority in Egypt, and a number of important steps were taken -- organizations established, laws passed to protect wildlife and their habitats, efforts made to control illegal hunting, important conventions ratified. Hunting has been reasonably well managed in the 24 Protected Areas. However, wildlife utilization, for the most part undertaken outside the Protected Areas, is still unregulated, and excessive numbers of wild animals and plants are hunted and collected in an unsustainable fashion. Existing legislation is outmoded, inadequate, and has no scientific basis. Urgent actions were taken to regulate hunting, resulting in improving wildlife management. For example, a wildlife unit was established, the protected species list updated, and coordination of activities with other organizations improved. Policies, programs and projects were recommended to build the nation's capacities in hunting management. Tools were provided to facilitate and strengthen law enforcement and

guidelines and procedures to issue licenses were prepared. Furthermore, an action plan for hunting management in Egypt was prepared.

Mainstreaming of biodiversity conservation is being implemented through the National Environmental Action Plan (NEAP), in synergy with Multilateral Environmental Agreements (MEAs) under which the National Capacities Self Assessment (NCSA) on environmental priorities is in progress, as well as modification of selected work programs on biodiversity conservation (e.g. inland water, coastal and marine) adopted by the Convention on Biological Diversity.

Egypt is heading towards economic transformation within the processes of globalization and free foreign trade, showing definite and accelerating growth in national investment and an increasing volume of trade. The increased demand on natural resources necessitates striking a balance between conservation and development activities and maximizing economic and social revenues of natural resources. The challenges facing nature conservation in Egypt are numerous, demanding radical solutions to achieve self-funding for biodiversity, as well as the economically-based institutional development (reform) of NCS.

A series of projects are proposed and are under development which seek to enhance Egypt's biodiversity conservation capacity, including: Strengthening the National System of Protected Areas in Egypt; Sustainable Development for Biodiversity through the Mediterranean Partnership; Establishment of a Comprehensive System for Hunting Management in Egypt; Monitoring Coral Reefs for Sustainable Use; Rehabilitation and Management of Coral Reefs; Biodiversity Conservation of Elba and Wadi Allaqi Protected Areas; Mainstreaming Multilateral Agreements (MEAs) in National Development Plans in Egypt; In-situ Conservation of Economically Important Wild Plant Species; Conservation of Soaring Birds (regional project); Strategic Action Plan (SAP) for Biodiversity Conservation in the Mediterranean (regional project); Implementation of Global Taxonomy Initiative (GTI), and Global Invasive Species Program in Egypt.

Implementation of the proposed projects will be carried out through funding from governmental donor countries (e.g. Italy, USA, EU) and international agencies (UNEP/GEF, UNDP/GEF, World Bank/GEF). In addition, partnership with the public and private sectors will be enhanced through specific joint venture projects related to sustainable use of biodiversity (e.g. ecotourism, medicinal plants).

INTRODUCTION

Egypt has ratified and been an active member of the Convention on Biological Diversity (CBD) since 1994. The Nature Conservation Sector (NCS), Egyptian Environment Affairs Agency (EEAA), Ministry of state for Environmental Affairs, is the national focal point for the CBD in Egypt and follows up on convention compliance in cooperation with other national and international bodies. The NCS is also the government body responsible for nature conservation in Egypt, entrusted with managing the National Protected Area Network and coordinating hunting management outside the Protected Areas. It is the national focal point for other international conventions for biodiversity.

With support from GEF-UNEP, Egypt established the National Biodiversity Unit (NBU) at the NCS. The NBU has undertaken several Enabling Activities to comply with CBD provisions, including the preparation of a National Country Study on Biodiversity in 1992 and the national Biodiversity Strategy and Action Plan (NBSAP) submitted to the CBD in 1998. Egypt also participated during the 1990s in two UNEP-GEF global initiatives, the Biodiversity Data Management Capacitation in Developing Countries and Networking Biodiversity Information project, and the Development of National Biosafety Framework Project that assessed and built capacity in these fields. Egypt has since been developing and implementing Medium and Full Size GEF biodiversity projects along with projects funded by the GEF Small Grants Programme.

The Conference of Parties to the Convention on Biological Diversity (CBD) has placed great emphasis on the need to developing countries' ability to implement various elements of the Convention. In 1999, the GEF Council approved the Capacity Development Initiative (CDI) which aims to assess the capacity building needs of countries within the global context and formulate a medium/long-term plan for the GEF's contributions towards these efforts. Recognizing the immediacy of some capacity building concerns, the GEF Council agreed, in 2001, to make additional funding available for countries to assess capacity building needs in specific areas related to the CBD through the MFA Enabling Activities for National Capacity-needs Self Assessment. These assessments are to be country driven and reflect national priorities.

The principal objectives of this enabling activity are to: (1) identify and prioritize capacity building requirements in country-specific priorities to enhance compliance with the CBD; (2) through the assessment process, generate awareness and develop consensus and foster high level support to facilitate implementation of the identified capacity building measures.

The CBD has called on member states to undertake the necessary actions for the conservation and sustainable use of biological diversity as mandated under the agreement. While considerable progress has been made in Egypt during the past ten years to implement the CBD, the conservation and sustainable use of biodiversity in Egypt to date has focused largely on habitat conservation through the establishment of

Protected Areas (PAs). Less has been achieved in the way of conservation of priority endangered species.

One of the constraints has been with the National Biodiversity Strategy and Action Plan itself. Although a landmark document at the time, there are significant gaps in the NBSAP. Not all articles of the CBD are addressed and in particular, there is insufficient attention given to in-situ conservation and sustainable use of biodiversity. More consultation on these issues is needed with key stakeholders, especially other government agencies, businesses, NGOs and indigenous communities. More high level political support is needed also to facilitate implementation of the provisions of the CBD in Egypt. In addition, there is a need to update the NBSAP to take into consideration the initiatives that have taken by the Convention's parties since its publication.

Another key constraint is lack of capacity which is a root cause contributing to biodiversity loss in Egypt. Capacity deficiencies in biodiversity conservation and management are found in all sectors and fields. Insufficient capacity has constrained the nation's ability to respond to and meet its global commitments, and has been a limiting factor in the implementation of the NBSAP.

During the preparation of the Second National Report to the COP-6, gaps were found in Egypt's compliance with a number of requirements under the Convention. Although mentioned as priorities in the NBSAP, no clear programs of action were specified. Various national programs and consultations have since recognized these as priority areas for action for the conservation and management of biodiversity in Egypt. An assessment is needed to identify and prioritize capacity building requirements in these fields. Egypt intends to mobilize the necessary resources to undertake the identified priority actions to build its capacities.

Assessment of capacity building needs was formulated for three areas identified as priorities in order to meet outstanding commitments to the CBD: (i) in-situ conservation and sustainable use of wildlife resources; (ii) taxonomy, and (iii) invasive alien species. As part of the assessment for in-situ conservation and sustainable use of wildlife resources, there will be separate sub-assessments for globally threatened species and for hunting management.

The final national capacity building assessments and action plans have been formally adopted by the Government of Egypt (GOE), published and disseminated nationally and internationally. Follow-up actions will be undertaken to implement the identified priority programs mobilizing the resources as needed, such as through developing proposals for GEF and other funding sources.

METHODS AND APPROACHES

The project was initiated in July 2004, when a meeting was held at the Nature conservation (NCS) to select the Project Management Team. Then, the project steering committee was established, consisting of the CEO of the EEAA, Director of NCS, prominent scientists, representatives of other conventions (e.g. desertification), NGOs, private sector and senior staff of NCS and selected Protected Areas Managers. The steering committee held several meetings to discuss the project document and approved the work plan. The major topics discussed all aimed at assessing Egypt's commitments under CBD and other international agreements. A sub-committee was formed, chaired by the Director of NCS, to prepare the Third National Report on Biodiversity as a by-product of the project

One of the major topics discussed was the current state of biodiversity in Egypt and our commitment to the 2010 Global Target: significant reduction of biodiversity loss. It was decided that the first step would be the evaluation of current biodiversity in Protected Areas in Egypt. This was followed by a request to all the 24 Protected Areas in Egypt to supply the Biodiversity Department with information needed, including species lists, habitat diversity, species distribution and abundance, vulnerable species, endangered species, endemic species, conservation status, etc. In addition, a provisional list of threatened species was prepared in order to prepare a list of protected species in Egypt. The Protected Species List will be included in the Executive Regulations of Law 4/1994 for Environmental Protection. The Protected Species List will also be publicized in the media and workshops will be held during the project period. The protected threatened species list was discussed by scientists based on IUCN list, Egyptian Red list, and other criteria in CITES and CMS Conventions.

It was decided to consider the conservation status of certain species representing different habitats and ecosystems. Two species representing marine ecosystems were selected, the Red Sea spinner dolphin and green turtles. Two species were selected to represent the terrestrial environment, the Egyptian tortoise and Dorcas gazelle. Experts were nominated to provide an account of each species and reports were submitted to the advisory committee. Work started at the biodiversity department where a list of all plant and animal species was updated. In addition, a directory for scientists and others interested in biodiversity conservation was prepared.

Implementation of Biodiversity Conservation

Many efforts were made to implement activities related to biodiversity conservation. Workshops and meetings were held on invasive species, Protected Areas and the global taxonomy initiative, based on work programs approved by the CBD. Reports were prepared including action plans and proposals for funding from international donors. Three themes of the biodiversity convention were selected: inland water, coastal and marine, and arid biodiversity. Consultants were selected to prepare reports based on the work programs approved by the CBD. These work programs were adapted to meet Egyptian requirements. This was followed by a workshop on each theme. Action plans were prepared, and implementation was begun during the project period.

Hunting Management

A report on hunting management was prepared in 1996, but no action was taken. It was decided to implement whatever possible at the level of NCS. First it was decided to establish a unit for wildlife management within the department of biodiversity. Then a scientific committee was formed and chaired by the Director of NCS. This was followed by a national workshop on hunting management. Meanwhile, a training program was conducted, attended by all concerned personnel, consultants, and organizations. The consultants selected for hunting management updated the 1996 report based on recent information and efforts made since 1996 by NCS. A public campaign was conducted, and materials for several events were prepared, including brochures, CDs and a video on the subject. Furthermore, coordination with concerned governmental organizations as well as NGOs was strengthened, and reports were made on progress. A system for hunting management was prepared, discussed with all concerned organizations and approved by the competent authority, the NCS. An action plan was prepared including policies, programs and projects to build the nation's capacities and capabilities in hunting management.

Management Effectiveness of Protected Areas in Egypt

During September 2005, a major workshop was held in Cairo on Management of Protected Areas in Egypt. So far, management plans have been prepared for half of the 24 Protected Areas, based on previous work conducted by several projects funded by GEF, USAID and EU. This was followed by preparing an operations plan encompassing all activities proposed, with time schedules, cost estimates and designation of responsible persons. The main activities included: infrastructure; personnel training needs; equipment needs, and programs promoting conservation and sustainable use of biological resources within each of the Protected Areas.

A consultant was nominated to evaluate the criteria prepared by IUCN on effectiveness of management of Protected Areas. This was followed by self assessment of all Protected Areas (in early 2006), with the participation of more than 70 personnel. The Italian funded projects (BIOMAP and NCS Support Program), with support of IUCN, participated fully in this assessment, in which major issues were assessed and presented to decision makers for actions.

National Capacity Self-assessment

The National capacity Self-assessment (NCSA) is a funded project (GEF/UNDP), aimed at assisting countries to assess their priority national capacity for Multilateral Environmental Agreements (MEAs). These include Climate Change (UNFCC), Biodiversity Conservation (CBD) and Land Degradation (UNCCD). The NCSA also promotes synergy among these three MEAs. The current project (GEF/UNEP) has participated in NCSA activities including stocktaking and gap identification, and more recently, in preparing for Nationalization of the Millenium Development Goal 7, to Ensure Environmental Sustainability.

This project (GEF/UNEP) was used as the initiative to start implementing several new projects funded by donor countries (e.g. EU, GEF/UNDP) as well as ongoing projects (Wetlands, Medicinal Plants). This resulted in synergy among the projects and more coordination of activities, and provided training to many NCS staff and Protected Areas rangers, all aimed at improving Biodiversity Capacity Building in Egypt.

Using the CBD and recent COP Decisions as the basis for action, capacity building assessments have evaluated the existing situation and identified key gaps and deficiencies where capacity needs were to be built. Priority actions will then be defined and integrated within the framework of an action plan that would identify all stakeholders, manpower, financial resources and other requirements needed to realize the proposed intervention.

The formulation of the national capacity building assessments and action plans have undergone a systematic process of analysis: (1) Review of commitments under the CBD and other international conventions, including recent decisions and relevant programs; (2) Review of existing legislation, policies, measures, incentives, research, monitoring, management, manpower training, facilities, information and public awareness; (3) Evaluation of past and on-going projects in the field; (4) Problem identification and analysis; (5) Institution/stakeholder analysis; (6) Gap identification and analysis; (7) Recommendations and prioritization of capacity building needs, identifying manpower, training, financial and other requirements to implement the proposed actions, setting realistic targets and indicators of success.

Other Considerations

As mandated under Article 22 of the CBD, consideration will be given to addressing commitments to other international biodiversity-related conventions. A project in this field would aim to enhance cooperation and coordination between the relevant government agencies along with promoting participation of businesses, NGOs and local communities. Synergies between the priority areas would be evaluated to allow for more effective and more cost efficient solutions.

Other priority areas identified by the CBD will be taken into consideration within the scope of the studies, particularly: (1) methodologies to evaluate and mitigate specific threats to components of biodiversity; (2) design of approaches relevant to the implementation of incentive measures, and (3) maintenance of indigenous knowledge, practices and innovations.

The Egyptian National Clearing House Mechanism (CHM) has been integrated into the project. All projects outputs have been given to CHM, together with outputs of associate programs such as the Global Taxonomy Initiative (GTI) and Global Invasive Species Program (GISP), and prepared for dissemination.

Efforts were made not to duplicate, but rather to foster linkages with other initiatives, especially with other GEF projects. Special attention was given to insuring adequate coordination and cooperation with the GEF-UNDP National Capacity-needs Self-Assessment (NCSA) process which will identify capacity building needs in and between three focal areas, namely, biodiversity, climate change and land degradation. This assessment aims to evaluate the synergies between the Rio Accords and to identify the root causes for capacity deficiencies. These different project activities will be inter-linked as appropriate.

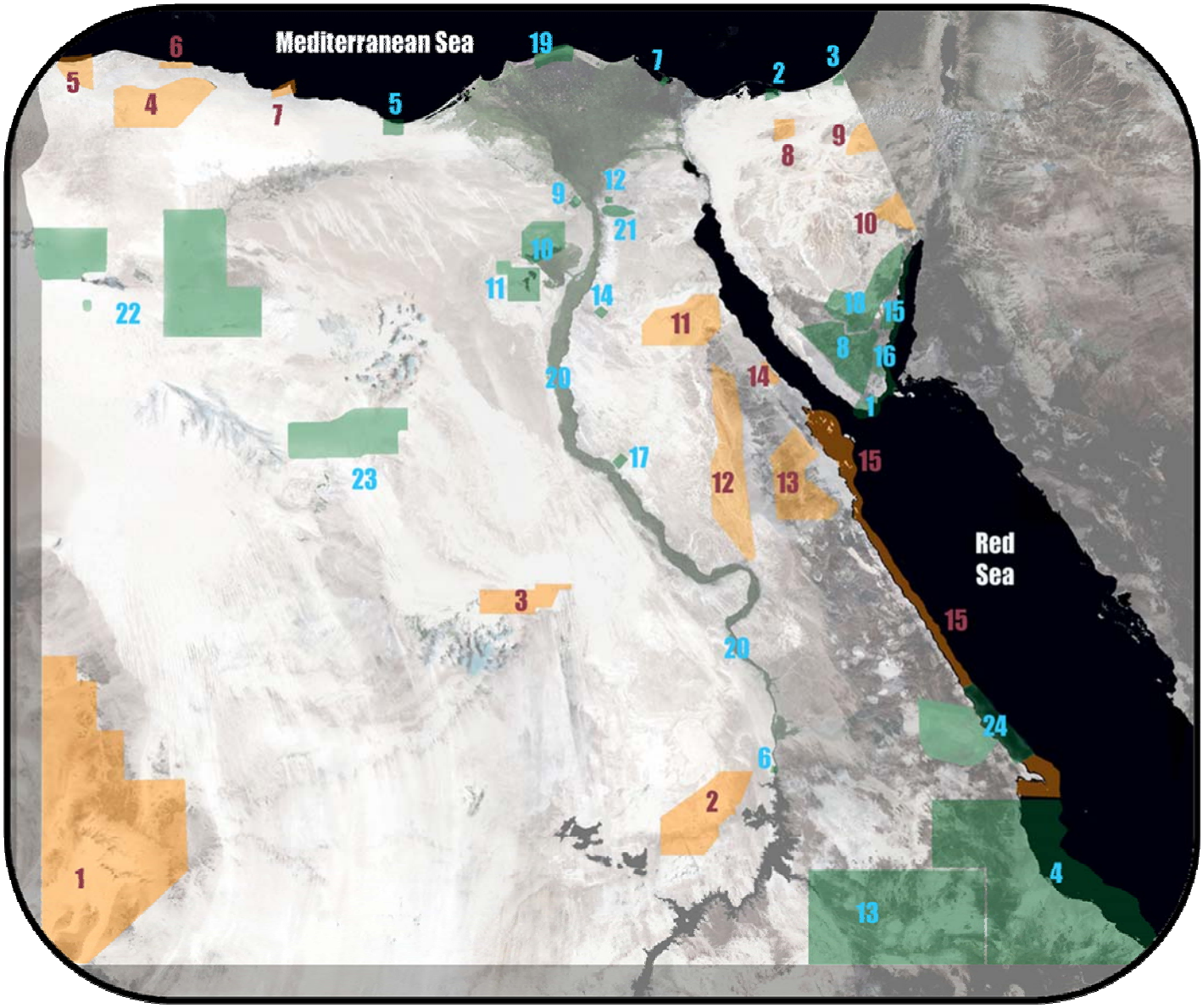
By the time of preparing the final report, news came regarding the outbreak of bird flu in Turkey. Efforts were made at the national level where a national plan was prepared by the Ministries of Environment, Health and Agriculture and Land Reclamation, with the support of other ministries, international agencies (e.g. WHO, FAO), NGOs, and the public. It was decided to establish a task force at EEAA, with the NCS in a major role, to implement the national plan at Protected Areas where important numbers of migratory birds were either wintering or passing through. Outbreaks of bird flu in Egypt started on 16th February 2006, and by end of June, bird flu in Egypt was almost eradicated. A final report was prepared.

PART II

MANAGEMENT EFFECTIVENESS EVALUATION OF EGYPT'S PROTECTED AREAS

Since ancient times, Egypt has relied on a wealth of natural resources to sustain its civilization. The country possesses a wide range of habitats and species representing both tropical and Mediterranean environments. Egypt has many other heritage resources of value to all mankind. Some are related to geological times, as the skeletons of whales in the Western Desert (a Natural World Heritage Site in Wadi Al-Rayan Protected Area), while other sites represent the Stone Age, about 10,000 years ago. These resources have been affected by a host of development pressures in recent years, including solid waste, boat anchorage and grounding, over fishing and over grazing, habitat fragmentation, invasive species and many other factors. The NCS was established to manage natural resources according to scientific principles, to develop national capacities, and to set and implement policies for nature conservation.

The Convention on Biological Diversity has requested parties to review management effectiveness in the party's Protected Areas. A team of consultants was hired from various on-going projects (UNEP/GEF, Italian Cooperation, IUCN) to assess the status or "health" of Egypt's system of protected areas (PAs) by determining the extent to which the PAs are achieving their objectives, by identifying relative management strengths and weaknesses, and by focusing attention on actions and policy interventions. A specific assessment tool developed was the Rapid Assessment and Prioritization of Protected Area management (RAPPAM), based on available literature primarily from IUCN and WWF sources, with modifications to suit the Egyptian situation. Meetings were conducted by the Director of NCS attended by consultants and NCS staff. A two-day workshop was later held in Cairo, attended by the consultants and protected area managers and senior staff of NCS. In order to enable staff to provide maximum input, all materials prepared for the workshop were translated into Arabic. During the workshop, 78 NCS staff were introduced to the RAPPAM methodology designed to allow broad-level comparisons among PAs.



Existing and future protected areas in Egypt

It was anticipated that the MEE exercise would result in:

1. Improvements in the conservation effectiveness of the system and individual PAs through the identification of systemic issues;

2. Improved decision and management support processes for the system and for individual PAs;

3. Provision of critical information for securing political understanding and justifying support;

4. Fostering an institutional culture for self-evaluation within the NCS;

5. Enhancement of trust and confidence between NCS headquarters and PA staff.

Participants were engaged in evaluating the management effectiveness of Egypt's PAs, assessing the results and implications, and identifying priorities for the next step. The full report is being prepared for publication by IUCN as this is the first evaluation for Arab countries, and may serve as a model for other regions.

The main findings were:

- Egypt has declared a relatively good proportion of its land as PAs, and the ecological and social benefits offered by Egypt's PA system are high.

- In general the system contains a good representation of Egyptian habitats (but this needs quantitative verification) with high biological significance.

- The system appears to be equally important for most aspects of biodiversity conservation, i.e. representativeness, important species, full range of diversity, significant populations, etc.

- The PAs are generally meeting their conservation objectives and the PA Management Unit staff technical skills are generally good.

- The PA system is a vitally important socioeconomic asset to Egypt but many benefits are unrealized.

Figure 2: Mean values for the three system-level sections

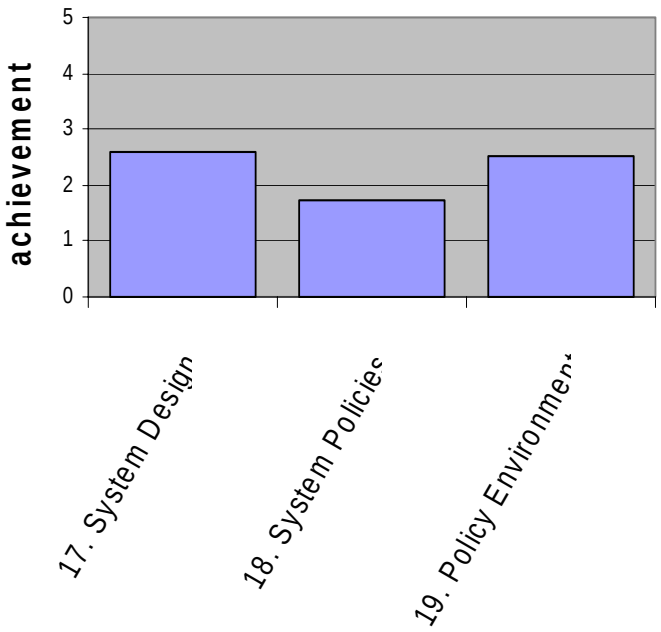
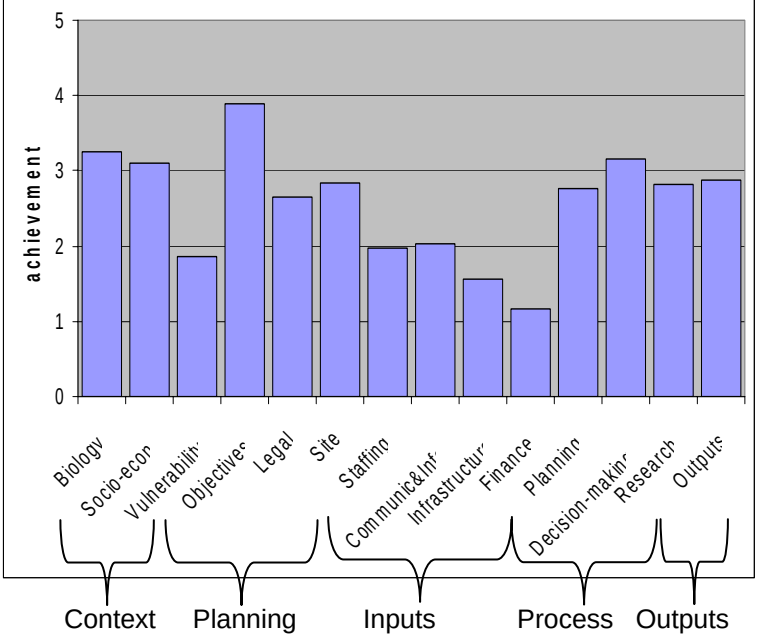
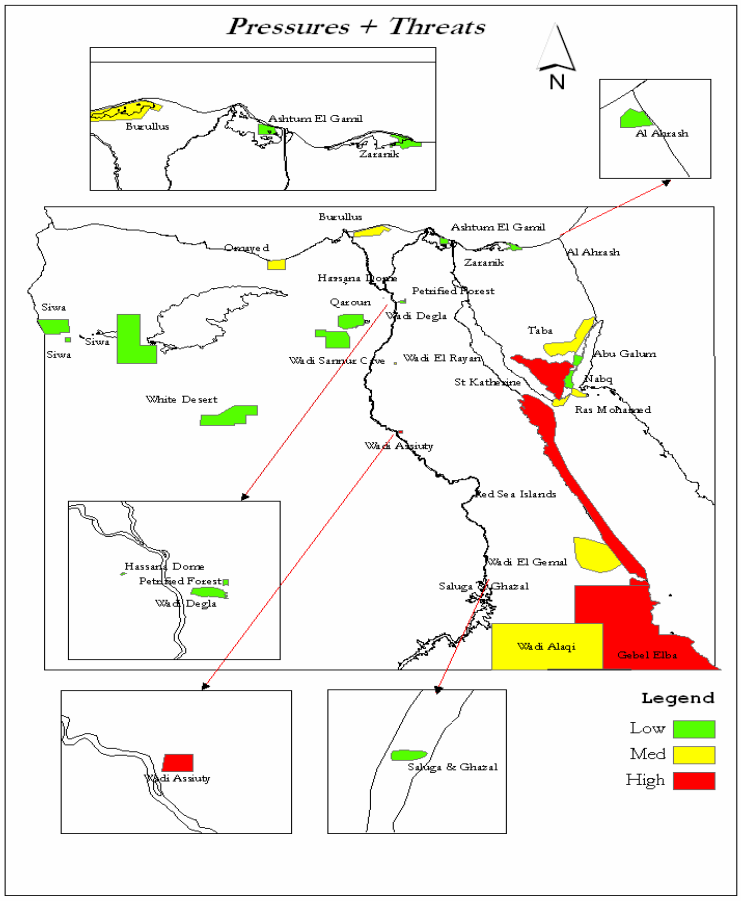


Figure 1: Summary of RAPPAM findings, showing mean values for the different sections



Management Effectiveness Evaluation of Egypt's Protected Areas



- Egypt's Protected Areas are all under-resourced, far below the norm for Developing Countries or even for Africa. In Egypt the total expenditure on PAs (including staff costs) averages 108 LE ($19) per km^2 per year, approximately 11% of the average for developing countries. In order to match the regional or developing countries norms Egypt would need to invest between $7.4 million and $15.7 million annually in its national protected area system – a 4 to 9 fold increase on current expenditure.

- In administering the system, there is a marked disparity in the allocation of staff and budgets to areas as opposed to their needs and the national priorities in regard to biodiversity value.

- The conversion of land use, recreational use (especially tourism) and hunting are considered the greatest pressures operating on the PA system. As these will continue to threaten the system, coordinated national strategies will be required to address the issues.

- While there appear to be good local relations, local people don't necessarily support the PAs and they are not involved in management decisions.

- The system is vulnerable as a result of poor law enforcement, overexploitation of resources, lack of resources and excessive pressure on managers to accommodate unsustainable demands.

- Site planning is generally poor, only half of the protected areas having formal management plans or definitive work plans. This is a serious concern because it makes it difficult to implement proper management, to track effectiveness or develop business plans.

- Inputs to the system are inadequate from all aspects. The main limitations to effective management are considered to be the very low levels of government funding, fewer trained staff than needed, and the limited training opportunities. Inadequate management resources (especially transport) and poor infrastructure facilities are also important constraints.

Response to Management Effectiveness Evaluation of Egypt's Protected Areas:

The full report was sent to all participants to be discussed and to identify priorities for the next steps. In another workshop, participants identified immediate actions to be taken. Some of the actions were taken by the Director of Nature Conservation, and others were sent to the CEO of EEAA and HE Minister of State for Environmental Affairs.

The immediate actions needed included modernizing the NCS into an autonomous authority, the need for well defined policies for nature conservation, recruitment of more staff, a training needs assessment, more funding for nature conservation, management plans for all PAs, and more management resources (e.g transport, infrastructures and equipment).

A senior consultant was hired to consider the work done on institutional reforms within the NCS in preparation for creation of a Nature Conservation Authority, and to prepare policies for nature conservation. His report was discussed in a workshop attended by CEO, Director of NCS, Egyptian experts, senior of staff of NCS, and Managers of Projects being executed by NCS. The Policy has a vision, mission and mandate. In addition a policy for managing protected areas was also prepared including governance, planning, management, and monitoring management performance. Specific policies for engagement of private sector, research and planning are being formulated in consultation with Egyptian experts and senior staff of NCS.

Institutional Reform and Capacity Building in the Nature Conservation Sector

In 2002, the First Egyptian International Conference on Protected Areas and Sustainable Development recommended that the Nature Conservation Sector of the Egyptian Environmental Affairs Agency (EEAA) should become an autonomous institution under the Ministry of State for Environmental Affairs. It envisioned the Nature Conservation Sector (NCS) becoming a properly resourced institution, with staff, funds and policies, enabled to manage the nation's protected area estate, helping to secure ecological integrity, providing new investment opportunities, and underpinning tourism in Egypt. The new institution should also be better positioned to respond to the emerging and increasingly important global biodiversity issues such as challenges related to climatic change, biotechnology, and the growing impact of international tourism. Given the importance of Egypt's environment to the economic well-being of the country, institutional reform of this sector is vital to long-term national security and is in line with President Mubarak's election manifesto that called for more effective and innovative government institutions.

Rationale

Reasons reported internationally for changing state run nature conservation departments to semi-autonomous institutions or parastatals, are given below. These reasons hold true for Egypt but an additional reason is that the EEAA is a highly centralized government body that coordinates a wide range of environmental issues. Its structure and functions do not adequately reflect NCS's primary executive role, particularly the implementation of the Law 102 on Protectorates and for addressing national and international biodiversity issues and commitments. The protected area estate is planned to increase from 24 to 40 protectorates by 2017 and as the NCS's responsibilities increase it will outgrow the EEAA's intuitional arrangements.

Issues to be Resolved

Protected areas are a relatively recent development in Egypt and the institutional arrangements for their management are inappropriate. The NCS's present administrative and financial arrangements and organizational structure inhibit its evolution into an efficient and modern institution capable of properly managing the nation's biodiversity and protected area estate.

The most pressing problems are:

1. The protected area system, which now covers 10% of Egypt's territory, is seriously under resourced, and although several areas do generate significant revenue flows, almost none of this revenue is reinvested. Inadequate investment in the management and development of these national assets is resulting in their deterioration and loss of their biodiversity and tourism values.

2. Although there are laws to support its executive role, the NCS operates largely in a policy vacuum. There are no formal policies for nature conservation or for protected areas. The absence of clear and enforceable policies places the NCS in a reactive, rather than proactive stance, and compromises options such as community based conservation initiatives.

Solutions

For the NCS to evolve into a modern, effective and decentralized institution for nature conservation in Egypt it must be administratively separated from the EEAA and provided with flexibility for financial and personnel management. Its mandate must be translated into clear policies and its organisational structure must be developed to support its function. As the NCS is responsible for national assets it would have to remain accountable to the central government.

Context for Institutional Reform

There has been a detailed study prepared in support of this proposal along with associated initiatives relating to policy development and a functional review of the NCS, so the groundwork has already been well laid. Furthermore the current Government of Egypt strongly promotes innovative institutional reform.

The existing EEAA organization structure, including the NCS (as the Nature Protection Central Department), was established following a study by TEAM MISR in 1994/5. The approved EEAA structure has not been fully implemented due to lack of staff and has not been fully tested, but the structure of the NCS particularly has been generally considered as inappropriate (Organization Support Program, 1998). In 1997 an interim structure for the NCS was developed through the EU financed capacity building program, but this structure was never formally adopted. The OSP conducted a review of the organizational structure of the EEAA in 1998 and put forward recommendations for revisions.

The main organizational issues are:

- The EEAA is highly centralised and does not adequately reflect NCS's executive role in implementation of the Law on Protectorates;
- The Departments and Sections within the Biodiversity General Department are largely meaningless;
- The structure does not have an arena for policy and strategy formulation;
- The structure has no entity with responsibility for responding to relevant international conventions and agreements to which Egypt has increasing commitments.

In practice, the NCS's de facto organizational structure is an unofficial hybrid between that approved in 1995 and the later version developed under the EU program. Though the performance of the NCS has improved immeasurably over the last few years, the present organizational structure inhibits its progress towards becoming an efficient and modern institution.

National Benefits

The development of a properly resourced and effective institution for nature conservation in Egypt would have wide national benefits.

1. The value of protected areas as premium tourism destinations will be maintained and enhanced along with Egypt's other competitive market advantages;

2. The protected area estate would be mainly funded from entrance and user fees, largely paid by foreign visitors, thus reducing the burden on the Egyptian taxpayer;

3. Well managed protected areas help underpin the nation's sustainable development, generate significant investment and rural employment opportunities, and help counter the drift to urban areas;

4. The nation's biodiversity heritage would be better secured to provide future options in the face of climate change and biotechnology challenges.

As a reform initiative, the transformation of the NCS would be a "small win" for the GOE's institutional modernization agenda, but its implications would be profound. It will immediately impact the 98,650 km^2 of the nation's territory under conservation management and ultimately an estate of 166,350 km^2. It may also provide an interesting model for the transfer of management authority to the level best able to determine needs, and it all could be self financed with an appropriate fee structure.

PART III

POLICIES

POLICY FOR NATURE CONSERVATION IN EGYPT

Vision

To preserve the natural character of the Egyptian environment for future generations, while using it innovatively to enhance sustainable local productivity and alleviate poverty.

Mission

Egypt has exceptional wild resources (coral reefs, spectacular desert landforms, rich fossil deposits, and vast bird migrations) that underpin the economy and offer it a comparative economic advantage in the massive and growing nature based tourism industry. Recognizing the value of this biodiversity and its critical role in maintaining and enhancing the well being of the country, Government, in partnership with stakeholders, will maintain a healthy, well managed and ecologically representative system of Protectorates and will make them as financially self supporting as possible. Furthermore, it will manage wild resources outside these areas sustainably for the benefit of the people living on the land with the resources.

Mandate

Government will fulfill its accountability to the people of Egypt for conserving their wild resources through the Minister for the Environment's approving an autonomous Nature Conservation Council, in consultation with affected local resource use right holders and other stakeholders. This Council will have full responsibility to undertake this task on the Minister's behalf and will report to him and through him to the Nation at least once a year. The Council may appoint specialist sub-committees to perform particular tasks, and it will be serviced by a professional scientifically oriented Nature Conservation Authority, under the command and control of a Director General who shall be responsible for enacting and implementing policies to:

1. Create and maintain an ecologically representative system of wetland, terrestrial, and marine areas as Protectorates to protect the nation's natural values, particularly its biological diversity and areas of natural scenic excellence, in an unspoiled state.

2. Ensure that Protectorates are properly governed (by the Nature Conservation Authority alone or in partnership with one or more private or public sector organizations) and are managed to preserve their asset value and used sustainably in support of the local and national economy, in terms of properly constituted resource management and business and tourism plans agreed by the Council.

3. Make Protectorates as financially self supporting as possible by optimizing revenue generation from each area without threatening natural values. It will ensure that the first call on revenues earned by a Protectorate is used for its own protection and management within the terms of a system of financial controls that promotes the Authority's effectiveness. When a Protectorate earns revenues surplus to its needs Council may allocate a predetermined proportion of this surplus to nature conservation elsewhere in Egypt, to rural development in the area adjacent to the Protectorate, or to other environmental issues.

4. Promote better long term conservation of all wild resources outside Protectorates through supportive regulatory mechanisms, services and pricing structures that offer local people incentives to conserve and manage wild resources more sustainably. This will include community based resource management programmes (locally regulated fee paying hunting, locally controlled sustainable collecting of wild animals or plants, or the rearing and growing of such organisms) that give the landholders in an area rights to use and trade freely in wild resources, so as to maximize returns from using them sustainably.

5. Monitor the status and trends of wild resources throughout the country with a view to initiating appropriate action to prevent the dissipation or genetic contamination of valuable species, ecological processes or the despoiling of aesthetically attractive scenery. Where justified by careful investigation, devise strategies to protect people from invasive species or wild organisms that are harmful to their health or livelihoods.

6. Promote awareness among decision makers and the public at large of the value of wild resources and the importance of managing them effectively, without undervaluing them, and to develop a coordinated wildlife industry that conserves resources and realizes their potential to generate increased national prosperity in the long term.

7. Ensure that the Egyptian Nature Conservation Authority is adequately staffed, equipped and financed to be an effective and efficient organization that the Council can hold accountable for fulfilling this mandate. In doing so the Authority should use internationally recognized best practices (such as those proposed by the World Conservation Union) to achieve the standards of excellence expected by the Convention on Biodiversity.

8. The Authority will ensure that Egypt fulfils its obligations in terms of international conventions and bilateral or regional agreements relating to nature conservation of which it is a signatory.

POLICY FOR MANAGING PROTECTED AREAS OR CLUSTER OF PROTECTED AREAS

1. Governance:

1.1. National Protected Areas or clusters of Protected Areas will each be managed by a Board appointed by the Minister on the advice of the Nature Conservation Council which shall have representation on every such Board. The Director General of the Nature Conservation Authority and a senior member of his staff will also be members of these boards on which the remaining four Members will be drawn from local communities in the area where a Protectorate or cluster of Protectorates is located. Local members will be selected to represent Local Government and local communities, with emphasis on stakeholders who have invested in services in the Protectorate, or who have traditional resource rights in the area it covers.

1.2. Protected Area Boards will meet at least once a year to guide management and ensure the ongoing protection of the natural values and sustainable use of Protected Areas. They will objectively evaluate past progress and guide future management, in terms of resource management, business and tourism plans for the area, setting clear objectives to be accomplished by the annual work plan applicable to the Board's area of responsibility. This information will be reported to the National Council for Nature Conservation.

1.3. The representatives from the Nature Conservation Council and Nature Conservation Authority on a Protectorate Board will ensure that all management actions in the Protectorate are undertaken in accordance with established national and area policy.

2. Planning

2.1. Natural Resource Protection and Management, Tourism and Business Plans will be prepared by the Nature Conservation Service for each Protectorate under the general supervision of the Director General and in consultation with the local Members of a Protectorate Board. These Members should consult with their local constituencies to promote the generation of local benefits from the proper management of a Protectorate; the aim being to promote public acceptance of the area and its use.

2.2. These plans and any amendments to them will be submitted to the National Council for Nature Conservation for consideration and approval. Where development is desirable for any reason in a Protected Area, it will be subject to an environmental impact assessment to be considered first by the responsible local Board. If the Board agrees to the development it will submit its recommendation to Council and the Council's decision will be binding on the local Board and the Nature Conservation Authority.

3. Management

3.1. The physical management of a Protected Area will be undertaken by the Nature Conservation Authority, by the Area Manager and his staff with broad supervision from the Director General. It will be in terms of Natural Resource Protection and Management, Tourism, and Business Plans, recommended by the Protected Area Board and approved by the Nature Conservation Council.

3.2. Management of a Protected Areas (or cluster of Protected Areas) will be supported by a grant in aid from Government, or a donor, augmented by revenue the area generates from entry charges, concessions, licenses fees or the like, with the aim of using free market forces to first make the Area financially self supporting and then profitable. Sporadic, unpredictable windfall earnings, such as those from fines for infractions or physical damage to the natural assets in a Protectorate shall not be treated as part of the regular income of a Protected Area or group of Protected Areas. It will be credited to a special fund and used by Council to rehabilitate natural resources in the Protected Areas or to further develop their use.

3.3. Any or all management activities in a Protected Area may be outsourced to public and private sector providers, on condition the local Board and the Director General are both satisfied that the provider can offer services of sufficient quality at a competitive price. All contracts to undertake a management function and all concessions to offer services to visitors to a Protected Area will consist of a well crafted agreement of fixed duration, varying from one to twenty years, depending on the magnitude of the investment and the costs involved in undertaking the function or providing the service in question. These agreements will specify the standards to be achieved, payments to be made by either party to the agreement, the conditions under which it may be terminated, and will include a provision for the management authority to revise the terms and conditions of the agreement for sound technical or economic reasons.

3.4. Where it is possible to generate a flow of benefits from a Protected Area or cluster of Protected Areas for the benefit of members of the public, especially for neighbors of a Protected Area who can benefit, this will be in terms of ancillary Policy Documents that spell out the nature of the benefits, how they will be realized sustainably and who may benefit. This Policy will also describe the terms and conditions of fixed term agreements to be entered into between a Protected Area and registered individuals, associations or companies permitted to realize such benefits and the fees, if any, that they may be required to pay annually to do so. Provision will also exist to cancel or suspend any such agreement where the holder is in breach of the conditions of his agreement.

3.5. No further land in national Protectorates will be sold to the private sector but suitable sites identified in management plans may be leased, subject to an environmental impact assessment, for the development of important management activities or the provision of appropriate visitor services.

4. Monitoring Management Performance

4.1. The biological diversity and general health of wild populations of plants and animals in the various ecosystems in Protected Areas will be monitored annually, using indicator species, to ensure that resource management is achieving the aims of the management programme and is sustainable. Likewise, all developments, public services and authorised uses of an area or its recognisable ecological sub-divisions will be monitored to ensure that the uses permitted are sustainable and not detracting from the area's long term aesthetic attractiveness.

4.2. Monitoring of management performance will be based on objectively verifiable criteria for ascertaining the effectiveness of the management and whether it is accomplishing its stated objectives. It will be undertaken in terms of work plans that will require data to be evaluated to determine the cost effectiveness of management actions and permissible uses of the area. This will be on an annual basis and the results will be fully reported to higher authorities for consideration by the Director General and Council.

4.3 Data and analysis of data obtained from monitoring the effectiveness of management and cost effectiveness of the use of an area shall be lodged with the Data Base and shall become part of the permanent records of the Nature Conservation Authority.

POLICY FOR A PUBLIC AND PRIVATE SECTOR PARTNERSHIP TO MANAGE THE WHITE DESERT NATIONAL PARK

It is visualized that a number of Protectorates may be managed by the Nature Conservation Authority in partnership with local stakeholders living in the areas in which Protectorates are located. This topic was especially prominent with regard to the White Dessert Protectorate at the time of the present consultancy (2005) and the opportunity was taken to visit the area. The arrangement outlined below is a suggestion as to how the most desirable development between the public and private sectors may be implemented in this case.

The concept is desirable as it introduces a measure of proprietorship and local pride for the people who must bear the opportunity costs of having a Protectorate declared in their area.

JOINT PUBLIC AND PRIVATE SECTOR MANAGEMENT OF THE WHITE DESERT NATIONAL PARK

1. The White Desert National Park will be managed jointly by the National Nature Conservation Council (NNCC) and the local communities living in the area, through an organization to be known as the White Desert Management Association. The Board of this association will have three members from the NNCC (a Member of the NNCC, the Director General of the Nature Conservation Authority and the Area Manager) and four members from an organization to be constituted locally among people living in the Farafra and Bahariya areas, to be known as the White Desert Management Association (the Association). The prime concern of the NNCC members will be to ensure that the area is managed in accordance with National Policy for the Protection and Proper Sustainable Management of National Protectorates in a Natural State, and to this end, these members will have the power of veto over any of the Board's decisions, so as to protect the State's interest and investment in proclaiming the area. The Association's Members' prime concern will be the long term conservation and sustainable use of the area and its resources, in order to safeguard Members' livelihoods and their investment in carrying the opportunity costs of having a Protectorate in their area and developing tourism services in it.

2. The National Park Area will be managed by the Nature Conservation Authority (NCA) with assistance from the Board, in terms of a management plan drafted by NCA in collaboration with local Board Members (who should consult their constituencies) and recommended by the Board for endorsement by NNCC. Once NNCC has agreed the plan it will be binding on the Board. This management will be paid for by a grant in aid from NNCC, augmented by a large proportion of the revenue generated by the National Park, with the aim of making the Park and its management as financially self supporting as possible.

3. Revenue will be derived from three sources:
   a) entrance charges,
   b) concession fees, and
   c) guiding license fees.

   All visitors will pay an entrance fee and will be accompanied by a Member of the association who is a guide licensed by the Board, or will pay a premium entrance charge to visit the area without a guide.

4. All Members wishing to accompany visitors into the National Park will pay a joining fee and an annual license fee, will comply with the law in all matters relating to their level of participation in the tourism business, and may be required by the Association to pass an annual proficiency test. The latter will ensure they are fully aware of and willing to comply with the regulations applying in the National Park, and will be an assurance that they are willing to conform to the Association's codes of conduct in the area and while conducting visitors to it.

5. All guides should be affiliated to one or more Corporate Members of the Association from whom they can expect to derive guiding opportunities. The Corporate Members will be Hoteliers, Camp Owners, Tour Operators and the like, licensed annually to operate in the National Park. Their function will be to package and market different safari packages, to be undertaken by the licensed guides and to offer support services for these safaris outside the Protectorate. A Corporate Member may also be an ordinary Member and undertake his own services.

6. Benefits from using the White Desert National Park as a tourism destination will be focused towards local people from the area. This will be achieved through differential Membership and Corporate Membership dues that are cheaper for local residents of the Farafra and Bahariya areas than for residents outside these areas.

POLICY FOR MONITORING AND RESEARCH IN PROTECTED AREAS IN EGYPT

Background

Monitoring and research should be integral components of the management and use programmes in Protected Areas, but these areas should not be viewed as convenient venues for research that is not strictly relevant to their prime purpose. Monitoring provides the means for determining just how effective the protection of natural landscapes and the conservation of biological resources in the area are, or just how sustainable permitted use in it is proving to be. It should also be used to determine the ability of the area to continue to add value to society over time, through the on-going generation of income and other human benefits, and whether the human and financial resources available to manage it are sufficient for the purpose and, if so, whether they are being used efficiently. It should also be the main driver of research, by highlighting where more social, ecological, economic, commercial or operational information and knowledge is desirable and in what form, in order to enhance the effectiveness or efficiency of the management agenda.

Experience has taught that the only practical way of integrating management and use of anything other than a very small Protected Area with the necessary monitoring and research is to make extensive use of adaptive management techniques. This implies employing the best available data to take action or allowing only very conservative uses of the area and then monitoring them to ensure an action is achieving its objective or the use is not causing any abuse of the area. By carefully monitoring outcomes the action or use can be refined in light of ongoing experience.

An inventory or “Biomap” of the species and their numbers that occur or should occur in a given area is important to protected area management when selecting protected areas. Once sites have been chosen, information relating to the current status of organisms is much less significant in judging effectiveness of the coverage or how well it is being managed than is good data on trends in the numbers of populations of key species or trends in key ecological processes. For example, in a savannah it is usually more important to understanding the soil/plant/animal relationships to know whether perennial grasses are spreading or receding than to know which species of grass are involved. This is because many species of grass behave in a similar way under similar ecological circumstances while the actual species is determined by historical chance and the prevailing nature of a site.

In designing the monitoring and research programme for a Protected Area or system of such areas it is important to proceed from the general to the particular. This implies setting strict priorities for using available in-house monitoring and research capacities, including the amount of sponsorship that can be offered to outside researchers undertaking strictly non-intrusive research projects. In this regard, the current numerical status of a minor species in a natural ecosystem is important only if the information can be used practically to alter the strength of the species to a more satisfactory level, bearing

in mind that Protected Area managers must often deal with hundreds of square kilometers of habitat with only crude tools.

Policy

1.1. The Chief of Monitoring and Research will prepare a programme to monitor effectiveness of the Nature Conservation Authority's management agenda in Protected Areas on an annual basis and will report his findings through his higher authority to the Council by June 30th each year. Using objectively verifiable indicators this report will describe how well the natural landscapes and natural values are being protected in each area, how well key species are being conserved, how sustainable the use of the area is, its revenue generation, and the cost effectiveness of the management programme in it. Council will include an accurate synopsis of this account in its annual report to the Minister and the people of Egypt.

1.2. Non-intrusive research for which the Nature Conservation Authority has a priority need will be undertaken by the Authority's staff in terms of Work Plans approved by the Chief of Monitoring and Research. These Work Plans will describe the object of the study; the nature of the work; how, when and by whom it will be done; the number of plant or animal specimens to be collected (with full justifications) and where they will be permanently housed, what it will cost and, particularly, its anticipated value to the organisation.

1.3. Similarly, non-intrusive research may be undertaken by non-staff members of the Authority with the approval of the Chief of Monitoring and Research, upon submission of a project memorandum indicating the nature of the work proposed and, if this is approved, the submission of a detailed work plan along the lines required from staff members. Outside research workers will be required to keep their work confidential, except where exempted from this provision by the Director General in writing. They will also be expected to furnish a copy of all their data to the Authority's Data Base and to provide it with a copy of any publication or report resulting from their work.

1.4. Intrusive research will not normally be permitted in a Protected Area, but where it is required it may be undertaken on similar terms to non-intrusive research on the recommendation of the Director General in terms of a permit endorsed by the Chairman of Council.

1.5. Progress of all research undertaken in the Protected Area estate will be reported to the Chief of Monitoring and Research quarterly, giving a full analysis of all data. Changes may be submitted at this time to approved Work Plans for consideration by the Chief of Monitoring and Research.

PART IV

Training Needs Assessment

One of the primary findings of the Management Effectiveness Evaluation of Egypt's Protected Areas was that training opportunities are severely limited. In cooperation with the Capacity Building and Institutional Support Program funded by the Italian-Egyptian Environmental Cooperation Programme, an expert was hired in 2005 to assess training needs for Egypt's Nature Conservation Sector Staff. The experts' tasks were to:

1. Analyze the training profiles of NCS Staff, identify potentialities and weakness of NCS employees and related training needs, draw up guidelines for Training Plans, identify training opportunities and target groups, and to outline the content of the courses to be carried out;

2. Carry out, through a SWOT (strengths, weaknesses, opportunities, threats) analysis process, an overall evaluation of the NCS Training Center at Sharm El-Sheikh, including its facilities, capacities and the training needs of its trainers, in order to reinforce the Capacity of the Center and promote its development as a regional Center of Excellence in Training.

The work of the expert together with senior staff of the NCS was carried out in four phases:

Preparatory Work

Standardized questionnaires were prepared and distributed to NCS staff at the central and local levels. A list of main questions and information required was prepared during the first mission to Egypt through interviews and meetings. Target groups were identified.

Data Collection and Training Center Review

This phase was undertaken by the expert and senior staff of NCS where they were asked to describe in detail the time planning and activities carried out, including data and other relevant information such as dissemination of objectives and scope of the Training Center and its work methodology. The distribution of questionnaires to NCS staff began during this phase.

Data Analysis and Assessment

In this phase, information and data provided by the questionnaires was recorded and organized for processing. The data analysis and training needs assessment went through five stages: Occupational Analysis, Functional Analysis, Skills Audit, Training Needs and Training Program.

Training Needs Assessment

Sharing and disseminating findings

During the second period (January 2006) in Egypt, the findings were shared with the Director of NCS, Directors of the Protected Areas and Biodiversity Department, Senior NCS staff, national experts, and Managers of Protected Areas and some of their senior staff.

Main Findings:

1-Training Needs

A total of 514 questionnaires were sent to NCS staff, including its lawyers, legal affairs officers, managers, rangers, environmental researchers, accountants and administrators, guards and clericals. The average age of staff was 35.5 years and most of them (62%) were on temporary contracts (though during the last few months more than 170 staff became permanent staff). The level of formal education is quite high, most staff having an academic university degree, while others have an MSc (24) or PhD (7). Most of the staff (84%) have good knowledge of English.

The level of training experiences was very low, the average for the entire staff being 2.5 experiences per person. However, it was quite satisfactory for managers (4.6 experiences/person) and rangers (3.8 experiences).

Satisfaction with personal knowledge and qualifications, job performance and present position was variable, depending on the particular Protected Area. Dissatisfaction was evident for accountants and some rangers due to lack or inadequacy of training or problems_connected with workplace (organization problems, lack of resources, etc).

NCS employees are aware of their duties and responsibilities and know their needs in terms of the knowledge and skills they desire. However, training and work experiences are not sufficient to ensure effective and professional levels of work. Rangers perform varied and heterogeneous tasks depending on the individual's qualifications and the needs of the Protected Area. Guards appear to have roles apart from guarding and patrolling, which appear to be under estimated (i.e., their roles in public awareness and visitor management).

With regard to training needs, the most requested topics of training were: computer skills, specific technical skills, safety, environmental education and sustainable development education, international and national conservation strategies and Protected Area policies, biodiversity monitoring and management. Rangers specified training needs in sustainable issues, such as sustainable tourism, and law enforcement. Other training topics requested included environmental economics, management and planning (e.g. leadership, time management, human resource management, risk management, business planning).

Concerning the venue of training, there was a clear preference for study tours abroad, the most frequently mentioned destinations being the USA, South Africa, Jordan and England. Other choices were: intensive and extensive training, study tours in Egypt and on the job training.

A training strategy approach was prepared, based or the global issues and future conservation challenges. It aims at enhancing the Egyptian Protected Area system at the management level. The training plan includes a top priority, and two main streams of actions. The top priority is a training course, Training for Trainers, the implementation of which is a prerequisite for putting in practice any further actions. The two main streams include a group of courses dealing with "cross-cutting themes," e.g. courses aimed at a given common knowledge level and capacities background of all NCS staff, and courses dedicated to improving the skills requested by a specific jobholder or rank or position in the NCS structure.

Training activities for all NCS staff, with cultural and technical cross-cutting themes, include:

- Speaking a common language: Protected Areas and the global conservation challenges
- Basic communication and public awareness promotion skills
- Basic computer skills
- Environmental legislation and law enforcement
- Reporting skills
- Basic knowledge of English language

PA Mangers and NCS top rank personal should receive the following training:

- Team building activities
- Human resource management
- PAs planning and management
- PAs management and sustainable development planning
- Biodiversity conservation principles and techniques
- Communication, public awareness and environmental education principles and techniques
- Environmental education and sustainable development issues

Rangers should receive the following training:

- Biodiversity monitoring and management
- GIS, IT and other practical applications
- Safety and other specific technical skills
- Basic skills of environmental interpretation
- Advanced computer skills

Administrators and legal affairs should receive training in advanced computer skills, whereas community guards should receive training in safety and accident prevention, first aid, visitor assistance, patrolling, and technical skills.

For each course, based on IUCN World-Commission on Protected Areas materials, the consultant provided the aims, objectives, target group, kind of training and suggested duration, and suggested module topics and guidelines.

1. **SWOT Analysis and Proposals for the Training Center at Sharm El- Sheikh**

The Training Center is an important tool for training activities that should be implemented to enhance the capacities of NCS staff. This evaluation included its past activities, facilities and equipment, and SWOT (strength, weakness, opportunities and threats) analysis. The Center's strengths included the possibility of the Training Center's being "accredited," its nearness to five Protected Areas with outstanding and attractive environmental features and training resources, its lodging facilities which are in a good state of maintenance, good facilities, equipment, and accommodation, good courses already managed, and good leadership. Its weakness included: "unsustainable" setting, weak "marketing", scarce educational activities for tourists and resident citizens, classroom furniture needing some upgrading, insufficient permanent training staff , small library , and limited multimedia equipment. Opportunities included the possibility to be a "center of excellence", to develop and offer training to NCS staff, respond to training initiatives, and promote cooperation with international organizations. Threats include progressive decay of the building if not maintained for lack of financial resources, under evaluation and insufficient use of the NCS resources, demotivation of staff, and survival versus liveliness of the center.

Based on the SWOT analysis and matrix, a strategy was formulated describing objectives, identifying actions and providing for the improvement of all resources (human, social, legal, political and financial).

In conclusion, the training center has many possibilities to enhance its role and importance at the national and international levels by implementing training courses and developing many other initiatives which may be important also for fund raising resulting in self-financing its running costs. It is suggested to create a "Training Unit", the Training of the "Training Team" the participation to the training center of Excellence, and keep the center budget for self promoted activities.

Based on recommendations of the International Ranger Federation, there are six main elements that are considered the main components of a professional standard training program. All rangers should:

1. Have an awareness of international and national standards, and of environmental ethics and sustainable resource management, including the history of national parks and other protected areas, and the development of rangers in such areas. A code of ethics for all rangers should be included.

2. Have good communication skills, including an awareness of the variety of techniques for communicating messages, information and values (field studies, guided walks, role play, earth education, written word).

3. Understand the dynamics of, and relationships between, local landscape, biodiversity and culture, and resulting conflicts of use.

4. Have the knowledge and ability to deal with visitor safety and remote area emergencies.

5. Have the ability to survey, monitor and report on natural resources , as the "eyes and ears" of the organization.

6. Have knowledge of basic habitat and facility management techniques, with skills in specialized techniques as their training allows.

PART V

CONSERVATION AND SUSTAINABLE USE OF BIOLOGICAL RESOURCES

IN-SITU CONSERVATION

Since ancient times, Egypt has relied on its wealth of natural resources to sustain its civilization. The ancient Egyptians were among the first to adopt measures for nature conservation. In the 21st century, biodiversity continues to be integral to the health, well-being and prosperity of the country. The challenge facing Egypt is how to balance the needs of a developing nation with protection of its biodiversity.

The passing of Law 102 of 1983 for Natural Protectorates and its subsequent implementation represent the most significant action taken to conserve the nation's biodiversity. A total of 24 protected areas have been established around the country encompassing a high diversity of biological components and ecosystems.

This report documents and assesses Egypt's efforts in in-situ, and ex-situ, conservation. The staff of the Nature Conservation Sector (NCS) of the Egyptian Environmental Affairs Agency (EEAA), Ministry of State for Environmental Affairs (MSEA), is implementing the National Biodiversity Strategy and Action Plan prepared in 1998. More new strategies for ecotourism and wetlands were prepared during 2005 and are being implemented. Management plans for more than half of the Protected Areas have been prepared and are currently being implemented in collaboration with local communities that have been involved in planning, implementation and assessment.

Following are some of the main achievements of NCS Rangers, acting in many instances in collaboration with local communities.

Through patrolling and monitoring activities, hunting of large mammals – traditionally one of the greatest threats to wildlife – has been nearly eradicated within the Protected Areas, and increased numbers of animals have been recorded, such as gazelles, ibex, and barbary sheep.

Protected Areas

Egypt's most important and effective tool to date for Egypt to conserve its biodiversity and fulfill its international commitments

Conservation and Sustainable Use of Wildlife Resources

Enclosures have been established in many Protected Areas to protect endemic and threatened animal species, habitats, and floral communities. For example, there are 46 enclosures in St. Katharine Protected Area for protection of 19 endemic medicinal plant species. Habitat restoration is being implemented in Al Omayad for rangelands in cooperation with local communities. Marine turtles are being protected along the Red Sea coasts and islands, as well as the Mediterranean Sea. Sharks and dugong enjoy protection due to the management measures taken by the Governor of the Red Sea and NCS staff.

One of the most important tools in protecting coral reefs are moorings for recreational and fishing boats. There are currently more than 1200 moorings installed and regularly maintained around diving sites in the Red Sea. Rangers are involved in observing the carrying capacity of dive sites and taking immediate management actions. They are equipped with boats to patrol coral reefs and stop violations, and are trained to assess environmental damage to coral reefs caused by divers, swimmers, and boats. They are also trained to review environmental impact assessments for projects implemented along the Red Sea coasts.

Mangrove stands are scattered over more than 20 sites along the Red Sea coasts and islands. Avicenna marina is the most abundant species of mangrove, while Rhizophora mucronata is restricted to the southern part of Egypt's Red Sea coast. Rangers have delineated the boundaries of all mangrove stands using GIS techniques, and are implementing a set-back strategy for mangroves varying between 500 and 1000 meters to protect mangroves from human activities. Mangrove stands are monitored regularly to record their structure, phenology, and associated fauna. Rangers have also participated in rehabilitation programs leading to planting of some 50 feddans of mangroves over the past two years. In 2006, NCS Rangers are participating in projects fostering sustainable uses of mangroves, with a focus on ecotourism, with the involvement of local communities.

Surveys have been undertaken in many sites known to be of high biodiversity value, resulting in site management plans that are being implemented. Wadi el Gemal Island was found to have the world's largest breeding colony of Sooty Falcons. The island has been closed to visitors during breeding season. There are several important sites at Elba and Wadi El Gemal where large mammals can be seen, but visitors are allowed to visit only allocated sites via prepared trails. Important and core areas have been mapped and made inaccessible to visitors. However, local communities are allowed to practice their traditional methods of animal grazing and limited agricultural activities, regularly monitored by rangers.

Following are details of specific activities related to the conservation and sustainable use of natural resources in Egypt.

Sustainable Use of Dolphins, Marsa Alam, Red Sea

Within the framework of the Southern Red Sea Ecotourism Initiative launched in 2003 by the Ministry of Tourism, MSEA and Governorate of the Red Sea, a management plan was established to conserve marine mammals and ensure their sustainable use in the Red Sea. Other partners included governmental agencies, scientists, the local community, private sector, and NGOs.

A few years ago, divers discovered a unique coral reef south of Marsa Alam know to local fishermen as Samadai Reef, where young and adult Spinner Dolphins Stenella longirostris congregate in large numbers, as many as 80 at a time. The area became known as the "Samadai Dolphin House," and quickly became a magnet for large numbers of snorkelers and divers. Arrangements were made by the NCS and a local dive center to install moorings and to limit the number of boats and visitors. The diving center was given authority for managing the site. In August 2003 it was found that the site was being heavily overused, with up to 40 boats and 800 tourists visiting daily. Dolphins were chased, fed strange items, touched, and disturbed by motor boats, and decreased in numbers drastically, disappearing completely when a dive boat caught fire.

A decree was issued by the Red Sea Governor, on advice of the NCS, to stop all activities until a management plan could be developed. A scientific team visited the site, interviewed all stakeholders, and held two workshops on modalities of managing the site based on carrying capacity and applying precautionary and participatory approaches. The management plan adopted included establishing a zoning plan for the area, creating a restricted zone, defining times of use, developing best practices guidelines, implementing a monitoring program, and initiating a service fee system. The law enforcement process was strengthened and a public awareness program undertaken, and the management plan was implemented beginning January 2004.

After one year, the average of 32 dolphins observed per day before implementing the plan increased to 78 per day, and the monitoring program indicated increases in the growth of coral reefs at the site. Knowledge of Spinner Dolphin behavior was increased through photo documentation, and a carrying capacity of 200 visitors per day appears to have been established. Revenues exceeded US$ 500,000 in one year, income shared between the NCS, Red Sea Governorate, and local NGOs. In response, local tourism business has improved greatly, as trip values increased and public interest was engaged.

Lessons learned: A area, even if small, when managed wisely can generate sustained and high revenues. The precautionary and participatory approaches are important for adaptive management. Partnerships are the key to sustainable development. Local community support and involvement benefit everyone. Expert opinion is invaluable. Economic benefits to the local community are a must. Selecting appropriate staff is crucial. Support of political leadership is important. Public awareness and marketing enhance tourism and conservation potential.

Samadi Dolphin House

Egypt's Dragon Tree

Dragon trees (Family Agavaceae) occur form the Atlantic islands of Macronesia and West Africa to East Africa and Socotra. Many species have been recorded as existing in ancient times, and today they exist as threatened relict populations.

Dracaena ombet has a very limited range within the southern part of Egypt's Eastern Desert. It was thought to be restricted to Gebel Elba, but recent investigations (El Azzoni 2003) revealed the presence of other, smaller populations on a nearby mountain, Gebel Shindeeb. They are scattered along the southeastern face of the mountain at an altitude of 800 meters. Some trees are large, with thick trunks five meters high. All specimens are fully grown and branched, with the exception of a few unbranched specimens 1-1.5 m high. The population appears healthy, with the exception of a few trees infected with insects or maggots. No young specimens were found, probably due to severe drought, no rain having fallen in the area since 1995.

The mature fruits of D. ombet are edible and the indigenous Ababda and Bisharin tribes eat them as a supplement to their diet. The tree and its fruit also contain nutritional and medicinal properties, as in the case of D. cinnabari on Socotra. The loose, fibrous wood of D. ombet is unsuitable for building or making charcoal and has therefore survived for centuries unaffected by human utilization of other woody trees such as Acacia.

Locations of D. ombet trees have been recorded by GPS and research is being undertaken on the uses of the plant and its socioeconomic importance. Meanwhile, successful greenhouse experiments have resulted in germination of D. ombet seedlings which are kept in a private house (El Azzoni 2005). Trials will be made to plant the seedlings in its natural habitat.

Dracaena ombet: Egypt's Dragon Tree

Cultivation of Indigenous Plants

Successful cultivation of indigenous plants for rehabilitation of habitats in Wadi Allaqi were made (Springuel and Belal 2006). Initial assessments of the economics of conservation of these plants have been developed, based on observations and potential of different species. A scoring system was devised allowing differentiation between those species of high actual and potential economic value, and those with some but less degree of utility. Species which were relatively rare and had a high potential use score were given the highest conservation priority. Examples of subspecies included Balanites aegyptiaca, all acacia species, Ziziphus spina-christi, and plants of significance for medicinal and grazing purposes.

Recreational Value of Coral Reefs

The coastline and nearby waters of Ras Muhammad in South Sinai have some of the most spectacular coral reefs in the world and are easily accessible. Tourism is the major and fastest growing sector in Egypt's economy, with over five million foreign tourists per year, and coastal tourism is the largest subsector within the Egyptian tourism market. While coastal tourism depends largely upon intact reefs, it is also the single most important cause of their degradation. The challenge for reef-associated tourism in Egypt is to generate economic benefits while maintaining the reef ecosystem on which it depends. By employing travel cost and contingent valuation methods, data on sites and from many sources can be used to extrapolate the situation. The "zonal travel cost model" (ZTCM) estimates these reefs' annual recreational value at approximately USD 142 million, while results from the individual travel cost model (ITCM) is about USD 191 million. The WTP for coral reefs conservation was estimated to be about USD 1.5 million per year. Economic valuation can highlight the importance of managing and protecting coral reefs for decision makers by getting the numbers on the table (Tawfik 2005).

Soft Coral

Ecotourism Strategy

The IUCN defines ecotourism as "environmentally responsible travel and visitation to relatively undisturbed natural areas in order to enjoy, study and appreciate nature (and any accompanying cultural features of past and present), that promotes conservation, has low visitor impact, and provides for beneficially active socioeconomic involvement of local populations." The International Ecotourism Society defines ecotourism as responsible travel to natural areas that conserves the environment and improves the well being of local people. Those who implement and participate in ecotourism activities would follow these principles:

- Minimize impact;
- Build environmental and cultural awareness and respect;
- Provide positive experiences for both visitors and hosts;
- Raise sensitivity of host countries' environmental and social climate;
- Support international human rights and labor agreements.

Egypt has a long history of tourism based on its cultural heritage, but today is a major destination as well for nature based tourism including diving, bird watching, and experiencing life in the desert. Protected Areas are visited by 1.5 million people annually.

In recent years, tourism development has been under strong criticism from some anthropologists who point to the negative impact of this industry on local communities. The argument is that tourism development creates structures of exploitation and does not deliver promised improvements and poverty alleviation. This argument was tested using Egypt's tourism development as a case study in South Sinai (Dahab). Using Tilly's relational analysis framework it was argued that pairs of categorical inequality develop, here in terms of Sinai Bedouins versus Egyptians. The local Bedouins, instead of being exploited by the Egyptian government, contrary to some current assumptions, appear to compete successfully with Egyptian immigrants, maximizing their profits from the tourism industry by hoarding their ownership of land. They are able to defend themselves, thus breaking with the stereotype of a passive community (Chrostowski 2002).

The National Ecotourism Strategy and Action Plan offers a work program for formulating national policies and strategies for development of ecotourism in Egypt that takes into account the various stakeholders. It is based on the National Biodiversity Strategy and Action Plan as well as CBD Guidelines on Biodiversity and Tourism Development. Ecotourism is one of the main principles in evaluating areas for protection in Egypt. The ecotourism strategy describes the current situation of ecotourism with its positive and negative aspects, and links between ecotourism, biodiversity and Protected Areas (Shehata 2005).

Ecotourism strategy aims to establish worldclass ecotourism destinations, to ensure that conservation of Egypt's natural heritage is the cornerstone for the ecotourism industry, establish an equilibrium between tourism development needs and natural resources conservation fundamentals, encourage tourism patterns which do not degrade the resource base, enhance environmental management of tourism activities, establish procedures for environmental monitoring and evaluation of tourism through enforcement of relevant legislation, promote the use of "clean technologies," enhance public and corporate awareness, promote cooperation and networking amongst stakeholders, and maximize benefits to indigenous people from tourism.

The proposed national ecotourism programs are:

- Development of the Protected Areas System Plan;
- Effective management of ecotourism;
- Information Technology Center for Ecotourism;
- Communication, Education and Public Awareness;
- Partnership with private sector and local communities;
- Capacity building and funding mechanisms;
- Integration of national ecotourism activities with regional and international activities

Wetlands Strategy

Egypt's wetlands strategy is based on its National Biodiversity Strategy and Action Plan, which in turn is its response to the Convention of Biological Diversity and the Ramsar Convention on Wetlands. It describes the current wetlands in Egypt, the threats, goals, guiding principles, objectives, and actions required. Wetlands are recognized as ecological and national assets to be managed for the benefit of present and future generations. The main objectives of the strategy are:

- To conserve and wisely manage, on sound ecological bases, wetlands as integral elements of the nation's natural resources;
- To manage, rehabilitate or restore wetland sites with the support of governmental agencies and local communities;
- To create and promote institutional arrangements required for effective implementation of the planned actions;
- To ensure community recognition of wetlands as natural assets, and so promote public support for programs of action for sustainable management of wetlands sites;
- To identify, on a scientific basis, wetlands sites that are ecologically important at the local, national and international levels, and ensure their conservation;
- To survey the wetlands of Egypt, build up a comprehensive inventory of these wetlands and their resources, and to make this information accessible.

The National Action Plan on conservation of Wetlands intends to complement the existing Protected Areas, and comprises the following programs:

1- Establishment of a national council of wetlands;
2- Survey of wetlands (ecology, hydrology, biodiversity, socioeconomics);
3- Selection of sites for wetland nature reserves as a national wetland network and proposals for international (Ramsar) sites;
4- Research programs in selected wetland sites;
5- Formulation of management plans for each site;
6- Public awareness programs;
7- Establishment of a national wetlands databank;
8- Training and capacity building program;
9- Inventories of cultural heritage and indigenous knowledge of wetlands in Egypt;
10- Consolidation of national laws for wetlands and means of enforcement;
11- Financial mechanisms to support programs of action.

This wetlands strategy was discussed and approved by participants in two workshops on wetlands held Nov. 2004 and February 2005. The strategy was sent to the Ministry of Planning to be part of the National Development Plan.

Wetlands Conservation

Environmental Impact Assessments (EIA)

During the period 1998 to 2006, a total of 367 EIAs for projects either inside or outside Protected Areas have been reviewed. Most of them (272) were tourism projects (hotels along the coast, jetties, desalination plants), while others were either industrial (mining, oil exploration and exploitation) or agriculture projects (fish farms). Analysis of these projects indicates that there were only 10 EIAs reviewed during 1998, increasing to 20 by 2000, 38 by 2003, and reaching 85 by 2005.

Training in reviewing EIAs has been provided to rangers and NCS staff. When an EIA reaches the NCS, it is transmitted to the Protected Area concerned to verify the information presented and is then reviewed by senior staff. In many cases, more information is required. In some cases an audit is made when the project is quite large and the expected impacts on biodiversity are great. After approval is given, a Protected Area ranger supervises compliance during construction and operation phases, keeping a register for regular monitoring observations.

Important lessons have been learned after reviewing and approving of EIAs. For example, large floating jetties have direct impacts on coral reefs due to shading. Approval has therefore been given only for small size floating jetties (3x6m) in order to allow sunlight penetration. Another lesson learned is with respect to shore setbacks, whereby only light structures are allowed near beaches, separated from hotels by a main access or frontage road. This practice began at Sharm Al Sheikh, and is now being practice3d along the Gulf of Aqaba and southern parts of the Red Sea. As there is a policy of no discharge to the sea, all desalination plants are required to get rid of their brine through coastal wells or to use atomizers to mix sea water in large tanks before its being released to the sea.

EX-SITU CONSERVATION

For several years, ex-situ conservation has been a major successful activity of NCS, due to the combined efforts of several projects funded by UNEP/GEF, UNDP/GEF, the EU, and partnerships with the private sector that contributed significantly to successful implementation of many activities.

Captive Breeding, South Sinai

A wildlife clinic was established in Sharm Al Sheikh to provide assistance to migratory birds that have health problems during migration across South Sinai. Of the 150-250,000 migratory White Storks, rehabilitation for about 1000 birds is given each year and clinical care is given to about 100 birds annually. This health care was later extended to other migratory birds and confiscated animals. It was found that many birds stayed in South Sinai. Therefore, cages and pools were established for them where the private sector provides maintenance and the NCS provides clinical assistance.

Another private sector establishment showed interest in supporting ex-situ conservation, and cares for many confiscated live animals and birds. As a result, a considerable number of animals were able to breed in captivity. A total of 14 threatened and endangered species of mammals, 10 species of birds, and 8 species of reptiles are now in good condition. There were 2 female and one male Dorcas Gazelle in 2002 but by 2006, their number has increased to 44. Nubian Ibex Capra ibex nubiana were 3 in 2002, increasing to 17 by the end of 2005. Barbary Sheep Ammotragus lervia increased to 20 animals by the end of 2005. Successful captive breeding of Gazells, Ibex and Barbary Sheep was more than 90%. Other mammals bred in captivity in smaller numbers include the Striped Hyena Hyena hyena (5), Crested Porcupine Hystris cristata (5), Hyrax Procavia capensis (15), Jungle Cat Felix chaus niloticus (4), Wild Cat Felis sylvestris (1), Caracal Caracal caracal (1), and Fennec Fox Vulpus zerda (1). It is planned to release these animals to the wilderness in the near future.

Ex-situ Conservation

Egyptian Tortoise

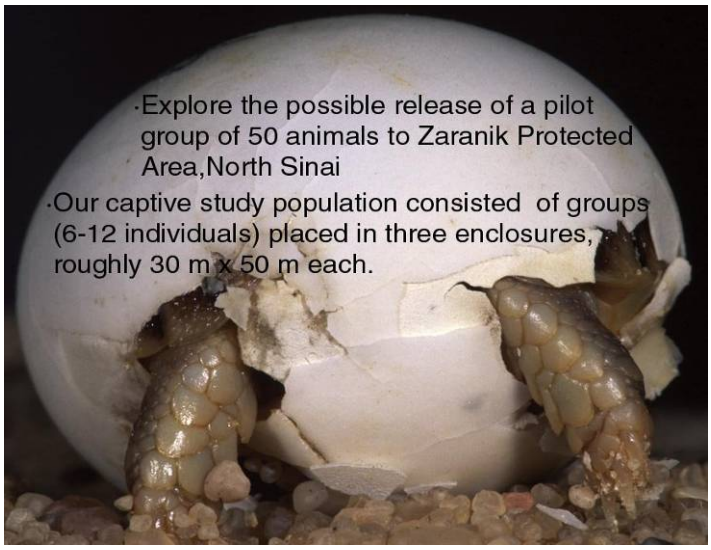
The Egyptian Tortoise Testudo kleinmanni is one of the world's most threatened species, and one of the world's smallest tortoises. Many factors contributed to its near extinction, including habitat degradation and over collection for trade. The Egyptian Tortoise once roamed the Mediterranean littoral desert of Egypt and eastern Libya, but now is almost extinct from much of its range in Egypt. However, small numbers are still found in Zaranik Protected Area in North Sinai and Al Omayad Protected Area on the Western Mediterranean coast. Captive breeding successes have led to reintroduction trials, monitoring of released animals, and construction of semi-wild enclosures.

Realizing that the long term future of the species depends upon its habitat and local residents who share with it the same resources, it was clear that involvement of the local community was crucial. A local community initiative was launched, building on the handcraft skills of local residents, especially the womenfolk. Most surprisingly, by engaging the keen knowledge of local people, NCS rangers rediscovered a sizeable isolated population of tortoises in Zaranik Protected Area where they were thought by the scientific community to have been extinct for many years.

The knowledge and research capacities of the local community, represented by community guards working with the Protected Area staff, was further capitalized upon in a unique research program in which extensive ecological observations of the wild population were carried out solely by community guards. Locals have proven to be excellent field workers and have collected excellent information which will contribute significantly to the conservation of the species.

Enclosures were built to limit the negative impacts of excessive grazing, in agreement with locals who regard these fenced areas as their own property and are also interested in maintaining habitat health. Recently, rangers have been able to monitor the tortoise population by radio telemetry to estimate home ranges and habitat requirements of the tortoises.

The lesson learned is that the conservation of a single indicator species, even though a small creature, requires extensive and intensive effort to remedy root causes of its disappearance. In the process, many socioeconomic issues, ecological factors and political issues have to be addressed. Once these well-studied actions are taken, the tortoise population, the flora, other threatened species, and the ecosystem as a whole. And, most importantly, the native Bedouin also benefit.



Egyptian Tortoise (Testudo kleimmanni)

Gene Banks

Scientists have been encouraged to survey Egyptian flora and bring seeds from different areas to carry out experiments on germination. Seeds have been selected, processed, and stored in the Gene Bank managed by the Ministry of Agriculture and Land Reclamation at Sheikh Zuwayd in North Sinai and the National Gene Bank in Cairo. So far, seeds of a total of 84 species are stored in the Gene Banks.

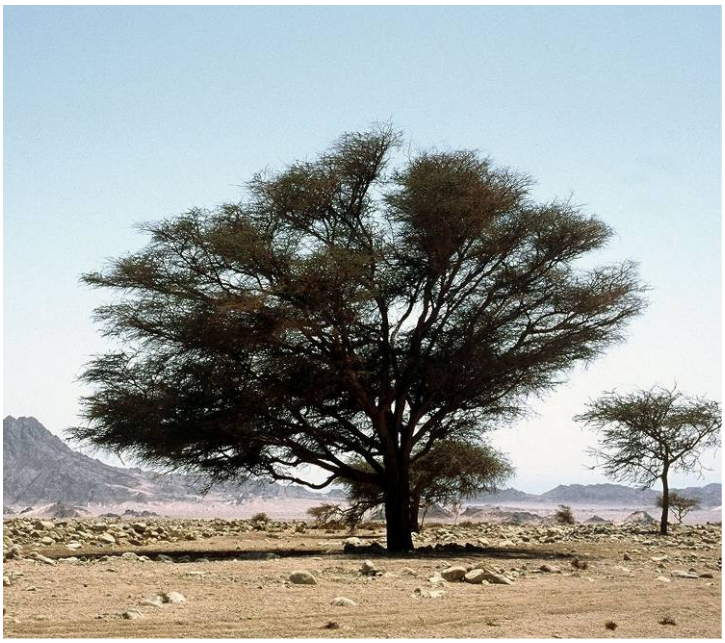
Rangers in Protected Areas collect seeds and store them or use them in plantations at specific sites outside their usual range.

Rehabilitation of Acacia Trees

Through the efforts of several projects funded by donors and international agencies, more than 60,000 acacia trees have been planted in St. Katharine, Zaranik, Al Omayad and Wadi Al Allaqi Protected Areas.

Several species of Acacia live in the dry and subhumid areas of Egypt. They have suffered greatly from drought and human activities, mainly the harvesting of trees for fuel. The NCS has been active in planting Acacia tortilis and A. radiana with the support of the scientific community as well as local communities. Enclosures were established in these Protected Areas and seeds digested by goats collected and germinated. Local employees were involved in caring for the seedlings by setting fences around new trees and watering them under supervision of scientists. They also planted acacia at their homes, giving them added incentive to monitor the progress of the introduced trees.

Seedlings have reached as much as 2 meters and the survival rate is generally good. The conservation of acacia trees is important in many areas of Egypt, and the involvement of local communities has been invaluable. Meanwhile, the local communities themselves have greatly benefited from this rehabilitation program.



Acacia shrubs

INVOLVEMENT OF LOCAL COMMUNITIES

IN SUSTAINABLE RESOURCE USE

Many incentive programs have been implemented to improve the livelihoods of local communities living in and near Protected Areas, and at the same time to conserve biodiversity resources. Participatory and precautionary approaches have been applied. Information on incentive measures has been collected, as in the following projects.

Fish hatcheries were established to increase fish stocks in Protected Areas having lakes such as Qarun and Wadi Al Rayan. Assistance was given to young university graduates to start small enterprises such as cage culture and to establish fish farms in collaboration with the Social Development Fund and band lenders.

Rangeland programs at Al Omayad included many activities in which Roman well cisterns were cleared and maintained to store water for grazing animals. Local communities in and around the protected areas were allowed to graze their animals according to carrying capacity studies in order to decrease pressures on vegetation. Meanwhile, alternatives were provided when vegetation cover decreased, by providing local communities with animal feed until vegetation cover returned to its natural condition. Small agricultural projects such as plantation of olive and acacia trees were assisted.

Local communities were encouraged to establish their own **NGOs** and assistance was provided in the form of training in management and obtaining funds, such as small grants from GEF programs. Local communities were involved in many activities such as assisting in reed control at Lake Burullus, resulting in more marine fishes entering the lakes for spawning. Fishermen were assisted with their fishing gear costs, and benefited from increased and sustainable fish takes.

Local guides collect **fuel wood** for cooking where tourists visit desert areas. These activities greatly reduced the number of trees formerly of great importance to desert ecosystems. Efforts were made to buy bottled gas ovens for families in desert communities in order to reduce the pressure on these ecosystems' sparse trees, and fuel wood was brought from the Nile Delta for South Sinai local communities to use in tourist desert safari activities.

In the Red Sea protected areas, many activities have been undertaken by rangers to assist local communities, including maintaining water **springs** to attract wild animals, establishing **landfill** areas for solid waste, engaging local people in building **trails** within protected areas, and training Bedouins to work as **tourist guides** and provide catering services. These activities have created many job opportunities for local communities.

Health Care

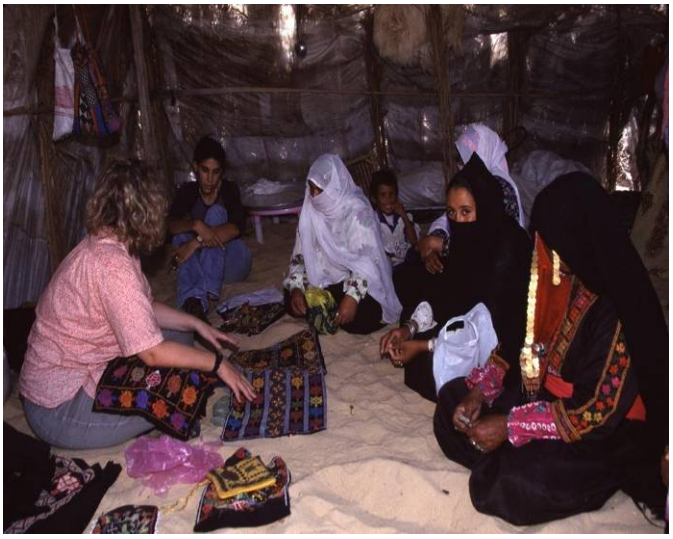
Health care is provided to local communities in many protected areas. Stations were established from which medical doctors visit remote areas regularly to provide health services. These stations are also used by veterinarians, and to teach children and implement public awareness programs.

Incentive Programs

St. Katharine Protected Area is the best example where incentive programs have resulted in improving the standard of living for local communities. Assistance was given to women to improve the quality of their handicrafts, which have by now become quite fashionable among Egyptian and foreign tourists. A company was established of some 350 women, giving them incomes of as much as LE 500 monthly. Local communities helped establish the Visitor Center near St. Katharine's Monastery and the ecolodge, Al Karm, now being managed by a local community. Small dams and roads have been built, assisted by EU funded projects. The medicinal plant project has provided assistance by establishing an NGO for medicinal plants, engaging local communities in cultivating these plants, and establishing small enterprises such as honey production.

In Nabq Protected Area, a young deaf girl was found to have a talent for painting. She was given assistance to improve her talents, and her paints are exhibited and sold to visitors, while postcards of her paintings are sold all over Egypt. This young girl's entire community supports her work, and also benefit from visitors to her studio.

In St. Katharine and Elba, the work force from local communities exceeds 70% of total staff. In providing livelihoods and improving standards of living for local communities, local inhabitants become partners in protecting and conserving biodiversity resources in Egypt's Protected Areas.



Local communities development

INVASIVE SPECIES

Invasive species are one of the major causes of species extinction and biodiversity loss. They also have considerable socioeconomic and health impacts. The Convention of Biological Diversity (CBD) has requested its parties, regional and international agencies, to address this issue by preparing and implementing programs on invasive species. During the last three years, Egypt, through the NCS, has made considerable progress through consultations, workshops, and specific projects. Government institutions, universities, research centers, NGOs, stakeholders and the media were invited to discuss the guidelines proposed by the CBD and the Global Invasive Species Program. Meanwhile, a task force was formed at the NCS of national experts, supported by the Biomap Project.

The task force was assigned to review invasive species in Egypt through literature available from the Global Invasive Species Program, communication with experts, and interviews with government institutions. A database was established at the Biodiversity Department. Table 1 lists the results of this data collection on invasive species in Egypt. (Table I)

Table I
A list of invasive species in Egypt

S	Common name	Species
Aquatic plant		
1	Water hyacinth	***Eichhornia crassipes***
2	Hypnea (alga/seaweed)	***Hypnea musciformis***
Land plant		
3	Brazilian pepper tree	*Schinus terebenthifolius*
4	Cogon grass	*Imperata cylindrica*
5	Giant reed	*Arundo donax*
6	Mimosa	*Mimosa pigra*
7	Honey mesquite	*Prosopis glandulosa*
8	Lantana	*Lantana camara*
9	Leucaena	***Leucaena leucocephala***
10	Lemon guava- Guava	***Psidium Guajava***
11	Reed Canary grass	***Phalaris arundinacea***
12	Redstem filaree- Pin weed	***Erodium cicutarium***
13	Foxtail brome	*Bromus rubens*
14	Russian tumbleweed	*Salsola tragus*
15	Mediterranean turnip	*Brassica tournefortii*
16	Canota	*Panicum repens*
17	African foxtail grass	*Pennisetum ciliare*
Aquatic invertebrate		
18	Green crab	*Carcinus maenas*
19	The freshwater crayfish	*Procambarus clarkia*
20	White River Crawfish	*Procambarus zonangulus* *Procambarus acutus*

Land invertebrate		
21	Mediterranean fruit fly	*Ceratitis capitata*
22	Khapra beetle	*Trogoderma granarium*
23	Sweet potato whitefly	*Bemista tabaci*
24	Castor whitefly	*Trialeurodes ricini* (Misra 1924)
25	Red palm weevil	*Rhynchophorus ferrugineus*
Fish		
26	Common carp	*Cyprinus carpio*
27	Nile perch	*Lates niloticus*
28	Western mosquito fish	*Gambusia affinis*
29	Mozambique tilapia	*Oreochromis mossambicus* *Oreochromis korogwe* *Tilapia mossambica*
30	Large mouth bass	*Micropterus salmoides*
31	Silver Carp	*Hypophthalmichthys molitrix*
32	Grass Carp	*Ctenopharyngodon idella*
33	Bighead Carp	*Hypophthalmichthys nobilis* *Aristichthys nobilis*
34	Black or Snail Carp	*Mylopharyngodon piceus*
35	Sabaki tilapia	*Oreochromis spilurus*
36	Red Tilapia	*Oreochromis mossambica*
37	House mouse	*Mus musculus*
38	Ship rat	*Rattus rattus*
39	House shrew Asian musk shrew	*Suncus murinus*
Reptile		
40	Red- eared slider	*Trachemys scripta*
Amphibian		
41	Cane toad	*Bufo marinus*
Micro- organism		
42	Banana bunchy top virus	*Banana bunchy top virus*
43	Rinderpest virus	*Rinderpest virus*
Invertebrate (Nematodes)		
44	Rat-lung Nematode	*Angiostrongylus malaysiensis*
Invertebrate (Mollusca)		
45		*Helisoma duryi*
46	Blood fluke planorb	*Biomphalaria glabrata*
47		*Biomphalaria alexandrina*
48		*Bulinus truncates*
Invertebrate (Echinodermata)		
49	Crown of thorn starfish	*Acanthaster planci*

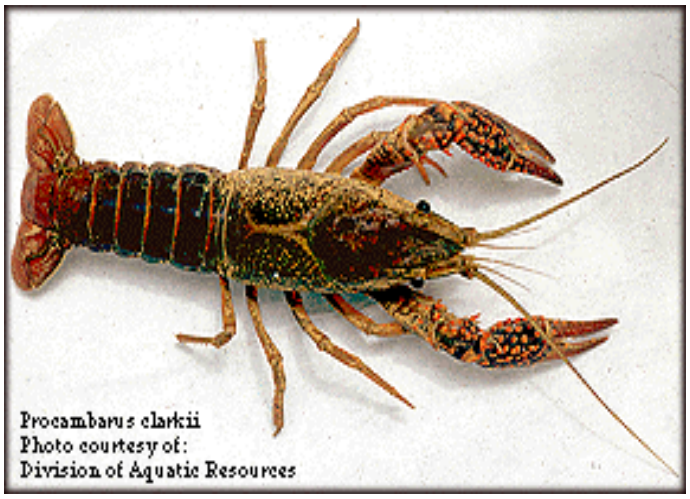
Flora

Egypt's invasive plant species have reached some five percent of its total flora of some 2100 species. During the past 200 years, intentional or accidental plant invasions have occurred at an average rate of one species every two years, and the rate appears to be accelerating. Invasive plant species in Egypt have spread as a result of regular disturbances such as increasing intensity of agriculture and land reclamation, road building, urbanization and other developments, though spread rates are not fully understood. Generally, invasive plant species in Egypt are less prevalent in hyperarid areas where vegetation is subject to periodical drought cycles that limit invasion. The water hyacinth Echorma crassipes, however, is an example of a floral invasive species that has become a nuisance throughout Egypt. Water hyacinth is the most serious floating aquatic week problem in the world. In Egypt, it cases acute problems through blockage of waterways where irrigation and drainage are of economic importance. It affects water transportation and fishing activities, and causes environmental disturbance. Considerable efforts have been made to clear water hyacinth by manual, mechanical and chemical means, but no concrete results have been achieved.

Fauna

Many animal invasive species have been introduced to Egypt, including fish, birds, insects, molluscs, crustaceans and others. One of the most recent examples is the freshwater crayfish Procambarus clarkii introduced some 20 years ago. This species was brought to Egypt for aquaculture but when the venture failed, the owner disposed of the crayfish in the Nile, resulting in incredible loss of native fish and invertebrate species. In addition, it has caused considerable environmental and economic loss through alteration of habitats and disturbances in agricultural lands as well as water drainage systems. Research has concentrated on using the crayfish as animal feed in poultry and fish farms, but this is still in early stages of results.

The Red Palm Weevil Rhynchophorus ferrugineus poses a serious threat to date palm trees in Egypt. Other examples of economically important invasive species include Bulinus truncates, the snail intermediate host for Schistosoma haematobium and the Mediterranean Fruit Fly Ceratitis capitata which is a serious pest to many crops.



Invasive Species in Egypt

Community-based Management of *Prosopis juliflora*

Mesquite Prosopis juliflora is a serious invader in the southeast corner of Egypt. Introduced to the area by the local community of the Halayab region in the 1980s for agro-forestry and charcoaling purposes, it subsequently spread rapidly, especially after a period of heavy rain in 1996. The success of Prosopis species as invaders is largely attributable to the massive number of seeds produced, about 60 million per hectare per year according to some references, and water plays a major role in their dispersal, particularly during floods.

On a more local scale, livestock also disperse the seeds after feeding on the pods. In this case, however, camels moving along the border between Egypt and Sudan helped spread the seeds over more than 1000 km2. Within this area there are three main Prosopis populations, but most of the invaders are concentrated in the Halayab region.

Prosopis poses a threat to the Elba Protected Area's biodiversity, and negatively impacts ecosystem functioning and catchment hydrology. It also has had a secondary effect in that the dense thickets have displaced livestock, resulting in more intense grazing pressure in other parts of the Protected Area. The species has spread into all habitats, from salt marshes on the Red Sea coast in the east to desert plains in the west, and makes up about 40 percent of the plant community in the Halayab area.

A monitoring program for Prosopis was completed in 2004, after which Elba Protected Area rangers embarked on a control program with the participation of the local community. To date, only mechanical methods have been used, the trees being felled and the rest of the stem and roots burned. Follow-up work is conducted and GIS techniques are used for continuous monitoring of the areas of invasion. These control efforts are seen as a temporary solution, which will at least help conserve natural resources until the best way of exploiting this species within a sustainable and integrated management approach has been identified.

Freshwater Crayfish

The red swamp freshwater crayfish Procambarus clarkii (Girard 1852) is an indigenous species from northeast Mexico and south central USA, which has been introduced worldwide and has become the dominant freshwater crayfish in almost all areas it occupies. It is a hard warm freshwater crayfish typically found in marshes, rivers, slow flowing water, reservoirs, irrigation systems, and rice fields. It may become a keystone species, affecting many components of the ecosystem it inhabits and altering the nature of native plant and animal communities. Its burrowing behavior can cause significant problems.

The only available explanation for the recent introduction of P. clarkii in Egypt is that it began with a commercial aquaculture project in Manial al Sheiha, Giza, in the early 1980s, a project terminated soon afterward due to administrative failure. The negative impacts on Egyptian waters include:

1. Destructive impact on local biota leading to considerable stress on freshwater ecosystems;
2. Attacking fish in trammel nets used by Nile fishermen, leading to severe losses for the fishermen;
3. Hosting some protozoa and possibly acting as an intermediate host for some parasitic helminthes.

Some positive impacts include:

1. Biological control of snails transmitting blood and liver flukes;
2. Providing a source of animal protein for people and using the carapace as forage for animals;
3. Using the crayfish as a bioindicator of trace metals pollution in aquatic environments.

A survey of previous studies made of this species in Egypt shows that there is little information about its population dynamics and ecology in the Nile and canals. The studies are mainly academic, focusing on histology, histophathology and the effects of some chemicals on its organs and muscles. No studies have been made on methods of controlling the crayfish or of its possible beneficial uses. Its distribution and quantity in the Nile and irrigation canals and drains is still unknown.

The study recommended establishing a program to determine the population dynamics, distribution and geographical extent of the species in the Nile and irrigation canals and developing a strategy for solving the problem by means of two scenarios:

1. Elimination of crayfish from the river and irrigation canals;
2. Use of crayfish as a resource of animal protein for people, as crayfish muscles contain high protein values, and the dried carapace can be made in to a rich constituent of poultry feed.

A task force was assigned to review current legislation, existing capacities regarding invasive species, current national programs and international expertise, and to prepare a strategic plan for invasive species. The strategic plan proposes nine tasks (see proposed concept # 10)

GLOBAL TAXONOMY INITIATIVE

A series of consultations and workshops were held during the last three years to implement the program of work for the Global Taxonomy Initiative. Stakeholders consulted included: ongoing biodiversity projects in Egypt, Ministry of Agriculture, Academy of Scientific Research and Technology, universities, research institutions, NGOs (primarily scientific societies), Egyptian taxonomic groups, the Nature Conservation Sector and Biodiversity Department of the EEAA. A series of lectures on various topics was presented to stakeholders and many reports were consulted, including the National Biodiversity Strategy and Action Plan, National Environmental Action Plan, status reports on certain groups, status reports on reference collections at various universities, research centers, and private collections. A questionnaire was presented to many participants to assess the status of taxonomy in Egypt.

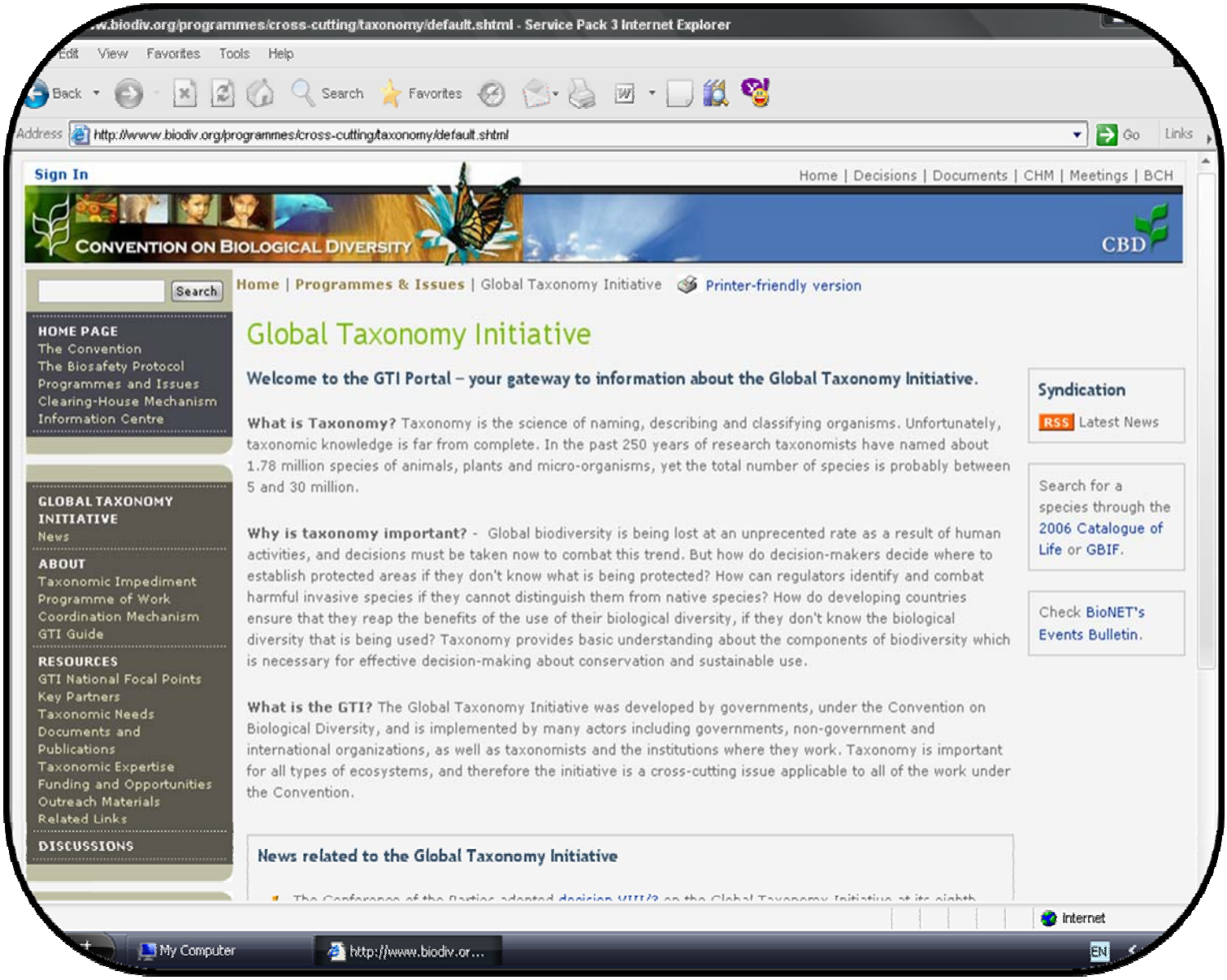
The main conclusions of these workshops were:

1. Most animal taxonomic collections in Egypt are limited;
2. Animal taxonomic studies include few groups of invertebrates and vertebrates, whereas flowering plants are relatively well known and documented (e.g., the four volumes of *Flora of Egypt* by Loutfy Boulos);
3. Young taxonomists are very few;
4. Taxonomic facilities are inadequate;
5. Documented taxonomic information needs updating;
6. Important specimens are held in foreign institutions due to the lack of a natural history museum in Egypt.

The major obstacles are:

1. Limited research funding opportunities;
2. Limited scientific and collecting equipment;
3. Limited taxonomic literature and library facilities.

Many of the recommendations were translated into action. For example, a database on taxonomy experts was made by the Biomap project; all reference collections were identified including their contents and status, and a national committee was formed to lobby for the creation of a National Museum of Natural History.



Global Taxonomy Initiative

The proposed Natural History Museum is in the advanced planning stage in collaboration with the Academy of Scientific Research and Technology, which has a site of four feddans for the building. However, the funding for the project is not yet secured. The museum will provide the following:

1. House national taxonomic referral collections;
2. Build up and manage the national network of biodiversity data;
3. Train taxonomists and curators;
4. Support programs of education and dissemination of taxonomic information.

Issues of global access to taxonomic data are being addressed by the Biomap Project (2004-2007). The main outputs of this project, relevant to taxonomy, are:

1. Building capacity for biodiversity recording, monitoring, and assessment;
2. Updating plans for a natural history museum;
3. Placing GIS mapped data for all Egyptian taxonomy on the web.

The Egyptian Action Plan for the Global Taxonomy Initiative has been approved and includes the following topics:

1. Assessing available taxonomic knowledge;
2. Improving taxonomic infrastructure;
3. Improving access to and exchange of taxonomic information and products;
4. Accelerating the full taxonomic cycle.
5. Improving public awareness and education on taxonomy;
6. Marine and coastal biodiversity;
7. Inland water biodiversity;
8. Dry and subhumid species;
9. Invasive alien species;
10. Global partnerships;
11. Preparing a national project proposal on taxonomy of Egypt.

HUNTING MANAGEMENT IN EGYPT

A working group of senior staff of NCS, the legal advisor and experts, was formed to survey and review available information about wildlife conservation and hunting management in Egypt, review existing legislation protecting nature and regulating hunting, identify organizations responsible for regulating hunting and specifying the roles and responsibilities of each body, identify international conventions signed by Egypt having relevance to hunting management, outline the main types of hunting, assess capacities and capabilities of organizations involved in hunting management, evaluate existing legislation and suggest amendments and means of law enforcement, assess problems affecting wildlife due to illegal and uncontrolled hunting, provide recommendations for actions needed, and propose an overall action plan for a hunting management system and regulations in Egypt.

The working group met many times and held several workshops (Nov 2004, Jan/Feb 2005, June 2005, Oct 2005, Jan 2006) and prepared a draft report which was discussed and approved the workshop participants. Many actions were undertaken, resulting in improved capacities of NCS staff, and hence wildlife conservation and hunting management.

Ancient Egyptians were the first to regulate hunting wildlife, imposing closed areas and closed seasons. Religion called for protecting wildlife through establishment of the hema system to allow wild animals and plants to grow and reproduce. There are many laws enacted in the 20th century: Law 9/1912 preventing catching, killing, and trade in wild birds; Law 58/1937 punishing those who cut trees and kill animals; Law 53/1966 protecting birds that benefit agriculture and wild animals; Law 102/1983 forbidding hunting in Protected Areas; Law 124/1983 regarding fisheries; Law 4/1994 for environmental protection, as well as many prime ministerial, ministerial, and governorate decrees. Egypt has ratified numerous regional and international conventions which, according to the Egyptian Constitution, have the same power as Egyptian law. These include the African Convention on Conservation and Nature and Natural Resources (Algiers 1968); Convention of Wetlands of International Importance (Ramsar 1971); Convention for Protection of World Cultural and Natural Heritage Sites (Paris 1972); Convention on International Trade in Endangered Species (CITES, 1973); Convention on the Conservation of Migratory Species of Wild Animals (Bonn 1979); Protocol concerning Mediterranean specially protected areas (Geneva 1982); Convention on Biological Diversity (Rio de Janeiro 1992); Agreement on the Conservation of African-Eurasian Migratory Waterbirds (Hague 1995).

Hunting management has been given high priority by the EEAA. Law 4 for Environment (1994) contains provisions regulating hunting of wildlife and gives advisory and coordinating powers to the EEAA for hunting management. Law 102/1983 for Protectorates prohibits hunting in Protected Areas.

As in many other Mediterranean countries, there is a tradition of hunting in Egypt. A variety of technicians hunt wild animals, both game and non-game species, and collect wild plants for teaching, research and trade (such as medicinal plants). There are

relatively few Egyptian sport hunters, but there is a small and growing industry for sport hunting tourism. Most Egyptian hunters and collectors engage in hunting and collecting to generate supplementary income. There is also a commercial import and export trade in live wildlife and wildlife products.

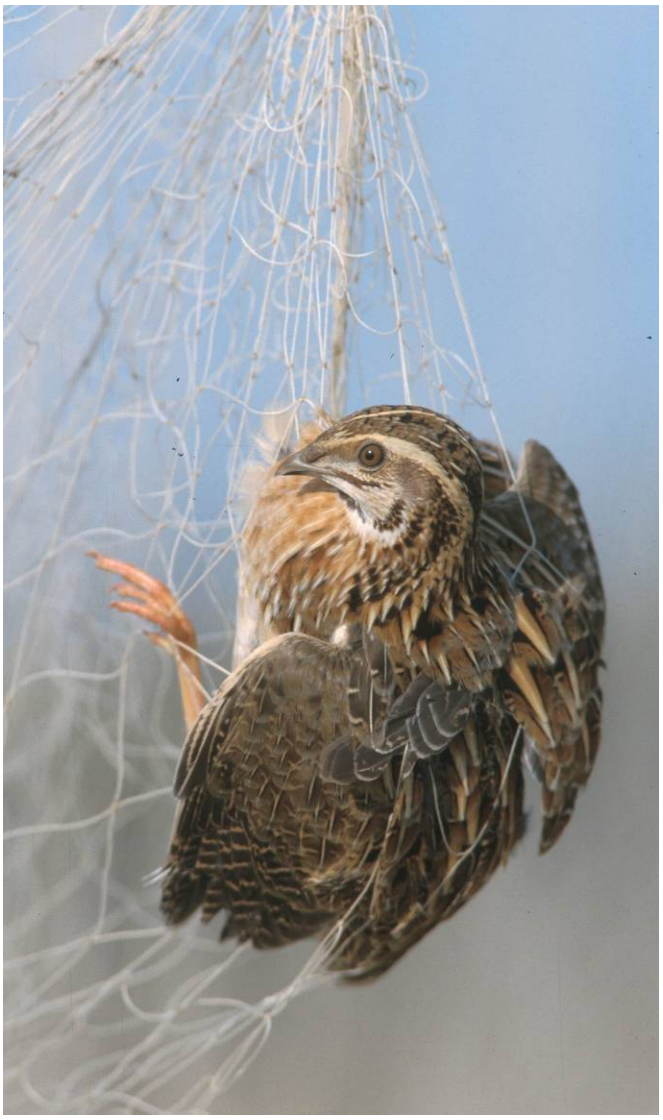
Since the late 1970s, Egypt has taken a number of steps to safeguard its natural heritage. Organizations have been established and laws passed to protect wildlife and their habitats. One of the most important actions taken by the country was the establishment of a national network of Protected Areas. Efforts have been mounted to control illegal hunting, in particular by foreign hunters.

In spite of recent efforts, wildlife utilization has remained largely unregulated in Egypt and excessive numbers of wild animals and plants are hunted and collected. Populations of many wild animals and plants, both terrestrial and marine, have declined and a number of species, some globally threatened, are on the verge of extinction, due in some cases to unregulated hunting and collecting. Important habitats have been destroyed or degraded, further contributing to declines in wildlife populations.

There has been no comprehensive system for hunting management in Egypt. Most existing legislation concerning hunting and wildlife utilization is outmoded, inadequate, and has no scientific basis. The provisions of international conventions have not been applied in Egypt. Many organizations have responsibilities for hunting management, with overlapping roles and insufficient coordination. In addition to lacking clear directions for hunting management, most organizations have lacked the personnel, training and other resources to regulate hunting. Furthermore, little revenue was generated from hunting regulation and any funds raised were not reinvested into management of wildlife and its habitats.

It has been recognized that urgent action is needed to regulate hunting and other forms of wildlife utilization in Egypt. The EEAA, as the body responsible for the protection of the environment, and with overseeing compliance with Law 4/1994 and international environmental conventions, should take a leading role in managing hunting, as well as adopting other steps to improve wildlife utilization in Egypt.

Policies, programs and projects have been recommended to build the nation’s capacities and capabilities in hunting management. Tools were provided to facilitate and strengthen the implementation of Laws 102/1983 and 4/1994. Protected species lists have been jupdated and guidelines and procedures for issuing licenses have been prepared. Immediate, short-term and long-term actions have been approved for the development of a sustainable system of wildlife utilization, in cooperation with other organizations. These include establishment of a hunting management unit within the NCS to act as the technical and coordinating body for hunting management, establishment of a higher coordinating committee for hunting management and wildlife protection to improve cooperation and communication between the different bodies involved in hunting management in Egypt, and preparation of an action plan for hunting management.



Hunting Management in Egypt

IMMEDIATE ACTIONS

Hunting Management Unit at NCS

There are currently four personnel employed by the NCS as well as two experts responsible for overseeing hunting and wildlife utilization. The unit will serve as the technical secretariat for the Higher Coordinating Committee for Hunting Management and Wildlife Protection. Among the responsibilities of the Unit are to:

1. Recommend revisions of laws, policies, and management practices to improve hunting management and wildlife protection;
2. Propose a comprehensive system for hunting management and oversee its implementation;
3. Devise, coordinate and implement programs related to hunting management and wildlife protection;
4. Establish liaisons with relevant organizations involved in hunting management.

This unit has been active during the past two years in coordinating activities with the CITES Management Authority, cooperating with relevant governmental and non-governmental institutions and individuals interested in wildlife protection. Major achievements included updating the Executive Regulations of Law 4/1994 and the protected species list, organizing public campaigns, setting policies for collecting biological specimens for teaching and research, cooperating with police and coast guard in raids (pet markets, collection of marine animals, shooting large mammals) and confiscating illegally caught wildlife, establishing procedures and guidelines, devising and testing a hunting management system, and cooperating with projects funded for protection of wildlife.

Activities have included, on the ground: arrest of falconers; preventing tourists from hunting gazelles and other large animals; criticizing citizens of Arab countries who come to Egypt to illegally hunt wildlife; coordination with the Governor of the Red Sea to issue decrees to stop collection of sea cucumbers and arrest violators; cooperation with Protected Area rangers in surveying threatened species populations; applying best practice techniques for conservation of marine animals, sharks, reptiles, corals and mangroves, etc.

Higher Committee for Hunting Management and Wildlife Protection

Members of this committee are drawn from relevant governmental bodies involved in the management of hunting, fishing and trade in wildlife. Scientific experts and representatives from non-governmental organizations (e.g., shooting clubs) are invited to sit on the committee and attend meetings as needed. The objectives of the committee are to:

1. Ensure the wise and sustainable use of wildlife resources and the protection of endangered, vulnerable and important wildlife populations;
2. Improve communication, coordination and cooperation between the different organizations involved in or responsible for hunting management;
3. Establish and promote the regulation of hunting, fishing and trade in wildlife;
4. Monitor and evaluate hunting management activities;
5. Advise the EEAA on matters concerning hunting management and wildlife protection.

The Committee is formed of the following: CEO of the EEAA; Director, NCS; Head of the Hunting Management Unit, EEAA; Egyptian Wildlife Service; Ministry of Agriculture; Veterinary Authority; General Authority for the Development of Fish Resources; Pest Control Department; Department of Permits, Ministry of Interior; Law Enforcement Police; Ministries of Defense, Tourism, Local Administration; NGOs, and scientific experts. This Higher Committee will be formed once the NCS becomes autonomous as the Nature Conservation Authority.

Criteria for Protected Species Status

A formal system was devised to provide legal status to wildlife in need of protection. Criteria were formulated to designate those species which should be protected and the degree of protection. The wildlife protection criteria provide different degrees of protection depending upon the status of the species and at a minimum, guarantee protection to the following categories:

- Internationally Protected (e.g., CITES designated species)
- Internationally threatened (e.g., IUCN, Birdlife International)
  - Endangered
  - Vulnerable
  - Rare
  - Indeterminant
  - Insufficiently known

- Nationally threatened
  - Endangered
  - Vulnerable
  - Rare
  - Indeterminant
  - Insufficiently known
- Beneficial
  - Biological controls
  - Environmental protection
  - Ecotourism
  - Scientific interest
  - Natural heritage

Based on these criteria, a list of protected species was developed by NCS staff, experts and other relevant organizations.
The Executive Regulations of Law 4/1994 have been supplemented, based on the current situation in Egypt and commitments to international conservation conventions. They have been submitted for the Prime Minister's approval.

Hunting Management System

The Hunting Management Unit in cooperation with scientific experts and concerned authorities has reviewed and devised a hunting management system based on existing legislation and international conventions signed by Egypt. The roles and responsibilities of the organizations involved in the implementation of the system have been clearly defined, and coordination mechanisms established between the different bodies. The unit has also reviewed existing licensing fees but there is no approval yet for raising fees.

The Hunting Management System is based on the following actions: a ban on the hunting of all large mammals, collecting threatened animals and plants; issuing a list of permissible game species (only birds and fishes) for hunting; quotas for birds and reptiles; limiting time and season of hunting; trade restrictions on wildlife; formulating rules and guidelines for hunting, trapping, fishing and trade in wildlife; establishing guidelines and procedures for issuing licenses. Governmental organizations involved in this system which is being tested include NCS, Fisheries authorities, CITES committees, Police, Defense, Tourism, and scientific experts.

CITES Management in Egypt

An improved system for CITES (Convention on International Trade in Endangered Species) management and enforcement has been devised to improve regulations of the import and export trade in wildlife and wildlife products. Currently, the Ministry of Agriculture and Land Reclamation is the CITES higher management authority, with members from other relevant authorities including environmental and scientific experts. Quotas have been set per species specifying the total numbers of

animals that can be exported annually. The species protection list has also been revised to include all species listed under Appendices I and II of the Convention.

Currently, CITES management is undertaken by four committee: an administrative committee chaired by the Ministry of Agriculture and Land Reclamation; an animal scientific committee chaired by a national scientific expert; a plant scientific committee chaired by a national scientific expert, and a marine scientific committee chaired by the NCS. These committees meet regularly to discuss administrative matters related to the CITES convention and its meetings and conferences, to prepare national reports, approve wildlife trade (terrestrial and marine), establish quotas, and approve regulations and procedures. A database has been established and analysis is being made of trends in CITES approvals.

Enforcement of Existing Rules and Regulations

Meetings were held involving the Ministries of Environment, Agriculture, Interior, Defense and Justice to improve hunting management and procedures to enforce the laws. The existing rules and regulations, prepared by NCS in cooperation with relevant authorities, are being enforced. Regular raids are made by police in cooperation with the EEAA on pet markets in Cairo and Alexandria, in which protected wildlife is confiscated. Police and EEAA officers pass out information booklets to individuals and shops found breaking the laws along with a letter informing them of the penalties they face if violations continue. In addition, letters are sent to embassies, tourist companies and wildlife export-import companies concerning hunting and wildlife protection regulations. Cases have been sent to court, according to the provisions of Law 4/1994 and Law 102/1983. Vehicles, such as cars and boats, guns and other valuable equipment used in offences, have been confiscated with the help of the Coast Guard and Police.

Public Awareness and Education Campaigns

Media campaigns have been launched regularly to inform the general public about Egyptian wildlife and the importance of protecting these resources. Regulations concerning hunting and trade in wildlife have been highlighted, and special materials (booklets, posters, brochures) have been made for Egyptian and foreign hunters to inform them of the laws and kinds of species which can or cannot be hunted. Slide shows, videos and other visual materials have been produced for media campaigns and education programs. In addition, signs prohibiting hunting have been made and posted in key areas where illegal hunting is known to take place.

Several conferences were held to discuss steps to address problems associated with hunting and wildlife protection. The environment page of Al-Ahram daily newspaper and others are encouraged to write articles about hunting rules and regulations and the need to protect wildlife. Television stations often air programs on nature

conservation in Egypt that include information on hunting management. Citizens, as a result of these campaigns, have taken many steps to reduce pressure on wildlife and often inform the NCS of illegal hunting.

Formulate projects and proposals for hunting and wildlife management

Several proposals have been developed for high priority projects related to hunting management and wildlife protection. (See Chapter xx).

MEDIUM TERM ACTIONS

Comprehensive System for Hunting Management

The Hunting Management Unit is being developed in cooperation with national and international experts into a comprehensive system to organize hunting and wildlife utilization. The system will contain revenue generating components to raise funds to be reinvested in the management and protection of wildlife. The system will include regulations on hunting seasons, bag limits, and rules and guidelines.

The Hunting Management Unit is establishing procedures for issuing and monitoring licenses in cooperation with concerned authorities. All activities related to hunting and trade in wildlife will be licensed with rules and regulations for each activity.

Unit for Nature Conservation Conventions Compliance

A unit for Nature Conservation Conventions has been established in the NCS. It is responsible for supervising the international conservation conventions to which Egypt is signatory. It has reviewed the conventions, has devised action plans, legislation, management practices and other actions to improve conventions compliance. The unit is responsible for corresponding with convention secretariats, submitting reports on behalf of the country, and following up on proposals and amendments to conventions. Technical training has been provided to the staff of the unit.

Egypt has submitted three national reports on Biodiversity Conservation, two reports on wetlands conservation (Ramsar), five reports to CITES, two reports on

Migratory Animal Species (Bonn), and one report on African-Eurasian Migratory Waterbirds. Technical staff have attended most conferences and technical meetings related to these conventions and have taken active roles in many of their activities. Furthermore, many work programs adopted by the CBD are being implemented in Egypt.

Launch CITES Management Institution Building Program

An institution building program was launched to build capacities of the key organizations involved in implementing the CITES management system. Training programs have been conducted for the key personnel involved in CITES management. Special materials, such as booklets and posters, have been produced. Many actions have been taken by decision makers to regulate wildlife management.

Establish a Hunting Management Database

A central data base is being established at the Hunting Management Unit. This data bank collects relevant data from governmental and non-governmental bodies involved in hunting management. The data and statistics generated will be used to monitor trends in hunting and wildlife protection and apply them to management policies.

Conduct Wildlife Surveys

Surveys of key wildlife populations in Egypt are being conducted mainly in Protected Areas. Game animals known to be threatened or declining, especially large mammals, are being surveyed in Elba, Wadi el Gemal, St. Katharine, Siwa and Wadi el Rayan Protected Areas. The information will be used to assess the size of populations and trends, as well as identify important habitats for these species. There are good records for 34 Important Bird Areas (IBAs) in Egypt. Important populations of mammals (gazelle, ibex, barbary sheep) are recorded in several Protected Areas and are being monitored. Surveys of wintering waterfowl populations are being conducted. Bird banding in Aswan, Burullus, the Red Sea, Ras Muhamad and Wadi el Rayan is being conducted in collaboration with experts from Poland.

Initiate marine and aquatic life action plans

Several initiatives on marine and aquatic life have been implemented in collaboration with projects funded by the USA, EU, Italy and UK. These have included coral reef, mangrove and turtle surveys along the Mediterranean and Red Sea coasts and islands, with sea cucumber, shark, marine bird and marine mammal surveys in the Red Sea areas. The results of these surveys have helped define important areas for breeding and nesting. Based on this information, actions were taken to stop sea cucumber collection in the Red Sea, shark fishing, and fishing around coral reefs. Other actions were taken to prevent fishing of certain commercial fish species during their breeding season. Because of their role in Red Sea fisheries, more than 30 acres of mangroves were planted in 2005-06.

Establish more protected areas and build park management

Based on the National Biodiversity Strategy and Action Plan, 16 more Protected Areas will be declared by 2017, greatly improving habitat coverage of the Protected Area System which now comprises 10 percent of the country. Studies have identified areas eligible for protected area status at Sallum, the northern islands of the Red Sea, Gilf al-Kabir, and the Qattara Depression. Management plans have been made for Wadi Degla, the Petrified Forest, and White Desert Protected Areas.

Promote participation of NGOs, the public sector and indigenous peoples

The Hunting Management Unit involves NGOs, the private sector and indigenous people in the management system. Activities include education and public awareness, monitoring and management activities, job creation and economic incentives. Most of these activities are carried out within Protected Areas, but the private sector and NGOs have undertaken many activities outside these areas, such as the Samadai Dolphin House project, workshops and conferences at universities and research centers, the captive breeding center at Sharm al Sheikh, and private horticulture for native wild plants.

LONG TERM ACTIONS

The following long term actions are recommended:

- Revise Law 4/1994 and its Executive Regulations;
- Issue a new hunting management law and other legislative reforms
- Establish an environmental police force;
- Assign an environmental prosecutor;
- Launch an institution building program for concerned ministries;
- Develop captive breeding and managed hunting pilot programs;
- Establish a wildlife management unit.

Several meetings were held during 2006 in collaboration with the Environmental Management Project's Legal and Institutional Framework personnel (Egyptian-Italian Environmental Cooperation Program) to consider revisions of Law 4 of 1994 and its executive regulations. It is expected that it will be at least two years before these drafts are submitted to the Egyptian Cabinet. Meanwhile, progress has been made during 2005-06 to reform NCS. Funding and mechanisms to ensure sustained funding, as well as application of business principles to Protected Area management, are key components of this reform. Establishing an environmental police force will take several years after the institutional reform of NCS, but considerable progress has been made with the existing police force in charge of implementing law 4/1994. A Ministerial Decree was issued to call police stationed along the Nile and lakes at some 30 stations as Environmental and Aquatic Police. They are equipped with transportation and many training programs have been undertaken by senior staff of the EEAA.

During 2006, arrangements were made between the Ministers of Environment and Justice whereby a special Environmental court is being established to deal directly with environmental violations.

FAUNA (ANIMALS)

Provisional list of threatened and protected species in Egypt.

Mammals

Scientific name	English name	Egyptian Red List	IUCN Red List	CITES	CMS
Crocidura floweri	Flower's Shrew	DD	EN		
Crocidura suaveolens	Lesser White-toothed Shrew	EN	LR/lc		
Rhinolophus hiposideros	Lesser Horseshoe Bat	NT	LC		II
Rhinolophus mehelyi	Mehely's Horseshoe Bat	NT	VU		II
Hypsugo ariel	Desert Pipistrelle Bat	NT	DD		
Hypsugo bodenheimeri	Bodenheimer Pipistrelle Bat	NT	LR/lc		
Pipistrellus kuhli	Kuhl's Pipistrelle Bat	DD	LC		II
Tadarida teniotis	European Free-tailed Bat	DD	LC		II
Meriones sacramenti	Negev Jird	VU	EN		
Meriones tristrami	Tristram's Jird	VU	LR/lc		
Pachyuromys duprasi	Fat-tailed Jird	VU	LC		
Eliomys melanurus	Middle East Dormouse	CR	LC		
Hystrix cristata	Crested Porcupine	CR	LC		
Hystrix indica	Indian Porcupine	CR	LR/lc		
Spalax leucodon	Lesser Molerat	VU	VU		
Allactaga tetradactyla	Four-toed Jerboa	CR	DD		
Jaculus orientalis	Greater Egyptian Jerboa	VU	LC		
Lycaon pictus	African Wild Dog	RE	EN		
Canis lupus	Wolf	EN	LC	II	
Vulpes zerda	Fennec Fox	EN	DD	II	
Vulpes cana	Blanford's Fox	VU	VU	II	
Ictonyx striatus	Striped Polecat	VU	LR/lc		
Ictonyx libyca	Saharan Striped Polecat	EN	LR/lc		
Vormela peregusna	Marbled Polecat	VU	LR/lc		
Genetta genetta	Genet	VU	LR/lc		
Hyaena hyaena	Striped hyena	EN	LR/nt		
Proteles cristatus	Aardwolf	CR	LR/lc		
Caracal caracal	Caracal	CR	LC	II	
Felis chaus	Jungle Cat	VU	LC	II	

Felis silvestris	Wild Cat	EN	LC	II	
Felis margarita	Sand Cat	NT	NT	II	
Panthera pardus	Leopard	CR	LC	I	
Acinonyx jubatus	Cheetah	CR	VU	I	
Equus asinus	African Wild Ass	CR	CR	I	

Scientific name	**English name**	**Egyptian Red List**	**IUCN Red List**	**CITES**	**CMS**
Gazella dorcas	Dorcas Gazelle	EN	VU		I
Gazella leptoceros	Slender-horned Gazelle	CR	EN		I
Gazella gazelle	Mountain Gazelle	RE	VU		
Capra nubiana	Nubian Ibex	VU	EN		
Ammotragus lervia	Barbary Sheep	CR	VU	II	
Sus scrofa	Wold Boar	RE	LR/lc		
Addax nasomaculatus	Addax	RE	CR	I	
Oryx dammah	Scimiter-horned Oryx	RE	EW	I	I/II
Alcelaphus buselaphus	Common Hartebeest	RE	LR/cd		
Dugong dugon	Dugong	EN	VU	I	II
Monachus monachus	Mediterranean Monk Seal	RE	CR	I	
Steno bredanensis	Rough-toothed Dolphin	DD	DD	I	
Sousa chinensis	Humpback Dolphin	DD	DD	I	II
Stenella longirostris	Spinner Dolphin	VU	LR/cd	II	II
Stenella attenuate	Spotted Dolphin	DD	LR/cd	II	II
Delphinus delphis	Atlantic Dolphin	DD	LR/lc	II	II
Tursiops truncates	Bottle-nosed Dolphin	DD	DD	II	II
Grampus griseus	Risso's Dolphin	DD	DD	II	II
Globicephala macrorhynchus	Short-finned Pilot Whale	DD	LR/cd	II	
Pseudorca crassidens	False Killer Whale	DD	LR/lc	II	
Monodon monoceros	Narwhal	DD	DD	II	II
Balaenoptera physalus	Fin Whale	VU	EN	I	I/II
Balaenoptera borealis	Sei Whale	EN	EN	I	I/II
Megaptera novaeangliae	Humpback Whale	EN	VU	I	I

CLASS AVES (BIRDS)

Scientific name	English name	Egyptian Red List	IUCN Red List	CITES	CMS
Struthio camelus	Ostrich	RE		I	
Phaeton aethereus	Red-billed Tropicbird	DD			
Sula leucogaster	Brown Booby	NT			
Phalacrocorax aristotelis	Shag	NT			
Pelecanus onocrotalus	White Pelican				I/II
Pelecanus crispus	Dalmatian Pelican	RE	LR/cd	I	I/II
Pelecanus rufescens	Pink-backed Pelican				
Ardea goliath	Goliath Heron	NT			
Ardea purpurea	Purple Heron				II
Botaurus stellaris	Eurasian Bittern				II
Platalea leucorodia	Spoonbill	EN		II	II
Phoenicopterus ruber	Greater Flamingo	NT		II	II
Ciconia ciconia	White Stork				II
Ciconia nigra	Black Stork			II	II
Marmaronetta angustirostris	Marbled Duck	CR	NT		I/II
Aythya nyroca	Ferrugineous Duck	NT	NT		I/II
Oxyura leucocephala	White-headed Duck	RE			I/II
FALCONIFORMES spp.	Birds of prey			II	
Gypaetus barbatus	Lammergeyer	CR		II	I/II
Neophron percnopterus	Egyptian Vulture	VU		II	I/II
Gyps fulvus	Griffon Vulture	CR		II	I/II
Torgos tracheliotus	Lappet-faced Vulture	EN	VU	II	I/II
Aegypius monachus	Black Vulture	RE	NT	II	I/II
Circaetus gallicus	Short-toed Eagle			II	I/II
Terathopius ecaudatus	Bateleur	CR		II	I/II
Circus macrourus	Pallid Harrier	NT	NT	II	I/II
Buteo rufinus	Long-legged Buzzard	VU		II	I/II
Aquila chrysaetos	Golden Eagle	CR		II	I/II
Aquila clanga	Greater Spotted Eagle	VU	VU	II	I/II
Aquila heliaca	Imperial Eagle	VU	VU	I	I/II
Aquila verreauxii	Verreaux's Eagle	EN		II	I/II
Haliaeetus albicilla	White-tailed Sea Eagle			I	I/II
Hieraaetus fasciatus	Bonelli's Eagle	EN		II	I/II
Pandion haliaetus	Osprey			II	II
Falco naumanni	Lesser Kestrel	VU	VU	II	I/II

Falco biarmicus	Lanner	VU		II	I/II
Falco pelegrinoides	Barbary Falcon	VU		I	I/II
Falco peregrinus	Peregrine Falcon			I	I/II
Alectoris chukar	Chukar	VU			
Alectoris barbara	Barbary Partridge	RE			
Crex crex	Corncrake	VU	VU		II
Grus grus	Common Crane			II	II
Grus virgo	Demoiselle Crane			II	II
Chlamydotis undulata	Houbara	CR	NT	I	I/II
Dromas ardeola	Crab Plover				II
Glareola nordmanni	Black-winged Pratincole				II
Charadrius pecuarius	Kittlitz's Plover	NT			II
Vanellus gregarius	Sociable Plover				I/II
Numenius tenuirostris	Slender-billed Curlew	CR	CR	I	I/II
Larus leucophthalmus	White-eyed Gull	VU	NT		I/II
Larus audouinii	Audouin's Gull				I/II
Rynchops flavirostris	African Skimmer	CR	NT		
STRIGIFORMES spp.	Owls			II	
Chersophilus duponti	Dupont's Lark	EN			
Rhamphocorys clotbey	Thick-billed Lark	EN			
Oenanthe moesta	Red-rumped Wheatear	CR			
Turdoides squamiceps	Arabian Babbler	VU			
Acrocephalus paludicola	Aquatic Warbler				I/II
Serinus syriacus	Syrian Serin	NT	NT		I
Emberiza cineracea	Cinereous Bunting	NT	NT		

CLASS REPTILIA (REPTILES)

Scientific name	**English name**	**Egyptian Red List**	**IUCN Red List**	**CITES**	**CMS**
Trapelus savignii	Savigny's Agama	VU			
Uromastyx aegyptia	Egyptian Spiny-tailed Lizard	VU		II	
Uromastyx ocellata	Spotted Spiny-tailed Lizard	VU		II	
Uromastyx ornata	Ornate Spiny-tailed Lizard	VU		II	
Chamaeleo africanus	African Chameleon	VU		II	
Chamaeleo chamaeleon	Common Chameleon	VU		II	
Acanthodactylus pardalis	Leopard Fringe-toed Lizard	EN			
Philochortus zolii	Grass Loving Lizard	CR			

Latastia longicaudata	Long-tailed Lizard	VU			
Mesalina brevirostris	Short-snouted Lizard	VU			
Ophisops elbaensi	Elba Snake-eyed Lizard	NT			
Ophisops elegans	Elegant Snake-eyed Lizard	NT			
Ophisops occidentalis	Western Snake-eyed Lizard	VU			
Pseuderemias mucronata	Anseba Lizard	VU			
Varanus griseus	Desert Monitor	NT		II	
Varanus niloticus	Nile Monitor	VU		II	
Ablepharus rueppellii	Snake-eyed Skink	NT			
Eumeces schneiderii	Gold Skink	NT			
Typhlops vermicularis	Worm Snake	NT			
Eryx colubrinus	African Sand Boa	VU			
Eryx jaculus	Egyptian Sand Boa	EN		II	
Dasypeltis scabra	Egg-eating Snake	CR			
Coluber algirus	Algerian Whip Snake	VU			
Coluber nummifer	Coin-marked Snake	VU			
Coluber jugularis	Whip Snake	VU			
Coluber sinai	Sinai-banded Snake	NT			
Macroprotodon cucullatus	Hooded Snake	EN			
Eirenis coronella	Peace Snake	NT			
Rhynchocalamus melanocephalus	Black-headed Snake	VU			
Telescopus hoogstraali	Hoogstraal's Cat Snake	EN			
Lycophidion capense	Wolf Snake	RE			
Walterinnesia aegyptia	Black Cobra	NT			
Naja nubiae	Black-necked Cobra	NT			
Atracataspis engaddensis	Mole Viper	VU			
Pseudocerastes fieldi	False Horned Viper	VU			
Echis pyramidum	Carpet Viper	NT			
Crocodylus niloticus	Nile Crocodile	VU		I	
Testudo kleinmanni	Egyptian Tortoise	CR	CR	I	
Caretta caretta	Loggerhead Turtle	EN	EN	I	
Chelonia mydas	Green Turtle	EN	EN	I	I/II
Eretmochelys imbricata	Hawksbill Turtle	CR	CR	I	I/II
Lepidochelys olivacea	Olive Riddly	EN		I	I/II
Dermochelys coriacea	Leatherback Turtle	EN		I	I/II
Trionyx triunguis	Nile Soft-shelled Turtle	EN			

CLASS AMPHIBIA (AMPHIBIANS)

Scientific name	English name	Egyptian Red List	IUCN Red List	CITES	CMS
Bufo dodsoni	Dodson's Toad	VU			
Hyla savignii	Tree Frog	VU			

CLASS ELASMOBRANCHII (SHARKS)

Scientific name	English name	Egyptian Red List	IUCN Red List	CITES	CMS
Alopias vulpinus	THRESHER SHARK	DD	DD		
Atherina boyeri		DD	DD		
Carcharhinus amblyrhynchos	GRAY REEF SHARK	NT	NT		
Carcharhinus brevipinna	SPINNER SHARK	NT	NT		
Carcharhinus falciformis	SILKY SHARK	LC	LC		
Carcharhinus limbatus	BLACKTIP SHARK	NT	NT		
Carcharhinus longimanus	OCEANIC WHITETIP SHARK	NT	NT		
Carcharhinus melanopterus	BLACKTIP REEF SHARK	NT	NT		
Carcharhinus plumbeus	SANDBAR SHARK	NT	NT		
Carcharias taurus	GREY NURSE SHARK	VU	VU		
Carcharodon carcharias	GREAT WHITE SHARK	VU	VU		
Centrophorus granulosus	GULPER SHARK	VU	VU		
Cheilinus undulatus	HUMPHEAD WRASSE	VU	VU		
Echinorhinus brucus	BRAMBLE SHARK	DD	DD		
Epinephelus marginatus	DUSKY GROUPER	NT	NT		
Galeocerdo cuvier	TIGER SHARK	NT	NT		
Hemipristis elongatus	FOSSIL SHARK	VU	VU		
Heptranchias perlo	ONE-FINNED SHARK	NT	NT		
Hexanchus griseus	BLUNTNOSE SIXGILL SHARK	NT	NT		
Loxodon macrorhinus	JORDAN'S BLUE DOGSHARK	LC	LC		
Mobula eregoodootenkee	PYGMY DEVILRAY	NT	NT		
Mobula mobular	DEVIL FISH	VU	VU		
Mustelus asterias	STARRY SMOOTHHOUND	LC	LC		

Mustelus mustelus	COMMON SMOOTHHOUND	LC	LC		
Nebrius ferrugineus	TAWNY NURSE SHARK	VU	VU		
Prionace glauca	BLUE SHARK	NT	NT		
Pseudochromis pesi	PALE DOTTYBACK	VU	VU		
Raja clavata	THORNBACK SKATE	NT	NT		
Rhina ancylostoma	BOWMOUTH GUITARFISH	VU	VU		
Rhincodon typus	WHALE SHARK	VU	VU	II	
Rhizoprionodon acutus	FISH-SHARK	LC	LC		
Rhynchobatus djiddensis	WHITESPOT GIANT GUITARFISH	VU	VU		
Sphyrna lewini	SCALLOPED HAMMERHEAD	NT	NT		
Sphyrna mokarran	GREAT HAMMERHEAD	DD	DD		
Sphyrna zygaena	SMOOTH HAMMERHEAD	NT	NT		
Squalus acanthias	PIKED DOGFISH	NT	NT		
Squatina squatina	ANGEL SHARK	VU	VU		
Taeniura lymma	BLUE-SPOTTED STINGRAY	NT	NT		
Triaenodon obesus	WHITETIP REEF SHARK	NT	NT		

CLASS ACTINOPTERYGII

(FISH)

Scientific name	**English name**	**Egyptian Red List**	**IUCN Red List**	**CITES**	**CMS**
Alosa fallax	TWAIT SHAD	DD	DD		
Aphanius fasciatus	MEDITERRANEAN KILLIFISH	DD	DD		
Eurypegasus draconis	LITTLE DRAGONFISH	DD	DD		
Hippocampus histrix	Thorny Seahorses			II	
Hippocampus kuda	Spotted Seahorse			II	
Hippocampus hippocampus	SHORT-SNOUTED SEAHORSE	DD	DD	II	
Isurus oxyrinchus	SHORTFIN MAKO	NT	NT		
Pagrus pagrus	RED PORGY	EN	EN		
Pseudochromis pesi	PALE DOTTYBACK	DD	VU		
Mycteroperca rubra	MOTTLED GROUPER	DD	DD		

Syngnathoides biaculeatus	ALLIGATOR PIPEFISH	DD	DD		
Syngnathus abaster	Pipefish	DD	DD		
Thunnus alalunga	ALBACORE TUNA	DD	DD		
Thunnus thynnus	NORTHERN BLUEFIN TUNA	DD	DD		

CLASS BIVALVIA
(CLAMS, MUSSELS)

Scientific name	**English name**	**Egyptian Red List**	**IUCN Red List**	**CITES**
Tridacna maxima	*Small Giant Clam*	*DD*	*LR/cd*	*II*
Tridacna squamosa	*Fluted Giant Clam*	*DD*	*LR/cd*	*II*

CLASS ANTHOZOA
(CORALS, SEA ANEMONES)

Scientific name	**English name**	**Egyptian Red List**	**IUCN Red List**	**CITES**
Helioporidae spp.	*Blue corals*	*VU*		*II*
Tubiporidae spp.	*Organ-pipe corals*	*VU*		*II*
ANTIPATHARIA spp.	*Black corals*	*VU*		*II*
SCLERACTINIA spp.	*Stony corals*	*VU*		*II*

CLASS HYDROZOA
(SEA FERNS, FIRE CORALS, STINGING MEDUSAE)

Scientific name	**English name**	**Egyptian Red List**	**IUCN Red List**	**CITES**
Milleporidae spp.	*Fire corals*	*LC*		*II*
Stylasteridae spp.	*Lace corals*	*NE*		*II*

F L O R A (PLANTS)`

Scientific name	**English name**	**Egyptian Red List**	**IUCN Red List**	**CITES**
Dracaena ombet	*Dragon Tree*	*EN*	*EN*	
Euphorbia spp.	*Euphorbia species*			*II*

Juniperus phoenicea	*Juniper*	*VU*	*LC*	
Medemia argun	*Argun Palm*	*CR*	*CR*	
Allium crameri			*EN*	
Allium longanum			*R*	
Allium mareoticum			*R*	
Allium sinaiticum			*R*	
Anarrhinum pubescens			*EN*	
Arabidopsis kneuckeri			*VU*	
Atractylis boulosii			*R*	
Astragalus fructicosus			*R*	
Astragalus camelorum			*R*	
Astragalus fresenii			*R*	
Bellevalia salah-eidii			*EN*	
Biscutella elbensis			*VU*	
Bromus sinaicus			*R*	
Bufonia multiceps			*EN*	
Calligonum polygonoides			*VU*	
Caralluma sinaica			*R*	
Caralluma sp.(Elba)			*VU*	
Centaurium malzacianum			*VU*	
Chenopodium moquinianum			*VU*	
Colchicum cornigerum			*R*	
Crepis libyca			*I*	
Fagonia thebaica			*R*	
Galium sinaicum			*R*	
Glinus runkewitzii			*I*	
Helianthemum schweinfurthii			*I*	
Hypecoum aequilobum			*R*	
Hypecoum dimidiatum			*R*	
Hypericum sinaicum			*R*	
Ipomoea sinaica			*EN*	
Iris helenae			*I*	
Kickxia macilenta			*EN*	
Kickxia scariosepala			*I*	
Leopoldia albiflora			*EN*	
Leopoldia bicolor			*R*	
Leopoldia longistyla			*EN*	
Leopoldia salah-eidii			*R*	
Micromeria serbaliana			*R*	
Micromeria sinaica			*R*	
Nepeta septemcrenata			*R*	
Nonea vivianii			*R*	
Origanum isthmicum			*R*	
Orobanche schweinfurthii			*R*	
Papaver decaisnei			*R*	
Papaver divergens			*I*	

Cyperus papyrus	*Papyrus*	*EN*		
Phlomis aurea			*EN*	
Plantago chamaepsyllium			*I*	
Podonosma galalensis			*I*	
Polygonum obtusifolium			*R*	
Primula boveana			*R*	
Pterocephalus arabicus			*R*	
Rhazya greissii			*I*	
Robeschia schimperi			*R*	
Rosa arabica			*EN*	
Scabiosa eremophila			*R*	
Schmidtia quinqueseta			*R*	
Scorzonera drarii			*EN*	
Silene biappendiculata			*R*	
Silene fruticosa			*I*	
Silene leucophylla			*R*	
Silene schimperiana			*VU*	
Sinapis allionii			*R*	
Sinapis aucheri			*I*	
Tragopogon collinus			*R*	
Veronica kaiseri			*EN*	
Veronica musa			*EN*	
Vicia sinaica			*R*	

Extinct (EX)
Extinct in the Wild (EW)
Critically Endangered (CR)
Endangered (EN)
Vulnerable (VU)
Near Threatened (NT)
Least Concern (LC)
Data Deficient (DD)
Not Evaluated (NE)
Regionally Extinct (RE)

EGYPTIAN RED LIST FAUNA AND FLORA

The Biodiversity Strategy of Egypt states as one of its priorities an evaluation of the conservation status of the nation's biodiversity. However, little has been done to date to assess Egypt's biodiversity according to global criteria and to achieve the CBD's 2010 target, significant reduction of biodiversity loss. This is primarily due to the lack of up to date information. Taxonomic knowledge of some groups is poor or unclear, even for some terrestrial vertebrates. Similarly, knowledge of the conservation status of much of Egypt's biodiversity is sketchy and not up to date. With the rapid changes Egypt's ecological landscape is undergoing currently, many biological components are coming under increasing pressure and their status changing rapidly.

The list of threatened species of fauna and flora of Egypt (see Appendix 1) is based on several categories of selection: global conservation status of the species based on the latest available IUCN listings; listings in relevant conservation conventions (CITES, CMS) indicating the degree of conservation effort needed for each species; an evaluation of the conservation status of various species at the national level (Egyptian Red List) based on literature and expert knowledge and in accordance with IUCN guidelines for applying red list evaluations at the regional level, and the economic and ecological significance of the species.

The Egyptian Red List

Several attempts have been made to provide a conservation assessment for different taxonomic groups. However, most of these did not apply or acknowledge the appropriate international criteria used to evaluate species conservation status. Furthermore, these studies confused what constitutes a global versus a national threatened species.

Red Data Lists were developed by the IUCN as a tool to help identify and conserve endangered species. The Red Data List is regularly updated based on available knowledge made available through a worldwide network of experts. This information is vital for setting conservation priorities, decision making, and formulating and implementing conservation programs.

Attempts to evaluate Egypt's biodiversity conservation status are meager and patchy. The Red Data List for woody perennials (Hadidi et al 1992) is the first attempt to assess Egypt's flora, but the list lacked appropriate application criteria and hence fails to be compatible with global assessments.

A review of reptiles and amphibians of Egypt (Saleh 1977) attempts to evaluate this fauna, but there was no distinction between nationally and globally threatened species.

CULTURAL HERITAGE AND TRADITIONAL KNOWLEDGE

IN PROTECTED AREAS

"Culture is the customs, civilization and achievement of a particular time or people." It is a set of ideas, attitudes and habits developed to help people in their conduct of life, and has many manifestations in art, architecture, morals, laws, customs, beliefs, etc.

Natural resources have been the basis of human development since prehistoric times. Nature has provided the physical and spiritual background of every civilization. Man has lived by exploiting the natural resources around him and has altered their state for his own benefit. The natural world harbors important cultural values representing a legacy handed down over generations. Culture and biodiversity are intimately and inextricably linked. Biodiversity is represented in religion, language, art and traditional knowledge. Cultural diversity has arisen in response to biodiversity, and loss of cultural diversity can contribute to the loss of biodiversity.

Cultural challenges

Egypt has one of the richest cultural heritages in the world, spanning perhaps the entire evolution of human history. Archaeological sites of various ages, types and sizes are scattered throughout the entire Egyptian landscape. Rapid development pressures have exposed many archaeological resources, especially small and unstudied sites, to increasing risk of loss. The present challenge is how to incorporate new technologies while maintaining and enhancing traditional values. Technology transfer includes the power to decide what is acceptable for adoption and what should be rejected. Egyptian experience has shown that technology transfer, particularly in remote areas, has changed entire communities from being productive to being consumers, adding to socioeconomic pressures on the government.

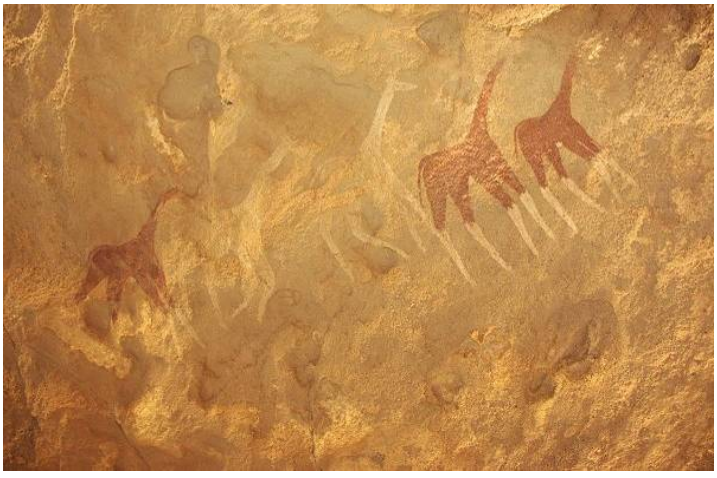
Role of protected areas in preserving cultural heritage

Protected Areas in Egypt help to conserve cultural sites, particularly small and remote sites. They also preserve landscapes, indigenous, and traditional knowledge. This has been achieved by recognizing the rights of indigenous people, reaching consensus with them, and allowing them to participate fully in management of Protected Areas.

Prehistoric sites and signs 1000 to 8000 years old found in rock art show that many animals inhabited the Eastern and Western Deserts that no longer exist, such as elephants and giraffes. *Nawamis*, prehistoric rock tomb structures, are found in many sites in Sinai, reflecting the Nabatean civilization that predated ancient Egyptian civilization. These prehistoric sites and signs are protected by law. The St. Katharine Visitor Center exhibits acquaint visitors with the various periods and artifacts of this extremely long period of human history.

Pharaonic, Ptolemaic and Roman sites are scattered in Siwa, Qarun, Wadi al Gemal, Ashtum al Gamil, and Zaranik Protected Areas. **Christian** sites include the monastery of St. Katharine, one of the oldest continuously inhabited monasteries in the world, and early Christian sites are found in the Elba and Zaranik areas. Numerous **Islamic sites** are also found in the St. Katharine, Elba and Zaranik Protected Areas.

Cultural diversity in the Protected Areas is extremely varied. The Ababda, Bisharin and Rashida tribes live in the southern Egyptian Red Sea coast and mountains. Other tribes include the Ma'aza of the Eastern Desert, seven Arab tribes in North and South Sinai, and various tribes in the Western Desert. Most of these tribes have been documented in studies describing their origins, numbers, lifestyles, folklore, songs and dances, and their beliefs and spiritual values. In addition, their traditional architecture, tools, livelihoods, handcrafts and local dialects such as Berber in Siwa, Bishari in Elba and Nubian in Wadi Allaqi and Aswan, have been documented.



Cultural Heritage in the Protected Areas

Traditional knowledge

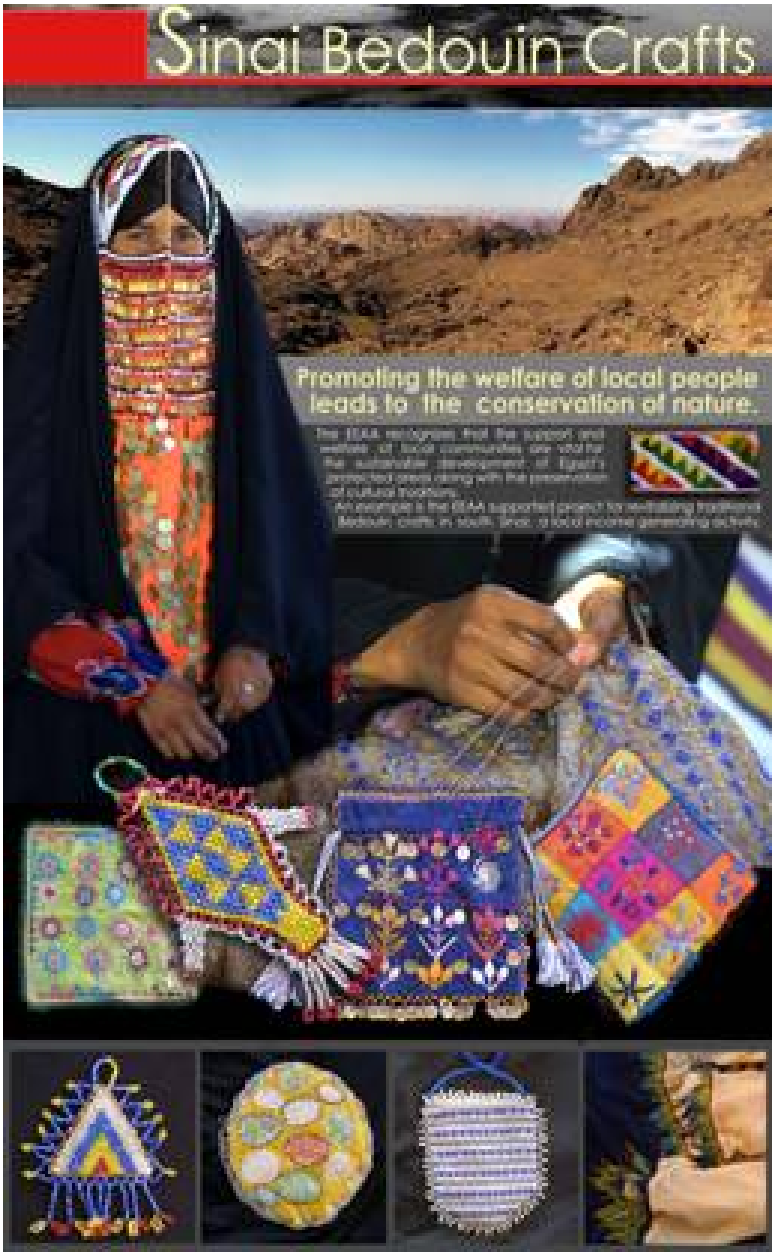
The Universities of the South Valley (Aswan), Egypt (Cairo) and Glasgow, UK, together with Protected Area rangers, have been involved in several studies related to traditional knowledge. Their aims are to identify and understand the ways in which indigenous environmental knowledge is constructed and mediated, and subsequently employed by local people living in arid environments. A key element of this research was its focus on the ways in which men's and women's knowledge is constructed differently, and how such differences might affect natural resource use and management. An important contribution of this work was its attempt to de-romanticize and to contextualize environmental knowledge.

Studies focused on three groups of Bedouins in different geographical locations – Wadi Allaqi in southeastern Egypt some 180 kms south of Aswan, the Nile Valley immediately north of Aswan, and Siwa in the northwest of Egypt in the Western Desert – were selected on the basis that, although economically active in similar arid environmental conditions, they have experience different degrees of sedentarization and different degrees of involvement with local non-Bedouin communities. Meetings with Bedouin took the form of discussion groups, rather than the more formal questionnaire or interview approaches.

The studies suggested that the concept of a "pristine" indigenous environmental knowledge is illusory. A more appropriate term, both theoretically and in practice, is "local environmental knowledge." This is not merely a semantic change, but one that reflects the hybridized utilitarian, pragmatic, transitory, flexible and dynamic nature of such knowledge. There is little attempt by these communities to preserve knowledge that is no longer used on a daily basis, either for its own sake or as some relic of a "purer past." New knowledge is opportunistically adopted to replace that which is no longer relevant.

Men's and women's knowledge differed, even within the same household. A key factor in this was spatial scale. The resources about which women have knowledge are those to which they had access on an everyday basis, or areas in the immediate vicinity of the household. Men's knowledge is much more spatially extensive and includes information gathered from others and from experiences in traveling widely in the desert. Sedentarization increasingly limits the spatial extent of both men's and women's knowledge, and knowledge of desert environments was no longer being passed onto younger generations in the Nile Valley.

The research findings in this study had a number of relevant policy implications, including the need to recognize a plurality of environmental knowledge levels held in a community.



Traditional knowledge in the Protected Areas

Medicinal plants

Medicinal plants are found in most Protected Areas in Egypt and include many endemic species. These have been identified, and information on their taxonomy, distribution, abundance and many phenological features have been entered in a data base. A total of 592 species have been collected from the Western and Eastern Deserts and Sinai. Traditional knowledge of these plants has also been collected. An Encyclopedia of Medicinal Plants is being prepared.

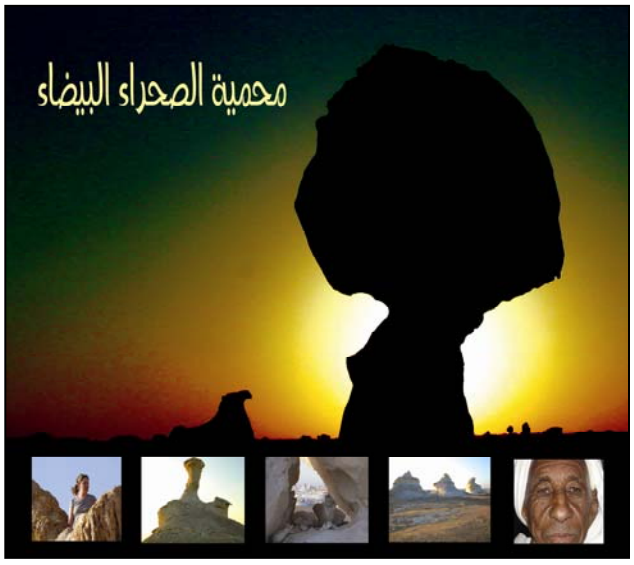
Traditional handcrafts

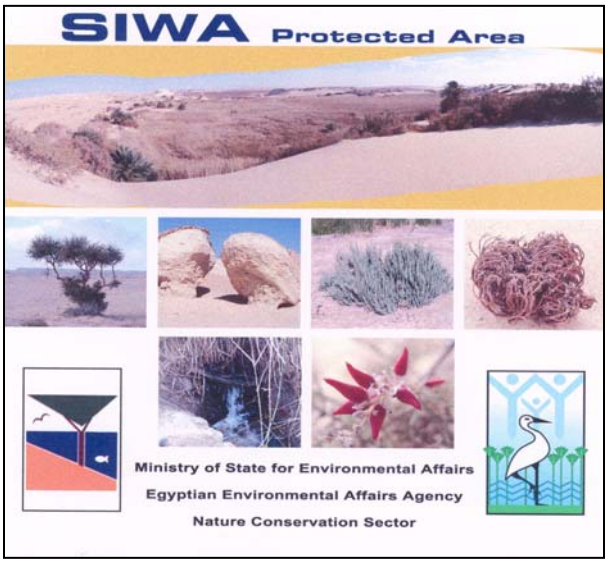
Local communities' traditional handcrafts have been promoted and improved by projects joined by Protected Area rangers, NGOs, and private citizens. The high quality of some traditional handcrafts has encouraged international fashion designers to visit Egypt, resulting in several fashion shows in Sharm al Sheikh, the Giza Pyramids, and Rome. A recent study (Madian 2006) was inspired by traditional handicrafts and ornaments as representations of traditional folklore.

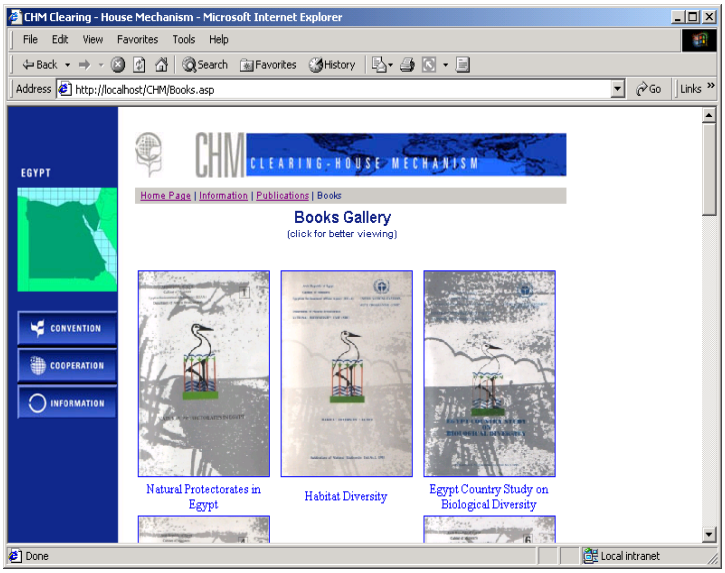
In an effort to preserve traditional knowledge and pursuant to its activities with local communities in the Protected Areas, the NCS has formed a legal committee to register traditional knowledge and has proposed legislation for intellectual property rights in order to enhance use of traditional knowledge and encourage its sustainable use.

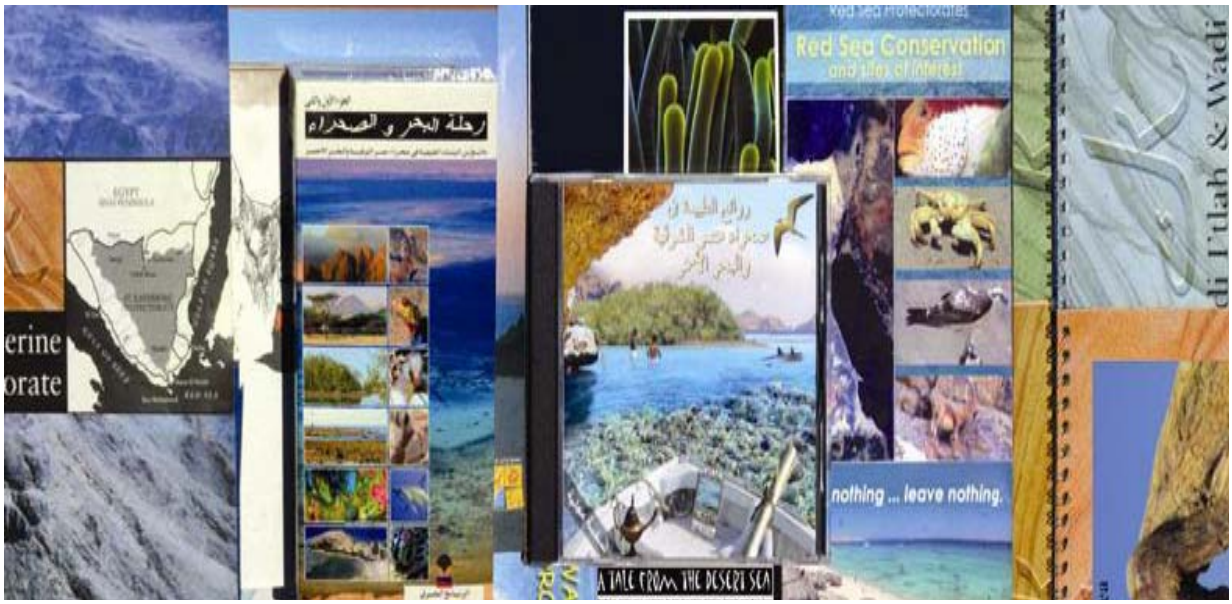
COMMUNICATION, EDUCATION, AND PUBLIC AWARENESS (CEPA) Strategy and Action Plan

The Nature Conservation Sector (NCS) has published numerous materials related to public awareness, directed to decision makers, scientists, stakeholders, tourists and the public. However, it was found that these works (books, booklets, brochures, CDs, videos) are scattered and that many are unrelated to specific issues of biodiversity conservation. A consultant was hired to collect all published materials for analysis and to identify the gaps, based on the CEPA strategy approved by the Convention on Biological Diversity. A consultation process was held with stakeholders and academics to compile the information, resulting in a draft of a CEPA strategy and action plan which was discussed in a workshop October 2005 and approved by stakeholders, NGOs, and staff of NCS and EEAA. The strategy includes well-defined objectives, targeted audiences, key issues, constraints and opportunities. Implementation of the strategy includes financing, launching and promoting the use of these materials, as well as monitoring and evaluation.









Communication, Education and Public Awareness (CEPA)

Clearing House Mechanism

The National Biodiversity Strategy and Action Plan is being implemented primarily by the NCS, but it is recognized that mainstreaming biodiversity conservation should involve all levels of society and capacity building. Therefore, it was decided to document all available information on biodiversity at the NCS and elsewhere and to pursue involvement in activities with civil society at large, with the primary focus on academia, NGOs, and the private sector.

The first step was to update the existing Clearing House Mechanism (CHM) at the Biodiversity Department, with support from the Biomap Project as well as the current UNEP/GEF project. A task force was established at NCS and consultants were hired to review existing documents and arrange according to the format approved by the CBD. The clearing house mechanisms of certain countries and the EU were consulted and Egypt's CHM is now at a much higher stage of development. A web side is being established that includes: database on biodiversity; GIS on biodiversity in terms of species identification, distribution, hot spot biodiversity areas, all biodiversity and biosafety reports submitted to the CBD, thematic and cross-cutting issues in biodiversity (e.g., invasive species, protected areas), threatened and endangered species, past and ongoing projects, directory of persons interested in biodiversity, publications and literature on biodiversity in Egypt, surveys conducted, habitat and ecosystem assessment, and monitoring and research programs.

It is expected that an Atlas of Biodiversity in Egypt will be produced by 2007 (Biomap Project) based on soil classification, climate records, and the investment map of Egypt. This Atlas will be used in declaring new Protected Areas, as a reference for decision makers, and for predicting the status of specific species, habitats, or ecosystems.

Information available from the CHM has been used to prepare numerous presentations on many issues of biodiversity, both in Arabic and English. Lectures have been presented to many scientific meetings, workshops, and seminars, such as:

- First International Conference on "Strategy of Botanic Gardens," May 2006, Cairo
- 21st Scientific Conference of the Egyptian Society for Toxicology, April 2006
- 9th Scientific Meeting of the Egyptian Society for Human Health and Fisheries, 2005
- 1st and 2nd Conferences of the Egyptian Society of Natural Toxins, October 2005 Cairo, and December 2005 Ismailia.

The following topics, produced as part of the enhancement of Egypt's CHM, are available to NCS staff and the public in the form of computer readable compact discs:

- Overview of the Status of Biodiversity in Egypt

- Sustainable Use of Biological Resources in Egypt
- Ecotourism
- Marine Biotoxins
- A Hidden Treasure: Wadi el Hitan, World Heritage Site
- Biodiversity Projects (Medicinal plants, Wetlands)
- Botanical Gardens
- Elba Protected Area
- Management of Red Sea Protected Areas
- Recent Trends in Biodiversity Conservation, Focus on Genetic Resources
- Biodiversity and Scientific Research
- Climate Change and Biodiversity
- Cultural Heritage in the Egyptian Protected Areas
- Great Rift Valley and World Heritage Sites
- Global Taxonomy Initiative
- Invasive Species
- Marine Mammals in Egypt
- Human Interaction with Dolphins
- Nile Islands
- Mining Activities in the Egyptian Protected Areas
- Use of Remote Sensing Technology in Protected Areas
- Conservation Status of Marine Turtles
- Egyptian Tortoise Conservation
- Implementation of Work Programs for Biodiversity Conservation
- Measures Taken in Egypt Against Bird Flu
- Establishment of New Protected Areas
- Northern Islands of the Red Sea
- Qattara Depression in the Western Desert
- Threats Facing Biodiversity in Egypt
- Coral Reefs of the Red Sea
- Mangroves in Egypt
- Management Plans for Protected Areas
- Institutional Reform of the NCS
- Capacity Building of NCS
- Training Needs Assessment
- Effective Management of Protected Areas
- Status of Biodiversity Collection for Teaching
- Research and Trade
- Dolphin Case Study for Sustainable Development
- Database on Biodiversity of Egypt
- Mooring Activities in the Red Sea
- Treasures of the Desert

PART VI

Program of Work on Marine and Coastal Biodiversity

Introduction

Marine and coastal biodiversity is being subjected to rapidly increasing and acute human pressures, leading to declines and losses. The Convention on Biological Diversity has requested parties to implement its program of work on marine and coastal biodiversity at the national level. The Convention has also requested parties to join efforts at the regional level. As a result, the Regional Organization for the Protection of the Red Sea and Gulf of Aden (PERSGA) has developed a regional program to conserve marine and coastal biodiversity at the Red Sea and Gulf of Aden. PERSGA has also requested parties to develop national plans on certain important marine resources (e.g. mangrove, coral reefs, marine turtles, breeding birds). Similarly, the Mediterranean Action Plan (MAP) has developed a protocol for specially protected areas in the Mediterranean, concentrating on key habitats and species that are either endangered or threatened, including marine vegetation, corals, turtles, seabirds, sharks and monk seal.

The overall vision of the Convention on Biological Diversity's program of work on marine and coastal biodiversity is to halt the loss of marine and coastal biodiversity at all levels and secure these areas' capacities to provide goods and services. The overall goal is to achieve significant reduction of the current rate of marine and coastal biodiversity loss by the year 2010.

A task force was established to review the CBD program of work on marine and coastal biodiversity and prepare Egypt's response in the form of actions to be taken. The five elements of the program of work are: (1) implementation of integrated marine and coastal area management; (2) assessment of marine and coastal biological resources; (3) establishment of marine and coastal protected areas; (4) assessment of mariculture; (5) assessment of invasive species.

The task force reviewed the specific objectives and targets of the CBD program of work, modifying them when necessary to suit Egyptian requirements, and presented their results to a workshop attended by marine experts in July 2005. The report of the task force was presented to the NCS. Following is a brief account of the status of marine and coastal biodiversity in Egypt, its stakeholders, threats, conservation efforts, actions to be taken, and time frame.

Status of Marine and Coastal Environments in Egypt

Egypt has a rich natural coastal and marine heritage. It possesses many rare species (e.g. dugong) and special habitats (coral reefs, mangroves, coastal wetlands, the Nile delta coast, coraline and volcanic islands). Each of these habitats has its unique fauna and flora, and many coastal and marine Protected Areas have been established for conservation of biodiversity in these areas . There are at least 2000 fish species, more than 1100 species of algae, some 200 species of corals, 800 species of mollusks, 350 species of echinoderms, 600 species of crustaceans, and many other invertebrate species.

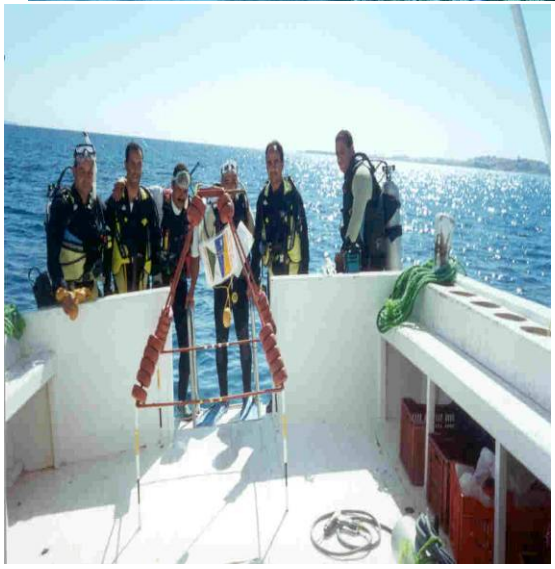
Egypt's coastlines amount to some 3000 km along the Mediterranean Sea, the Red Sea, and the Gulfs of Aqaba and Suez. Marine and coastal natural environments and resources on the Egyptian Mediterranean coast differ significantly from those on the Red Sea (e.g., salinity, sea currents, temperatures, coral reefs, mangroves, Nile delta lakes, fisheries, oil and natural gas, etc.)

More that twenty percent of Egypt's population lives in coastal zones, wherever sources of food, jobs and income are available. Nearly forty percent of industrial development activities are concentrated along the coasts. In addition, a considerable number of urban, tourism development activities, sea port infrastructure, agricultural and land reclamation, and road networks exist along the coasts. More than eighty-five percent of the nation's oil and natural gas production is located in coastal areas of Egypt. In recent years, tourism development and its related activities have contributed significantly to national income, with more than eight million tourists visiting Egypt annually, while most of the newly developed fields of national gas are marine fields within Egypt's Exclusive Economic Zone.

The marine and coastal environment of Egypt is facing a number of threats, including pollution, destruction of habitat and natural resource exploitation without any environmental management. Water quality at many biologically important areas has declined, damaging renewable resources such as fish. In addition, the coastal areas are facing socioeconomic and cultural challenges resulting from changes in the social structure and life style of local communities. Accurate information and data for these areas are limited, legislation and responsibilities of different governmental agencies overlap, and there is limited partnership in decision making.

Various national strategies, action plans and other studies highlighted the value and need for biodiversity conservation in Egypt. These include: First National Environmental Action Plan (1992), National Biodiversity Strategy and Action Plan (1998) and National Environmental Action Plan (2002).

The Nature Conservation Sector (NCS) of the EEAA is entrusted with undertaking the necessary policies, programs, studies and other actions to ensure compliance with habitat and species protection legislation and commitments to international and regional conventions for conservation of nature. Other departments of EEAA that deal with coastal and marine environments are the Environmental Management Sector and its Regional Branches for the Red Sea and the Mediterranean Sea.



Marine and coastal activities in Egypt

There are currently ten coastal and marine Protected Areas in Egypt: Ras Muhammad National Park, Nabq, Abu Gulum, Taba (Gulf of Aqaba), Elba, Red Sea Islands and Wadi El-Gemal (Red Sea), Zaranik (North Sinai), Ashtum El-Gamil, Omayyad and Burullus (Mediterranean Sea). All mangroves are also protected, according to Law 102 for Natural Protectorates.

There are 400 rangers working in the Nature Conservation Sector along both the Red Sea and Mediterranean coasts. They have received considerable training, either inside or outside Egypt some with Ph.D and others with M.Sc. They are equipped with basic needs of transportation, offices, accommodation and visitors centers. Their main functions are to develop and manage the natural resources in the protected areas, through patrolling, law enforcement, implementing rehabilitation and restoration programs, research and monitoring, reviewing EIAs, determining environmental damage, studying the carrying capacity of diving sites for touristic activities, and providing assistance to visitors, who exceed 1.5 million annually, through communication, education, and public awareness programs. They also cooperate and coordinate activities with local communities, the private sector, research institutions and universities, and other governmental institutions.

Program of Work for Conservation of Coastal and Marine Biodiversity

Stakeholders responsible for implementation of the Program of Work include: the Nature Conservation Sector (NCS), the Environmental Impact Assessment and Integrated Coastal Zone Management Departments of the Egyptian Environmental Affairs Agency; the General Authority for Development of Fisheries Resources in the Ministry of Agriculture and Land Reclamation; the National Institute of Oceanography and Fisheries; the Port and Lighthouse Authority; Governorates including coastal areas; the Coast Guard, Ministry of Defense; the Tourist Development Authority, Ministry of Tourism; the Shore Protection Authority; universities and research centers; the Ministry of Maritime Transportation; the Ministry of Petroleum and Mineral Resources; the Institute of Urban Planning; NGOs, the private sector, and local communities.

Actions:

Development of a National Strategy for Integrated Coastal Zone Management: A first draft is prepared and is being discussed with the main stakeholders. It is ready for approval by the Prime Minister.

Mooring is one of the most important tool to protect coral reefs

1. Conservation of marine and coastal living resources based on an ecosystem approach: Services and products provided by the ecosystem have been identified. Ecosystem principles are being implemented through application of participatory and precautionary approaches. The management system is based on carrying capacity, stock assessment of living resources, and taxonomic studies are being encouraged. Research programs are being implemented for the main habitats (e.g. coral reefs, mangroves) and key species (e.g. sharks, dolphins, dugong, turtles, breeding birds) which are either endangered or threatened. Other actions include determining best practice for fishing activities; applying rehabilitation and restoration programs (especially for mangroves and coral reefs); promoting principles of eco-tourism; establishing no-use and multi-use areas; protecting hot-spot areas; developing sustainable uses of marine and coastal biodiversity by applying the Addis Ababa Principles and Guidelines; involving local communities, NGOs and the private sectors in planning, implementation and assessment of management of living resources; promoting teaching and research on coastal and marine biodiversity; implementing public awareness programs; promoting applications of the ecosystem approach beyond national boundaries.

2. Developing and managing existing marine and coastal protected areas and declaring more protected areas to represent main coastal ecosystems and habitats. Efforts are being made to declare the Northern Islands of the Red Sea and two Protected Areas along the Mediterranean at Matruh and Sallum. Other actions include promoting the concept of transboundary marine protected areas through PERSGA and MAP Programs; developing tools for ecological connectivity (corridors) linking areas under protection (the whole Gulf of Aqaba, 210 kms, coast is protected, also most of the Red Sea islands and the southern shores); enhancing management effectiveness of protected areas (assessment has been made, problems and issues identified, and actions are being taken to provide remedies); networking with marine protected areas in the Red Sea, and with other Mediterranean countries; strengthening links with universities and research institutions as well as other sectors of the society.

3. Since mariculture activities are in the early stage in Egypt, efforts are being made to establish a training centre for mariculture in consultation with FAO and international experts. A database on mariculture is being established, including species, guidelines, and techniques of EIA for mariculture projects, as well as guidelines and standards to ensure sustainable mariculture activities, and encouragement of research and monitoring programs.

4. Management of invasive species is based on developing capacities for identifying invasive species in consultation with taxonomists and the Global Invasive Species Program as a first step to prevent introduction of invasive species and their populations. Other actions include socio-economic and health impact assessments; studies on invasive species; programs to target priority invasive

species to control or eradicate them and coordinate activities with all concerned parties; promoting public awareness programs; reviewing existing legal and institutional measures and adopting new ones; promoting training on eradication programs; enhancing collaboration with other countries, regional and international agencies, to provide funding and technical assistance. Many of these actions are being implemented by the NCS which is taking the lead, together with many governmental and non-governmental institutions.

Over the last 15 years, several projects funded by donor countries (e.g. U.S.A., EU, Italy), regional organizations and programs (PERSGA, MAP) and international agencies (UNEP/GEF, UNDP/GEF) facilitated the establishment, development and management of protected areas, monitoring programs on coastal water quality since 1998, implementation of pilot projects related to the protection of marine environment from land-based sources of degradation, and sustainable development of marine resources.

A work plan with time frame up to 2010 has been prepared and approved by the participants of the workshop (Feb. 2006). It included establishing a committee to coordinate all activities and reports to the NCS, establishment of five task groups, each concerned with one element of the program, to prepare proposals for funding, and draw up priority actions.

Program of Work on Inland Water Biodiversity

The program of work for the conservation and sustainable use of the biological diversity of inland waters is built upon ongoing activities and also focuses attention on gaps in the institutional frameworks and the knowledge base upon which management decisions are made. Its activities target national priorities prescribed by the National Biodiversity Strategy and Action Plan.

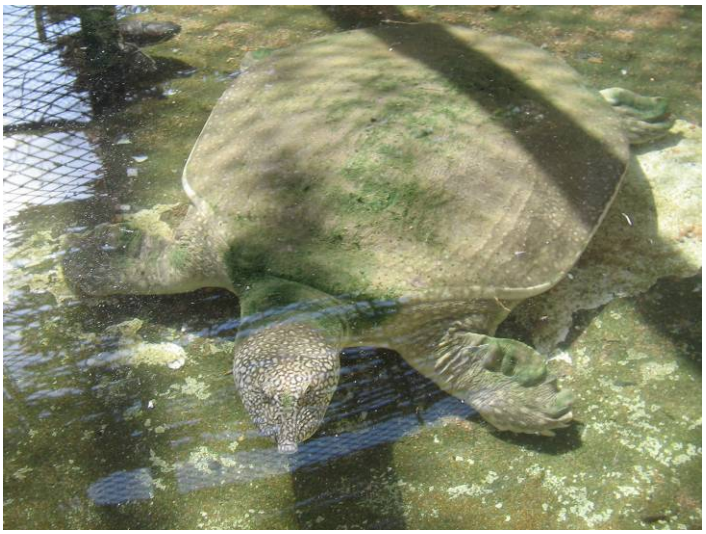
The program of work identifies goals, objectives and activities within the three program elements: conservation; sustainable use and benefit sharing; institutional and socio-economic enabling environment, and knowledge assessment and monitoring.

A task force was established in January 2005 to review the CBD program of work on inland water biodiversity and prepare Egypt's responses. The first task force report assessed knowledge, assessment, and monitoring activities concerning the Nile River Islands. The second task was to consider means of protecting the Nile Islands. Full reports were presented to the NCS, and the following is a brief account of assessments and actions recommended.

Knowledge, Assessment and Monitoring

The River Nile is one of the longest rivers in the world, running some 6650 km through six countries from its headwaters in Burundi to the Mediterranean Sea. The last 1800 km of this journey is through Egypt. The main water resources come from the Blue Nile rising in Ethiopia, and the rest from the White Nile rising in Uganda. Nile flow is now highly regulated due to the construction of dams (the High Dam at Aswan) which have altered sediment loads and nutrients downstream. Egypt share of water stored in Lake Nasser is 55.5 million cubic meters annually. Agriculture is the largest water consumer in Egypt, claiming 82% of its water needs.

Downstream changes in river water quality are due to a combination of land and water uses as well as water management interventions such as the various hydrodynamic regimes regulated by Nile barrages, agricultural return flows, and domestic and industrial waste discharge.



Inland water Biodiversity

Biodiversity

Aquatic macrophytes of the River Nile in Egypt include 87 species of flowering plants and three pteridophytes. They are categorized in 36 communities dominated by eight submerged, one floating and 19 emergent species. More than 80 species of phytoplankton, 100 species of zooplankton, and 50 macro-invertebrates have been recorded in the Egyptian Nile. They exhibit considerable variation in their standing crops.

At the beginning of the 20th century, a total of 82 fish species inhabited Egyptian Nile waters. After the construction of High Dam, 58 fish species were recorded in Lake Nasser. Currently, there are only 22 common Nile species and 49 rare species.

A total of 31 amphibian and reptilian species have been recorded in the Nile Valley. The Nile crocodile Crocodylus niloticus and the soft-shelled Turtle Trionyx triunguis were formerly widespread along the Nile but have declined in range today and are mainly present at Lake Nasser.

Nile avifauna number some 88 species, including grebes, pelicans, herons, flamingos, storks, geese, ducks, rails, waders, gulls, terns, birds of prey, kingfishers, swallows, swifts, nightjars, wagtails, pipits, and warblers. Notable changes have been observed in resident, migrant, wintering and summering avifauna, presumably due to ecological changes.

Mammals are not well represented in the Egyptian Nile Valley, numbering only 37 species. The Hippopotamus Hippooptamus amphibius lived in Egypt until 1800. The most common mammals are small species such as rodents and bats. Less common are large mammals like the Egyptian mongoose, red fox, jackal, and the jungle cat which is thought to be extremely rare. Most mammals are found in densely populated and intensively cultivated areas of the Nile Valley and Delta.

Many invasive species have been recorded in the River Nile, including macrophytes Eichhornia crassipes; crayfish (Procambarus clarkia), mollusks (Helisoma duryi and Biomphalria glabrata), fish (Oreochromis koruglove, O. spilurus, Gambusia affinis), one reptile (Trachemys scripta), and three bird species, the Rose-ringed Parakeet, Red Avadavat and the Streaked Weaver. These invasive species have considerable impacts on the environment, and have caused considerable socioeconomic and health hazards. River Nile fish production has provided an important source of food since prehistoric times. During the 1980s, the Nile's inland fisheries furnished 33% of the nation's total fish production. This has declined to 29% in 2003. However, fish farms (mainly freshwater fish) now produce more than 50% of the total fish production in Egypt, about 800,000 tons a year.

Other Uses

In addition to agriculture and drinking water, the Nile is considered as a multiuse resource also serving tourist activities and other cultural, ecological and recreational activities. Although no statistical data is available on tourististic use of the Nile, an indication is given by the fact that there are currently 357 floating hotels for Nile cruises, representing 11% of total hotel capacity in Egypt. Hotels and floating restaurants contribute to pollution of the Nile.

The Nile is also used for transportation, but there is no detailed information on the number of boats being used for transportation of goods and people. Transportation related pollution also poses pressure on Nile waters.

Current status of Nile water Quality

Three ministries are involved in monitoring water quality in the Nile. The Ministry of Water Resources and Irrigation monitors 320 surface water sites located in strategic locations along canals, the river, Lake Nasser, and drains. It monitors natural, chemical and biological parameters such as salts, cations, anions, bacteriological and organic pollutants, oxygen percentage, heavy metals, and others. The Ministry of Health monitors Nile water quality in 10 governorates, while the Egyptian Environmental Affairs Agency (EEAA) runs annual monitoring programs on water quality at certain sites known to be main hotspots of water pollution.

Monitoring results have indicated that water quality in most of the main canals remains within international permissible limits. However, water quality in agricultural drains exceeds those limits. Water quality at certain places where industries and fish cages exist is quite low.

There are several laws that deal with Nile waters in Egypt. Law 4/1994 for Environment, Law 48/1982 on the protection of water resources against pollution, and Law 12/19884 govern irrigation and sanitation systems management, and Law 102/1983 for protected areas includes water quality issues. In addition, there are many Prime Ministerial and Ministerial decrees dealing with water resources and protection.

These various laws are the responsibility of the Ministries of Environment, Water Resources and Irrigation, Agriculture and Land Reclamations, Health, Housing and New Communities. Coordination between these ministries is necessary to meet challenges facing them in enforcement of the laws in order to reduce water pollution, and integrate activities for protecting water and conserving biodiversity.

Water Resources Major Challenges

Environment and water resource pollution are the most important challenges facing water management in terms of water quantity and quality. The challenges in Egypt can be summarized as follows:

- Consumption rationalization, reuse and provision of additional unconventional water resources;
- Expansion of sanitation coverage in communities where untreated or insufficiently treated waste water is discharged;
- Identification of alternatives for individual effluents discharged in canals and drains;
- Identification of alternatives for solid waste dumping into water drains;
- Provision of safe drinking water for all urban and rural populations;
- Combatting lack of awareness of the importance of protecting water against pollution and loss;
- High cost of water projects;
- Obsolescence of legislation protecting water sources against pollution.

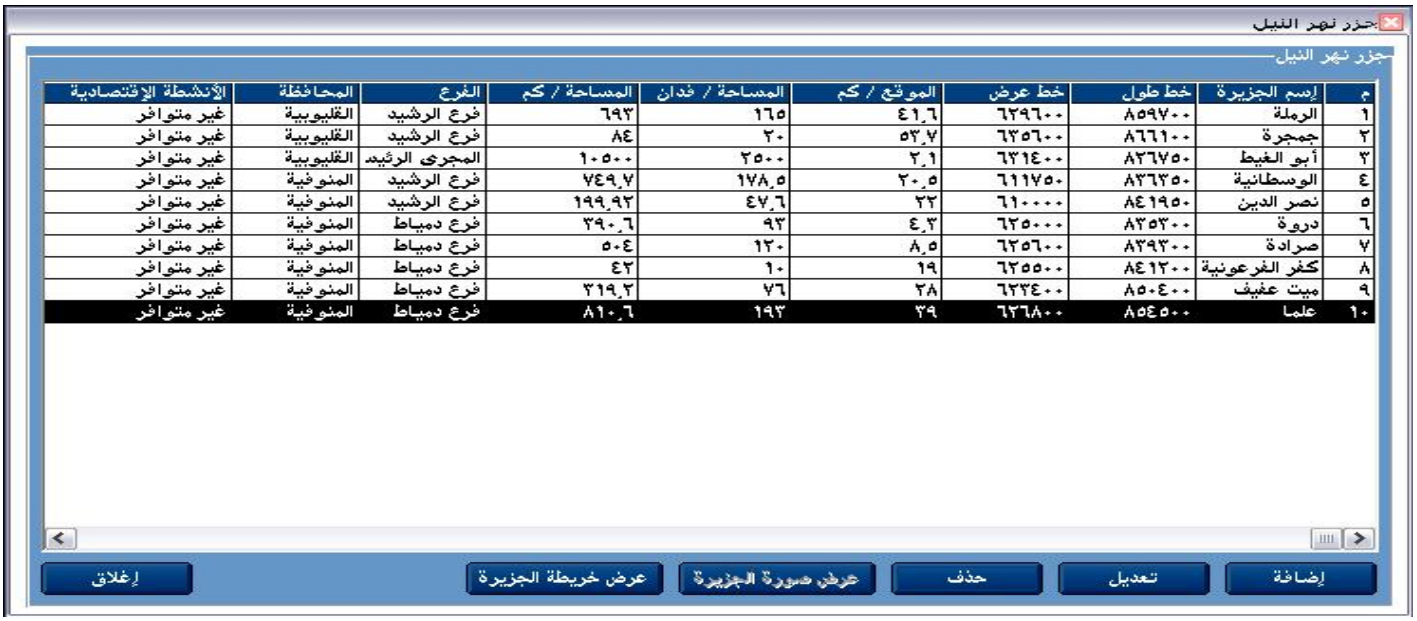
Nile Islands

Nile Islands, numbering approximately144, were declared in 1998 by Prime Ministerial Decree 1969 as Protected Areas. These islands are situated among 16 governorates along the Nile (95 islands) and its Delta (49), and represent a total area of about 160 km2. Ownership of these islands is quite varied, some belonging to governmental agencies, others to local communities or governorates, while many are unowned.

The NCS has prepared environmental guidelines for activities on these islands, including prohibition of pesticides, establishment of sewage and treatment stations, establishment of land-fills for solid waste, allowing only light industries such as handcrafts, prohibiting further building on islands, avoidance of introducing invasive species, prohibiting land degradation, etc.

Due to increasing environmental problems in the Nile, the Egyptian Cabinet approved a program to protect the River Nile and its islands. This program includes treatment of agricultural, municipal and industrial waters before discharge into the Nile, implementing an integrated solid waste management plan, treatment of liquid and solid waste of boats used for tourism and transportation, protection of Nile Islands,

establishing emergency plans for accidents on the Nile, preparation and implementation of a public awareness program, implementation of a monitoring program, establishing a database on the Nile, carrying out research and studies on the Nile, and enforcing environmental laws.



م	إسم الجزيرة	خط طول	خط عرض	الموقع / كم	المساحة / فدان	المساحة / كم	الفرع	المحافظة	الأنشطة الإقتصادية
١	الرملة	٨٥٩٧٠٠	٦٢٩٦٠٠	٤١,٦	١٦٥	٦٩٣	فرع الرشيد	القليوبية	غير متوافر
٢	جمجرة	٨٦٦١٠٠	٦٣٥٦٠٠	٥٣,٧	٢٠	٨٤	فرع الرشيد	القليوبية	غير متوافر
٣	أبو الغيط	٨٢٦٧٥٠	٦٢١٤٠٠	٢,١	٢٥٠٠	١٠٥٠٠	المجرى الرئيد	القليوبية	غير متوافر
٤	الوسطانية	٨٣٦٣٥٠	٦١١٧٥٠	٢٠,٥	١٧٨,٥	٧٤٩,٧	فرع الرشيد	المنوفية	غير متوافر
٥	نصر الدين	٨٤١٩٥٠	٦١٠٠٠٠	٢٢	٤٧,٦	١٩٩,٩٢	فرع الرشيد	المنوفية	غير متوافر
٦	دروة	٨٣٥٣٠٠	٦٢٥٠٠٠	٤,٣	٩٣	٣٩٠,٦	فرع دمياط	المنوفية	غير متوافر
٧	صرادة	٨٣٩٣٠٠	٦٢٥٦٠٠	٨,٥	١٢٠	٥٠٤	فرع دمياط	المنوفية	غير متوافر
٨	كفر الفرعونية	٨٤١٢٠٠	٦٢٥٥٠٠	١٩	١٠	٤٢	فرع دمياط	المنوفية	غير متوافر
٩	ميت عفيف	٨٥٠٤٠٠	٦٢٣٤٠٠	٢٨	٧٦	٣١٩,٢	فرع دمياط	المنوفية	غير متوافر
١٠	علما	٨٥٤٥٠٠	٦٢٦٨٠٠	٢٩	١٩٣	٨١٠,٦	فرع دمياط	المنوفية	غير متوافر

Nile Islands database

A committee was established in March 2005 to prepare a program on protection of Nile islands. The committee consisted of members of line ministries such as Environment, Agriculture and Land Reclamation, Irrigation and Water Resources, local authorities, and NGOs. The main function of the committee was to prepare a report on identified problems, provide remedies, and to start a pilot database on a small number of islands.

The main findings of the committee, based on available information and studies, was that the characteristic features of these islands are their extremely varied soil types and size, both of which depend on water levels Some are rocky, others are sandy or clay soils, and many are used for agriculture and other purposes. Over the past 60 years, some islands have been lost or submerged, and others have increased in size. Therefore, the precise number of islands, based on the available information at government institutions, is not known. Some sources claim there are 144 islands, whereas others suggest there are more than 200 islands. A total of 119 islands are inhabited and support agriculture, 13 islands are joined to the Nile banks, 8 islands are covered by vegetation and not inhabited, two are sandy and six are rocky islands. In addition, there are 20 small scattered islands which change character all the time.

Varying water releases from Lake Nasser are responsible for some of these discrepancies. Use of GIS and remote sensing techniques will improve our knowledge of the Nile islands. A small number of islands are used for agriculture and animal grazing. A model for a database was prepared, including the coordinates of each island, area, biodiversity components, ownership, land-use, facilities available in each island, sources of pollution, etc. Meanwhile, a questionnaire was developed for each island in order to develop an ID for each island with information such as population, agriculture type, animal husbandry, current agriculture facilities, information on water, sewage, solid waste, etc.

A five-year project will be executed by the EEAA in collaboration with other line ministries, local authorities and civil societies. This project's aims are:

- Biodiversity conservation of Nile Islands;
- Preparing a land-use plan for Nile islands based on current and future activities;
- Determine necessary infrastructure (e.g. water, sewage, roads, electricity, transportation, telephones, posts, schools, etc);
- Promote organic farming and biological controls on Nile islands;
- Establish a database for each island;
- Encourage ecotourism in Nile islands;
- Enforce environmental laws 102/1983 and 4/194;
- Prepare and implement communication, education and public awareness programs.

Implementation of Egypt's Program of Work on Inland Water Biodiversity

The task force reviewed the work program on inland water biodiversity in which goals, objectives and activities were modified to suit Egyptian needs. This was followed by preparing an action plan which has the following components approved by the Convention on Biological Diversity.

Conservation, Sustainable Use and Benefit Sharing

This component covers many topics including primary habitats, fish species, protected areas, improving the status of threatened species, invasive species, ecotourism, fisheries, and forming partnerships with local communities, the private sector and NGOs. The main activities include: regular assessment of biodiversity; water monitoring and management plans with line ministries; updating inventories of inland water biodiversity; developing and managing existing protected areas; continued capacity building programs; initiating rehabilitation and restoration programs for threatened and endangered species; coordination with invasive species program with focus on inland water invasive species; coordination with the General Authority for Development of Fish Resources to improve capture and culture fisheries; promoting ecotourism projects in collaboration with the private sector and Ministry of Tourism; coordinating and initiating partnerships for benefit sharing arising from the use of genetic resources of inland waters, and encouraging best practices and documented case studies dealing with sustainable uses of biodiversity components.

Institutional and Socio-Economic Enabling Environment

This component covers specific programs, policies and legislation, technology transfer, Communication, Education and Public Awareness (CEPA), local community and private sector and citizen involvement. The main activities include: reviewing existing policies and legislation; introducing reform to institutional arrangements (policies, legislation, training needs assessment, twinning with other institutions); mainstreaming of biodiversity in developmental programs related to inland waters; improving law enforcement; transferring low-cost appropriate technology (e.g. biocriteria models for water quality assessment, low-cost sewage treatment technology, improved recycling of industrial waste water); creating curricula for schools on water biodiversity; involving local communities; establishing interpretive and information centers.

Knowledge, Assessment and Monitoring

This component covers the following topics: developing and improving understanding of inland water biodiversity; developing rapid assessment programs; environmental impact assessment, and monitoring arrangements. Activities include: encouraging taxonomic studies through the Global Taxonomy Initiative (GIT); workshops for development of criteria and indicators for ecosystem evaluation and human impacts; developing capacities for rapid assessment; applying CBD Guidelines for

incorporating biodiversity issues into environmental impact assessment; compiling information on EIAs that address inland water biodiversity with focus on invasive species; seeking funding for monitoring programs; undertaking actions to reduce water pollution with focus on non-point source of pollution; preventing untreated sewage discharge into the Nile; integrating, coordinating and mainstreaming all activities in the Nile and its Delta into one management plan.

Future Plans

Egypt's water resources future plans can be summarized as follows:

Optimum Water Resource usage and the development of Integrated Water Resource Management Plans:

- Improving irrigation efficiency and selecting suitable irrigation systems that rationalize the use of water,
- Waste water management, treatment, reuse and recycling,
- Matching water uses to appropriate water resources,

Preserving water quality and eliminating water pollution:

- Protecting the Nile, canals, and drains,
- Underground water,
- Lakes management,
- Protecting coastal waters.

Biodiversity conservation of inland waters.

Developing additional water resources.

Improving drinking water coverage in rural areas.

Improving sanitary service coverage.

Institutional development for integrated water resource management support, including plans for activating decentralization, the role of water users, legislative development and human capacity development.

The Egyptian Protected Area Work Plan in Response to the CBD Program of Work on Protected Areas

This work program has been developed in response to the CBD's emphasis on the important role Protected Areas play in the maintenance of global biodiversity and the sustainable use of resources, and as part of Egypt's commitment to the CBD's directions and resolutions. The NCS has developed the work plan for its Protected Area network to correspond with the CBD program of work on Protected Areas, which gives directions and recommended actions to all parties in order to reach common goals.

We see the development and application of this work plan as a practical and logical step to coordinate Egyptian efforts to manage its Protected Areas, to ensure compliance with global trends, and to benefit from lessons learned elsewhere.

The work plan which was developed in 2005 and is currently being implemented has been adhered to and achieved to a great extent.

The Egyptian Protected Area Work Plan in response to the CBD Program of Work on Protected Areas

PROGRAM ELEMENT 1: Direct Actions for Planning, Selecting, Establishing, Strengthening, and Managing, Protected Area Systems and Sites

Goal 1.1 - To establish and strengthen national and regional systems of protected areas integrated into a global network as a contribution to globally agreed goals		
Target: By 2010, terrestrially and 2012 in the marine area, a global network of comprehensive, representative and effectively managed national and regional protected area system is established as a contribution to (i) the goal of the Strategic Plan of the Convention and the World Summit on Sustainable Development of achieving a significant reduction in the rate of biodiversity loss by 2010; (ii) the Millennium Development Goals - particularly goal 7 on ensuring environmental sustainability; and (iii) the Global Strategy for Plant Conservation.		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
1.1.1. By 2006, establish suitable time-bound and measurable national and regional level protected area targets and indicators.	1- Update existing System Plan to include targets and indicators of management effectiveness by end 2006.	NCS/NCSCB
1.1.2. As a matter of urgency, by 2006, take action to establish or expand protected areas in any large, intact or relatively unfragmented or highly irreplaceable natural areas, or areas under high threat, as well as areas securing the most threatened species in the context of national priorities, and taking into consideration the conservation needs of migratory species.	1- Establishment of new protected areas in highly vulnerable regions, which are not well represented (Mediterranean coastal desert and marine ecosystem): Salum and Qattara are priority area, for which proposals for declaration are under development (by 2006) and the Gebal Elba and Wadi Allaqi PAs are functionally linked.	NCS/NCSCB
1.1.3. As a matter of urgency, by 2006	1- Develop proposal for the declaration of	NCS/NCSCB /IUCN

terrestrially and by 2008 in the marine environment, take action to address the under-representation of marine and inland water ecosystems in existing national and regional systems of protected areas, taking into account marine ecosystems beyond areas of national jurisdiction in accordance with applicable international law, and transboundary inland water ecosystems.	the Salum PA (including a substantial marine component) by 2006 2- Evaluate Mediterranean marine habitats by 2007 3- Extend coverage of some existing coastal Mediterranean PAs to include marine habitats by 2008	NCS/NCSCB/ IUCN NCS
1.1.4. By 2006, conduct, with the full and effective participation of indigenous and local communities and relevant stakeholders, national-level reviews of existing and potential forms of conservation, and their suitability for achieving biodiversity conservation goals, including innovative types of governance for protected areas that need to be recognized and promoted through legal, policy, financial institutional and community mechanisms, such as protected areas run by government agencies at various levels, co-managed protected areas, private protected areas, indigenous and local community conserved areas.	Development of a facilitating policy environment for the participatory management of protected areas by mid 2006 and testing of co management arrangement in one PA (White Desert)	NCS/NCSCB/IUCN
1.1.5. By 2006 complete protected area system gap analyses at national and regional levels based on the requirements for representative systems of protected areas that adequately conserve terrestrial, marine and inland water biodiversity and ecosystems. National plans should also be developed to provide interim measures to protect highly threatened or highly valued areas wherever this is necessary. Gap analyses should take into account Annex I of the Convention on Biological Diversity and other relevant criteria such as irreplaceability of target biodiversity components, minimum effective size and viability requirements, species migration requirements, integrity, ecological processes and ecosystem services.	PA system gap analysis to be conducted as part of the System Plan revalidation by end 2006	NCS/NCSCB /BioMap

1.1.6. By 2009, designate the protected areas as identified through the national or regional gap analysis (including precise maps) and complete by 2010 terrestrially and 2012 in the marine environments the establishment of comprehensive and ecologically representative national and regional systems of protected areas.	By end 2006 a revised System Plan will be delivered based on the gap analysis and other financial, political and practical considerations	NCS/NCSCB
1.1.7. Encourage the establishment of protected areas that benefit indigenous and local communities, including by respecting, preserving, and maintaining their traditional knowledge in accordance with article 8(j) and related provisions.	The benefiting of local communities has been acknowledged in the establishment of PAs in Egypt particularly at St Katherine and Wadi El Gemal. The latter has specifically capitalised on the conservation of indigenous ways of life. 1- Establish and extend management systems in at least four PAs, which will maximise benefits and inputs from local communities (St Katherine, Wadi El Gemal, White Desert and Elba). 2- Give priority to declaration of new PAs where indigenous ways of life are strongly linked with nature, such as Salum. 3- Include local inhabitants in the scoping process prior to PA declaration	NCS/ Red Sea LIFE/Elba

Goal 1.2 – To integrate protected areas into broader land- and seascapes and sectors so as to maintain ecological structure and function		
Target: By 2015, all protected areas and protected area systems are integrated into the wider land- and seascape, and relevant sectors, by applying the ecosystem approach and taking into account ecological connectivity and the concept, where appropriate, of ecological networks.		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
1.2.1. Evaluate by 2006 national and sub-national experiences and lessons learned on specific efforts to integrate protected areas into broader land- and seascapes and sectoral plans and strategies such as poverty reduction strategies.	By end 2006 develop a GEF proposal to evaluate the economic valuation of PAs in Egypt and the benefits to national and local economies and their future potential and their role in poverty reduction.	NCS/NCSCB
1.2.2. Identify and implement, by 2008, practical steps for improving the integration of protected areas into broader land- and seascapes, including	Will be based on the findings above.	NCS/NCSCB

policy, legal, planning and other measures.		
1.2.3. Integrate regional, national and sub-national systems of protected areas into broader land- and seascape, inter alia by establishing and managing ecological networks, ecological corridors and/or buffer zones, where appropriate, to maintain ecological processes and also taking into account the needs of migratory species.	This will be addressed through the System Plan evaluation	NCS/NCSCB
1.2.4. Develop tools of ecological connectivity, such as ecological corridors, linking together protected areas where necessary or beneficial as determined by national priorities for the conservation of biodiversity.	This will be addressed generally through the System Plan evaluation and tested with the functional linkage of Wadi Allaqi with Gabal Elba PAs.	NCS/NCSCB/GEF
1.2.5. Rehabilitate and restore habitats and degraded ecosystems, as appropriate, as a contribution to building ecological networks, ecological corridors and/or buffer zones.	Efforts along these lines have been conducted to rehabilitate mangroves, establish grazing exclosures, and managing wetland habitats. Priority habitat restoration schemes are being established in Zaranik and Omayed to control the impacts of over grazing.	NCS/RAMSAR

Goal 1.3 - To establish and strengthen regional networks, transboundary protected areas (TBPAs) and collaboration between neighbouring protected areas across national boundaries		
Target: Establish and strengthen by 2010/20126 transboundary protected areas, other forms of collaboration between neighbouring protected areas across national boundaries and regional networks, to enhance the conservation and sustainable use of biological diversity, implementing the ecosystem approach, and improving international cooperation. 5. Ecological corridors may not be applicable to all Parties 6. References to marine protected area networks to be consistent with the target in the WSSD plan of implementation.		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
1.3.1. Collaborate with other parties and relevant partners to establish effective regional networks of protected areas, particularly in areas identified as common conservation priorities (e.g. barrier reef systems, large scale river basins, mountain systems, large remaining forest areas and critical habitat for endangered species), and establish multi country coordination mechanisms as appropriate to support the establishment and effective long	Revive earlier efforts to coordinate with both Sudan and Libya to establish a TBPA in the Gebel Uweinat area. Preliminary explorations have been made for establishing potential TBPAs involving 3 PAs i.e. Siwa, Salum and Elba/Allaqi .	NCS

term management of such networks.		
1.3.2. Collaborate with other Parties and relevant partners through the United Nations Informal Consultative Process on the Law of the Sea (UNICPOLOS) to establish and manage protected areas in marine areas beyond the limits of national jurisdiction, in accordance with international law, including the UN Convention on the Law of the Sea, and based on scientific information.	By end 2006 develop a comprehensive vision for the establishment of Marine PAs in Salum (Egypt) and Tubruq (Libya) under the auspices of IUCN.	NCS/IUCN
1.3.3. Establish, where appropriate, new TBPAs with adjacent Parties and countries and strengthen effective collaborative management of existing TBPAs.	By early 2007 establish a GEF project proposal to elaborate the unified management of Elba and Allaqi PAs and initiate coordination with the Sudanese for trans-boundary conservation measures.	NCS/GEF
1.3.4. Promote collaboration between protected areas across national boundaries.		

Goal 1.4 – To substantially improve site-based protected area planning and management		
Target: All protected areas to have effective management in existence by 2012, using participatory and science-based site planning processes that incorporate clear biodiversity objectives, targets, management strategies and monitoring rogrammes, drawing upon existing methodologies and a long-term management plan with active stakeholder involvement.		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
1.4.1. Create a highly participatory process, involving indigenous and local communities and relevant stakeholders, as part of site-based planning in accordance with the ecosystem approach, and use relevant ecological and socio-economic data required to develop effective planning processes.	Principles of participatory approach to be enshrined in policy documents to guide nature conservation and protected area management in Egypt by mid 2006	NCS/NCSCB
1.4.2. Identify appropriate measurable biodiversity conservation targets for sites, drawing on criteria laid out in Annex I to the Convention on Biological Diversity and other relevant criteria.	By end 2006, four PAs will apply biodiversity monitoring schemes	NCS/ BioMap
1.4.3. Include in the site-planning process an analysis of opportunities for the protected area to contribute to conservation and sustainable use of biodiversity at local and regional scales as well as an analysis of threats and means of addressing them.	Opportunities and threat analysis is already included in the PA management planning process.	
1.4.4. As appropriate, but no later than	1- By end 2006 establish management	NCS/NCSCB

2010, develop or update management plans for protected areas, built on the above process, to better achieve the three objectives of the Convention.	plans at White Desert and Qarun. 2- By mid 2007 establish management plans for Elba and Siwa. 3- By 2010 All PAs in Egypt to have uniform and well structured management.	
1.4.5. Integrate climate change adaptation measures in protected area planning, management strategies, and in the design of protected area systems.	Implicit in the large area, diverse habitats and altitudinal ranges of several PAs in Egypt notably Elba/Allaqi and St. Katherine.	
1.4.6. Ensure that protected areas are effectively managed or supervised through staff that are well-trained and skilled, properly and appropriately equipped, and supported, to carry out their fundamental role in the management and conservation of protected areas.	Training needs assessment to be carried out by mid 2006.	NCSCB/IUCN

Goal 1.5 - To prevent and mitigate the negative impacts of key threats to protected areas		
Target: By 2008, effective mechanisms for identifying and preventing, and/or mitigating the negative impacts of key threats to protected areas are in place.		
Suggested activities of the Parties		
1.5.1. Apply, as appropriate, timely environmental impact assessments to any plan or project with the potential to have effects on protected areas, and ensure timely information flow among all concerned parties to that end, taking into account decision VI/7 A of the Conference of the Parties on guidelines for incorporating biodiversity-related issues into environmental impact assessment legislation and/or processes and in strategic environmental assessments	This has been the practice for many years in Egypt. By mid 2006 establish a clear and uniform EIA system for activities within and around PAs through the EIA TU.. By end 2006 have all PA staff trained and well acquainted with EIA procedure within PAs.	NCS/ NCSCB
1.5.2. Develop by 2010 national approaches to liability and redress measures, incorporating the polluter pays principle or other appropriate mechanisms in relation to damages to protected areas.	This has been well developed for damage to coral reefs, but further measures need to be developed. By end 2006 consolidate all liability procedures into single policy document By end 2007 develop damage evaluation schemes for various biodiversity resources	NCS/ NCSCB
1.5.3. Establish and implement	Development of species recovery plans	NCS

measures for the rehabilitation and restoration of the ecological integrity of protected areas.	for several species including Acacia, medicinal plants and desert tortoise.	
1.5.4. Take measures to control risks associated with invasive alien species in protected areas.	By end 2006, to have collated all available information on invasive species of Egypt, and have a plan for identification and risk management	NCS/ BioMAP
1.5.5. Assess key threats to protected areas and develop and implement strategies to prevent and/or mitigate such threats.	This has been partly achieved in current System Plan, but will be better addressed in the System Plan Review by end 2006.	NCS/ NCSCB
1.5.6. Develop policies, improve governance, and ensure enforcement of urgent measures that can halt the illegal exploitation of resources from protected areas, and strengthen international and regional cooperation to eliminate illegal trade in such resources taking into account sustainable customary resource use of indigenous and local communities in accordance with article 10(c) of the Convention.	Policy review and consolidation by early 2006	NCS/ NCSCB

PROGRAM ELEMENT 2:
Governance, Participation, Equity and Benefit Sharing

Goal 2.1 - To promote equity and benefit-sharing		
Target: Establish by 2008 mechanisms for the equitable sharing of both costs and benefits arising from the establishment and management of protected areas.		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
2.1.1. Assess the economic and socio-cultural costs, benefits and impacts arising from the establishment and maintenance of protected areas, particularly for indigenous and local communities, and adjust policies to avoid and mitigate negative impacts, and where appropriate compensate costs and equitably share benefits in accordance with the national legislation.	By end 2006 develop a GEF proposal to evaluate the economic valuation of PAs in Egypt and the benefits to national and local economies and their future potential and their role in poverty reduction. Enshrine principles in developing policy and financial mechanisms e.g. user fees, benefit sharing, compensation claims etc.	NCS/NCSCB
2.1.2. Recognize and promote a broad set of protected area governance types related to their potential for achieving biodiversity conservation goals in accordance with the Convention, which may include areas conserved by indigenous and local communities and private nature reserves. The promotion	To be incorporated into policy principles for nature conservation and protected area management by mid 2006	NCS/NCSCB

of these areas should be by legal and/or policy, financial and community mechanisms.		
2.1.3. Establish policies and institutional mechanisms with full participation of indigenous and local communities, to facilitate the legal recognition and effective management of indigenous and local community conserved areas in a manner consistent with the goals of conserving both biodiversity and the knowledge, innovations and practices of indigenous and local communities.	By end 2006 establish the NCS policy, reflecting and addressing specific policies towards local community involvement	NCS/NCSCB
2.1.4. Use social and economic benefits generated by protected areas for poverty reduction, consistent with protected-area management objectives.	Implemented on a model basis in St. Katherine and to be extended to another prototype of PA management, which focuses on poverty alleviation in Wadi El Gemal PA by end 2006	NCS/ Red Sea LIFE
2.1.5. Engage indigenous and local communities and relevant stakeholders in participatory planning and governance, recalling the principles of the ecosystem approach.	Implement at least one prototype of PA management, which focuses on local community participation in the White Desert PA by end 2006	NCS/ NCSCB
2.1.6. Establish or strengthen national policies to deal with access to genetic resources within protected areas and fair and equitable sharing of benefits arising from their utilization, drawing upon the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization as appropriate.	Prepare legislation on genetic resources and intellectual property right	**NCS/MPP**

Goal 2.2 – To enhance and secure involvement of indigenous and local communities and relevant stakeholders		
Target: Full and effective participation by 2008, of indigenous and local communities, in full respect of their rights and recognition of their responsibilities, consistent with national law and applicable international obligations, and the participation of relevant stakeholders, in the management of existing, and the establishment and management of new, protected areas		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
2.2.1. Carry out participatory national reviews of the status, needs and context-specific mechanisms for involving stakeholders, ensuring gender and social equity, in protected areas policy and management, at the level of national policy, protected area systems and	Policy review and development to address specifically stakeholder involvement by early 2006	NCS/NCSCB

individual sites.		
2.2.2. Implement specific plans and initiatives to effectively involve indigenous and local communities, with respect for their rights consistent with national legislation and applicable international obligations, and stakeholders at all levels of protected areas planning, establishment, governance and management, with particular emphasis on identifying and removing barriers preventing adequate participation	White Desert management plan as a model for stakeholder involvement developed by mid 2006	NCS/NCSCB
2.2.3. Support participatory assessment exercises among stakeholders to identify and harness the wealth of knowledge, skills, resources and institutions of importance for conservation that are available in society	1- Series of participatory workshops for co-management planning scheduled between 2006 and 2007to be initiated in White Desert in 2005 2- By end 2005, hold a workshop of stakeholders to identify ways in which biodiversity information is required. 3- By end 2006, to have a fully functional online web-based Clearing House Mechanism containing as much of the information required as is available	NCS/NCSCB/BioMap
2.2.4. Promote an enabling environment (legislation, policies, capacities, and resources) for the involvement of indigenous and local communities and relevant stakeholders in decision making, and the development of their capacities and opportunities to establish and manage protected areas, including community-conserved and private protected areas	By end 2006 establish the NCS policy, reflecting and addressing specific policies towards local community involvement	NCS/NCSCB
2.2.5. Ensure that any resettlement of indigenous communities as a consequence of the establishment or management of protected areas will only take place with their prior informed consent that may be given according to national legislation and applicable international obligations	No resettlement envisaged	

PROGRAM ELEMENT 3:
Enabling Activities

Goal 3.1 – To provide an enabling policy, institutional and socio-economic environment for protected areas		
Target: By 2008 review and revise policies as appropriate, including use of social and economic valuation and incentives, to provide a supportive enabling environment for more effective establishment and management of protected areas and protected areas systems		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
3.1.1. By 2006, identify legislative and institutional gaps and barriers that impede the effective establishment and management of protected areas, and by 2009, effectively address these gaps and barriers	Process of institutional reform of the Nature Conservation Sector of the EEAA initiated in 2005 with the goal of establishing a modern and autonomous authority for nature conservation.	NCS/NCSCB
3.1.2. Conduct national-level assessments of the contributions of protected areas, considering as appropriate environmental services, to the country's economy and culture, and to the achievement of the Millennium Development Goals at the national level; and integrate the use of economic valuation and natural resource accounting tools into national planning processes in order to identify the hidden and non-hidden economic benefits provided by protected areas and who appropriates these benefits.	By end 2006 develop a GEF proposal to evaluate the economic valuation of Pas in Egypt and the benefits to national and local economies and their future potential and their role in poverty reduction.	
3.1.3. Harmonize sectoral policies and laws to ensure that they support the conservation and effective management of the protected area system	General nature conservation and protected area policy reviews and policy development scheduled during 2006. (NEAP)	NCS/NCSCB
3.1.4. Consider governance principles, such as the rule of law, decentralization, participatory decision-making mechanisms for accountability and equitable dispute resolution institutions and procedures	See 3.1.1	NCS/NCSCB
3.1.5. Identify and remove perverse incentives and inconsistencies in sectoral policies that increase pressure on protected areas, or take action to mitigate their perverse effects. Whenever feasible, redirect these to positive incentives for conservation	To be conducted by the Technical Unit for Marketing and Economics by end 2006	NCS/NCSCB
3.1.6. Identify and establish positive incentives that support the integrity and maintenance of protected areas and the involvement of indigenous and local	To be conducted by the Technical Unit for Marketing and Economics by end 2006	NCS/NCSCB

communities and stakeholders in conservation		
3.1.7. Adopt legal frameworks to national, regional and sub-national protected areas systems of countries where appropriate.	In place	NCS/NCSCB
3.1.8. Develop national incentive mechanisms and institutions and legislative frameworks to support the establishment of the full range of protected areas that achieve biodiversity conservation objectives including on private lands and private reserves where appropriate.	To be addressed as part of the Business Plan for NCS by end 2006	NCS/NCSCB
3.1.9. Identify and foster economic opportunities and markets at local, national and international levels for goods and services produced by protected areas and/or reliant on the ecosystem services that protected areas provide, consistent with protected area objectives and promote the equitable sharing of the benefits	To be addressed as part of the Business Plan for NCS by end 2006	NCS/NCSCB
3.1.10. Develop necessary mechanisms for institutions with responsibilities for conservation of biological diversity at the regional, national and local level to achieve institutional and financial sustainability.	To be addressed as part of the Business Plan for NCS by end 2006	NCS/NCSCB
3.1.11. Cooperate with neighbouring countries to establish an enabling environment for transboundary protected areas and for neighbouring protected areas across national boundaries and other similar approaches including regional networks.	By early 2007 establish a GEF project proposal to elaborate the unified management of Elba and Allaqi PAs and initiate coordination with Sudan for trans-boundary conservation measures.	

Goal 3.2 – To build capacity for the planning, establishment and management of protected areas		
Target: By 2010, comprehensive capacity building programs and initiatives are implemented to develop knowledge and skills at individual, community and institutional levels, and raise professional standards		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
3.2.1. By 2006 complete national protected-area capacity needs assessments, and establish capacity building programs on the basis of these assessments including the creation of curricula, resources and programs for	By early 2006 NCS capacity needs assessment to be completed	NCS/NCSCB

the sustained delivery of protected areas management training		
3.2.2. Establish effective mechanisms to document existing knowledge and experiences on protected area management, including traditional knowledge in accordance with Article 8(j) and Related Provisions, and identify knowledge and skills gaps	PA reporting to include documentation of traditional knowledge	NCS/BioMAP
3.2.3. Exchange lessons learnt, information and capacity-building experiences among countries and relevant organizations, through the Clearing-house Mechanisms and other means.	By end 2006 establish an effective Internet-based PA clearing house mechanism	NCS/NCSCB/BioMAP
3.2.4. Strengthen the capacities of institutions to establish cross-sectoral collaboration for protected area management at the regional, national and local levels.		
3.2.5. Improve the capacity of protected areas institutions to develop sustainable financing through fiscal incentives, environmental services, and other instruments	To be addressed as part of the Business Plan for NCS by end 2006	NCS/NCSCB

Goal 3.3 To develop, apply and transfer appropriate technologies for protected areas		
Target: By 2010 the development, validation, and transfer of appropriate technologies and innovative approaches for the effective management of protected areas is substantially improved, taking into account decisions of the Conference of the Parties on technology transfer and cooperation		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
3.3.1. Document and make available to the Executive Secretary appropriate technologies for conservation and sustainable use of biological diversity of protected areas and management of protected areas.	Publication of Egypt's experience with Protected Areas in 2005 and Nature/biodiversity conservation in 2006.	NCS/NCSCB
3.3.2. Assess needs for relevant technologies for protected area management involving indigenous and local communities and stakeholders such as the, research institutions, non-governmental organizations and the private sector	This is carried out through the PA management planning process	NCS/NCSCB
3.3.3. Encourage development and use of appropriate technology, including	This is carried out through the PA management planning process and	NCS/NCSCB

technologies of indigenous and local communities with their participation, approval and involvement in accordance with Article 8(j) and Related Provisions, for habitat rehabilitation and restoration, resource mapping, biological inventory, and rapid assessment of biodiversity, monitoring, in situ and ex situ conservation, sustainable use, etc	initiated in Wadi El Gemal, St. Katherine and Zaranik Pas and species recovery programs for Acacia, selected medicinal plants and tortoise. Elba and Wadi El Gemal PA management to be developed as an example	
3.3.4. Promote an enabling environment for the transfer of technology in accordance with decision VII/29 of the Conference of Parties on technology transfer and cooperation to improve protected area management.	Policy on technology transfer to be developed as part of policy review for NCS.	NCS/NCSCB
3.3.5. Increase technology transfer and cooperation to improve protected area management	Emphasise technology transfer in PA management planning.	NCS/NCSCB

Goal 3.4 - To ensure financial sustainability of protected areas and national and regional systems of protected areas		
Target: By 2008, sufficient financial, technical and other resources to meet the costs to effectively implement and manage national and regional systems of protected areas are secured, including both from national and international sources, particularly to support the needs of developing countries and countries with economies in transition and small island developing States		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
3.4.1. Conduct a national-level study by 2005 of the effectiveness in using existing financial resources and of financial needs related to the national system of protected areas and identify options for meeting these needs through a mixture of national and international resources and taking into account the whole range of possible funding instruments, such as public funding, debt for nature swaps, elimination of perverse incentives and subsidies, private funding, taxes and fees for ecological services	Initiated with a financial analysis of the Nature Conservation Sector conducted in 2005 as a prelude to the development of a generic business plan in 2006	NCS/NCSCB
3.4.2. By 2008, establish and begin to implement country-level sustainable financing plans that support national systems of protected areas, including necessary regulatory, legislative, policy, institutional and other measures	Scheduled under the work program for the Marketing and Outreach Technical Unit between 2006 and 2007	NCS/NCSCB

3.4.3. Support and further develop international funding programs to support implementation of national and regional systems of protected areas in developing countries and countries with economies in transition and small island developing States	N/A	
3.4.4. Collaborate with other countries to develop and implement sustainable financing programs for national and regional systems of protected areas		
3.4.5. Provide regular information on protected areas financing to relevant institutions and mechanisms, including through future national reports under the Convention on Biological Diversity, and to the World Database on Protected Areas	Scheduled under the CHM	
3.4.6. Encourage integration of protected areas needs into national and, where applicable, regional development and financing strategies and development cooperation programs		

Goal 3.5 – To strengthen communication, education and public awareness		
Target: By 2008 public awareness, understanding and appreciation of the importance and benefits of protected areas is significantly increased		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
3.5.1. Establish or strengthen strategies and programs of education and public awareness on the importance of protected areas in terms of their role in biodiversity conservation and sustainable socioeconomic development, in close collaboration with the Communication, Education and Public Awareness Initiative (CEPA) under the Convention on Biological Diversity and targeted towards all stakeholders.	By mid 2006 produce a draft CEPA	NCS/ NCSCB BioMAP
3.5.2. Identify core themes for education, awareness and communication programs relevant to protected areas, including inter alia their contribution to economy and culture to achieve specific end results such as compliance by resource users and other	By end 2006, develop some examples of the assessment of the economic value of biodiversity, to be placed on the CHM By end 2005, start a demonstration program of joint monitoring by rangers, volunteers and indigenous people	NCS/ BioMAP

stakeholders or an increased understanding of science-based knowledge by indigenous and local communities and policy makers and an increased understanding of the needs, priorities and value of indigenous and local communities' knowledge, innovations and practices by Governments, non-governmental organizations and other relevant stakeholders		
3.5.3. Strengthen, and where necessary, establish information mechanisms directed at target groups such as the private sector, policy makers, development institutions, community-based organizations, the youth, the media, and the general public	By end 2006, have a functional web-based CHM By end 2006, develop a multimedia university course in biodiversity and conservation	NCS/ BioMAP
3.5.4. Develop mechanisms for constructive dialogue and exchange of information and experiences among protected-area managers, and between protected area managers and indigenous and local communities and their organizations and other environment educators and actors		
3.5.5. Incorporate the subject of protected areas as an integral component of the school curricula as well as in informal education.	By end 2006, develop a multimedia university course in biodiversity and conservation	NCS/ NCSCB BioMAP
3.5.6. Establish mechanism and evaluate the impacts of communication, education and public awareness programs on biodiversity conservation to ensure that they improve public awareness, change behaviour and support the achievement of protected area objectives	To be addressed by CEPA	NCS/ NCSCB BioMAP

PROGRAM ELEMENT 4:

Standards, assessment, and monitoring

Goal 4.1 – To develop and adopt minimum standards and best practices for national and regional protected area systems		
Target: By 2008, standards, criteria, and best practices for planning, selecting, establishing, managing and governance of national and regional systems of protected areas are developed and adopted.		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***

4.1.1. Collaborate with other Parties and relevant organizations, particularly IUCN, on the development, testing, review and promotion of voluntary protected areas standards and best practices on planning and management, governance and participation.		
4.1.2. Develop and implement an efficient, long-term monitoring system of the outcomes being achieved through protected area systems in relation to the goals and targets of this work program.	By end 2006, have developed long-term monitoring schemes in at least 4 PAs; and by 2010 throughout all PAs	NCS/ BioMAP
4.1.3. Draw upon monitoring results to adapt and improve protected area management based on the ecosystem approach.	By end 2007, have an effective system of monitoring evaluation that feeds into management	NCS/ BioMAP

Goal 4.2 - To evaluate and improve the effectiveness of protected areas management		
Target: By 2010, frameworks for monitoring, evaluating and reporting protected areas management effectiveness at sites, national and regional systems, and transboundary protected area levels adopted and implemented by Parties.		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
4.2.1. Develop and adopt, by 2006, appropriate methods, standards, criteria and indicators for evaluating the effectiveness of protected area management and governance, and set up a related database, taking into account the IUCN-WCPA framework for evaluating management effectiveness, and other relevant methodologies, which should be adapted to local conditions.	Establish a management effectiveness by early 2007	NCS/NCSCB
4.2.2. Implement management effectiveness evaluations of at least 30 percent of each Party's protected areas by 2010 and of national protected area systems and, as appropriate, ecological networks.	Implement management effectiveness evaluation schemes in three PAs (Wadi Rayan, St. Katherine, and Ras Mohamed) by mid 2007	NCS/NCSCB
4.2.3. Include information resulting from evaluation of protected areas management effectiveness in national reports under the Convention on Biological Diversity.		NCS/NCSCB
4.2.4. Implement key recommendations arising from site- and system-level management effectiveness evaluations, as an integral part of adaptive		NCS/NCSCB

management strategies.		

Goal 4.3 - To assess and monitor protected area status and trends		
Target: By 2010, national and regional systems are established to enable effective monitoring of protected-area coverage, status and trends at national, regional and global scales, and to assist in evaluating progress in meeting global biodiversity targets.		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
4.3.1. Implement national and regional programs to monitor and assess the status and trends of biodiversity within protected area systems and sites.	By mid 2006 four or more PAs apply biodiversity monitoring schemes (St Katherine, Ras Mohamed, Wadi El Gemal, Elba, Saluga & Ghazal)	NCS/ BioMap
4.3.2. Measure progress towards achieving protected area targets based on periodic monitoring and report on progress towards these targets in future national reports under the Convention on Biological Diversity as well as in a thematic report at COP-9.	By end 2007, have established mechanisms for evaluating and reporting on monitoring schemes in order to enable action; and feed results into the CBD reporting scheme	NCS/ BioMap
4.3.3. Improve and update national and regional data bases on protected areas and consolidate the World Database on Protected Areas as key support mechanisms in the assessment and monitoring of protected area status and trends.		
4.3.4. Participate in the World Database on Protected Areas maintained by UNEP-WCMC, and the United Nations List of Protected Areas and the State of the World's Protected Areas assessment process.		
4.3.5. Encourage the establishment and establishment use of new technologies including geographic information system and remote sensing tools for monitoring protected areas.	By end 2007, have a web-based publically available section of the CHM that maps biodiversity information according to user choices using a GIS	NCS/ BioMap

Goal 4.4 - To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and protected area systems		
Target Scientific knowledge relevant to protected areas is further developed as a contribution to their establishment, effectiveness, and management.		
Suggested activities of the Parties	***Egypt's response: actions to be taken***	***By***
4.4.1. Improve research, scientific and technical cooperation related to protected areas at national, regional and international levels.	By mid 2006, have run workshops in universities and other institutions to promote and support joint	NCS/ BioMap

	work on biodiversity research and monitoring	
4.4.2. Promote interdisciplinary research, to improve understanding of the ecological social and economic aspects of protected areas, including methods and techniques for valuation of goods and services from protected areas	By end 2006, have well-researched examples of the evaluation of biodiversity in named PAs available on the CHM	NCS/ BioMap
4.4.3. Encourage studies to improve the knowledge of the distribution, status and trends of biological diversity.	By end 2007, have a web-based publically available section of the CHM that allows rangers and other qualified users to add to mappable biodiversity information on a GIS that will allow these assessments to be made	NCS/ BioMap
4.4.4. Encourage collaborative research between scientists and indigenous and local communities in accordance with Article 8(j) in connection with the establishment and the effective management of protected areas	By end 2005, to have established a demonstration monitoring scheme in St Katherine that is a joint effort between rangers, indigenous people and scientists	NCS/ BioMap
4.4.5. Promote the dissemination of scientific information from and on protected areas including through the clearing-house mechanism.	By end 2007, have a web-based publically available CHM containing all available information on biodiversity	NCS/ BioMap
4.4.6. Promote the dissemination of, and facilitate access to, scientific and technical information, in particular publications on protected areas, with special attention to the needs of developing countries and countries with economies in transition, in particular least developed countries and small island developing States.	as 4.4.5	
4.4.7. Develop and strengthen working partnerships with appropriate organizations and institutions which undertake research studies leading to an improved understanding of biodiversity in protected areas.	By end 2007, have encouraged, supported and fostered long-term relationships between PAs and local universities to establish research programs in biodiversity	NCS/ BioMap

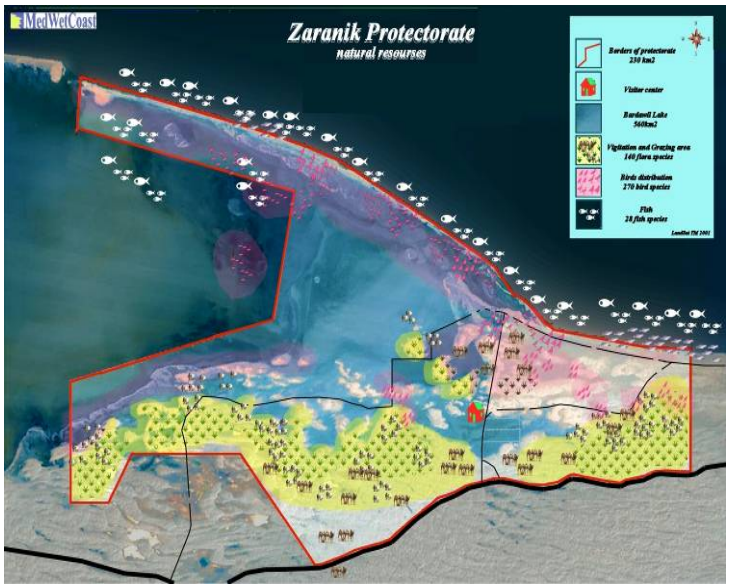
Implementation of Program of work on Protected Areas in Egypt

Considerable progress has been achieved since the work program on protected areas in Egypt was prepared. Several studies have been made regarding declaring more protected areas during 2006. These studies included the Northern Islands of the Red Sea, Qattarah Depression, and Gilf Al-Kabir. Studies have been submitted to various stakeholders, local communities, governorates and governmental organizations for discussion and approval before sending the official documents to the Prime Minister for declaration. Work is in progress on designing coastal and marine protected areas along the Western Mediterranean coast, at Matruh and Salum. Work has been initiated to establish ecological cooridors that link protected areas together, such as between Elba and Allaqi Protected Areas, and Wadi Al-Rayyan and Qarun Protected Areas.

The System Plan for Protected Areas in Egypt is being revised, taking into consideration proportional representation of habitats, performance indicators for management effectiveness, gap analysis, more involvement of local communities, invasive species, threats to PAs, well-defined policies and objectives, application of participating and precautionary approaches, socio-economic benefits of PAs, transboundary PAs, the ecosystem approach, monitoring programs, and other issues recommended by the CBD Protected Areas Work Program.

Policies have been drafted for PAs, management, local communities and private sector partnerships, research and monitoring. Training needs have been assessed, and a financial analysis of PAs has also been made. A business plan for PAs is being developed. Implementation programs for invasive species at Elba PA are on-going. Information collection on traditional knowledge is continuing, with emphasis on genetic resources, medicinal plants and other wild plants of economic importance. A national committee was established to draft legislation on traditional knowledge and intellectual property rights for local communities.

Environmental impact assessments are continuously reviewed for all projects inside and outside PAs. Restoration and rehabilitation programs are being implemented in PAs with more involvement of local communities. Training programs for local communities have been initiated on specific topics such as ecotourism, co-management, and sustainable use of biological resources.



Implementation of Programme on Protected Areas in Egypt

PART VII

OTHER RESULTS

MAINSTREAMING OF BIODIVERSITY CONSERVATION

The strategic objective of environmental policy in Egypt is to introduce and integrate environmental concerns relevant to protecting human health and to mainstream the management of natural resources into all national plans. Environmental policy will then be able to support the multilateral environmental agreements to which Egypt is signatory. The Prime Minister has recently established a national committee on Sustainable Development, with the Ministry of State for Environmental Affairs as the lead ministry and with members of line Ministries, the private sector, and NGOs. This committee will coordinate a Sustainable Development Plan and it is therefore crucial to mainstream all environmental issues into a single plan. This is being pursued through the National Environmental Action Plan (NEAP) and the National Capacities Assessment (NCSA) project. Following is a brief account of what is being achieved and of proposed future activities.

Egypt prepared its Biodiversity Strategy and Action Plan in 1998, which was sent to the Ministries of Planning and Financing to be included in the national plan for funding from the government and donor countries and organizations. In 2002, the EEAA approved a National Environmental Action Plan (NEAP), also approved by the Prime Minister. NEAP dealt with many environmental issues including water, air, soil, waste, biodiversity conservation and biosafety, protection of marine environments, desertification, global environmental problems such as climate change, economic issues such as environmental accounting, natural resources accounting and economic incentive tools, and social issues including minorities, youth, women and old people.

The NEAP has identified corrective measures to meet the challenges of biodiversity conservation. These include issues related to compliance, strengthening the institutional framework, building capacities in biodiversity conservation (e.g., research, monitoring), and preparation of legislation regarding biodiversity and biotechnology. The NEAP is being reviewed, through a project executed by the National Planning Institute and the EEAA, in terms of achievements, constraints, and suggested recommendations for more coordination and integration of all environmental activities.

To mainstream biodiversity conservation into the NEAP, it was agreed that the plan needs revision in light of three main issues: the current status and assessment of biodiversity; corrective measures to be taken, and supportive measures for action. The Nature Conservation Sector has provided the national plan with the current status of biodiversity to be integrated into the plan, in the form of: the biodiversity information system (database, networks, websites, data management, assessment); surveys conducted; habitat and ecosystem assessment; endangered and threatened species status; economic values of biodiversity; genetic resources; bioprospecting; reference collections; monitoring and research programs.

Corrective measures proposed include: (1) improving the existing protected area system; (2) use of modern technology in natural resources management; (3) enhancing economic studies of biodiversity to generate revenues and hence self financing of protected areas; (4) establishment of a natural history museum; (5) establishment of a captive breeding center; (6) promotion of a national program on biodiversity monitoring and research; (7) supporting pilot projects on sustainable uses of biodiversity; (8) institutional reform of the Nature Conservation Sector; (9) review of existing legislation.

Supportive measures requested include: (1) upgrading or amending existing legislation and creating new legislation for wildlife and biosafety; (2) implementing the NCS reforms to transform it into an independent authority; (3) facilitation of partnerships with the private sector; (4) enhancement of the implementation of regional and international agreements; (5) provision of more funding for nature conservation; (6) continuation of political support for nature conservation.

National Capacities Self Assessment (NCSA) on Environmental Priorities

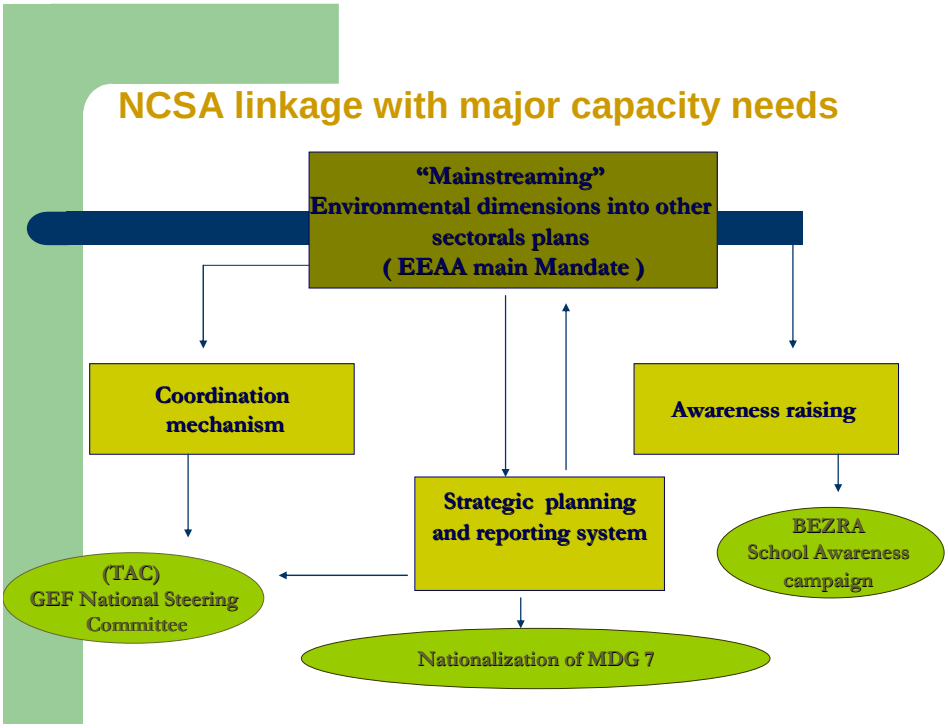
This is a new project funded by UNDP/GEF. It has the following objectives and expected outputs.

The primary objective of the National Capacity Self Assessment (NCSA) is to identify and analyze national priorities and needs for capacity development in the context of the Rio conventions and obligations (UNCCD/UNCBD/UNFCCC). The project is a planning and assessment exercise that enables countries to identify their needs and develop actions that will enhance the country's environmental performance. It is being implemented in 140 countries eligible for GEF funding. In Egypt, this project was begun in July 2005 with the aim of assessing the status of the three Rio conventions and identifying capacity restraints, with emphasis on synergy between the three conventions. The final output of the project is to develop a national capacity development action plan that will enable the country to have full capacity to fulfill its obligations to the multilateral environmental agreements. Three thematic reports have been produced and the project is in the process of setting priorities and highlighting cross cutting issues between the conventions.

Throughout project planning and implementation, the NCS has been one of the main participants, providing inputs during the inception workshop and during the development of the stock-taking and gaps identification reports. Together with the Protected Areas Management Unit (PAMU), the NCS initiated the idea of developing a concept proposal, "Mainstreaming global environment into national plans by strengthening monitoring and reporting systems for multilateral environmental agreements," for GEF funding. The concept has been approved and an amount of 500,000 USD will be available after developing the project document during 2006-07.

The NCSA/Egypt [National Capacity Self Assessment], focusing on the UNFCCC, UNCBD and UNCCD of the Rio conventions, has identified the challenges facing efforts to mainstream environmental concerns into national sectoral plans.

Addressing capacity needs of key stakeholders, and responsible national agency



At the national institutional level, the NCSA project is focusing on the lack of a coordination mechanism between the three conventions, resulting in:

Development of the CB2 concept proposal for GEF funding on Mainstreaming MEAs in National Development Plans aims at strengthening the reporting and monitoring system;

Through the NCSA project steering committee, the MEA focal points began to give presentations on their respective conventions and to exchange information, especially regarding synergies; the UNCBD focal point has given a presentation on the results of its COP8 (committee of parties signatory to the convention), with an emphasis on synergies;

Providing a more comprehensive approach to the synergies; for example, while the country prepared a land degradation program, it was proposed by the conventions that biodiversity conservation be linked with land degradation issues.

At the national level, the NCSA is assisting in overcoming coordination, reporting and monitoring restraints. Several tools have been utilized. The **GEF National Steering Committee** includes representatives from other beneficiary ministries. These representatives are expected to match their priorities in the three thematic areas with that of the Ministry of Environment in order to ensure that the country's own specific priorities are submitted for GEF funding. This process will ensure that environmental considerations are part of the plans and that continuous coordination is developed between the various stakeholders at the national level. A **Technical Working Group** has been formed from six ministries to undertake the nationalization of the MDG7. It will send to the Ministry of Planning its consensus on country specific targets and indicators and its agreement on regular reporting mechanisms based on agreed indicators. Thus, reporting on MDG7 will be based upon the country's own indicators, and environmental dimensions will be included in those ministries' reporting process.

Primary Outputs of the Project (Year One)

- Stakeholder analysis matrix during inception phase
- GEF/NCSA Facts Sheets (Arabic & English)
- Three thematic reports: Climate Change, Desertification, Biodiversity
- Draft final report on "Nationalization of MDG7, Ensuring Environmental Sustainability"
- Assisting the GEF Portfolio at the national level by hosting the work of the GEF National Steering Committee headed by Dr. M. Tolba (minutes of meetings produced)
- Awareness materials of BEZRA schools campaign conducted in 120 schools and final report on the campaign
- Concept proposal on "Mainstreaming MEAs in National Development Plans by Strengthening the Reporting and Monitoring System"

CLIMATE CHANGE AND BIODIVERSITY

The effects of climate change and habitat destruction and the interaction of these are likely to be the greatest challenges to animal and plant conservation in the 21st century. We used the world's smallest butterfly *Pseudophilotes sinaicus* as an example of how global warming and human population pressures may act together to cause species extinction. The entire global range of this butterfly was mapped and extensive data on the intensity of livestock grazing in its habitat was collected. As is true for an increasing number of species, this butterfly is confined to a network of small habitat patches and is threatened by both indirect human-induced factors such as global warming, and by direct activities of humans, in this case livestock grazing and collection of medicinal plants.

In the absence of global warming and plant collection, our model suggests that the butterfly might persist for at least 200 years. Above a threshold intensity of global warming, the chance of extinction accelerated rapidly, implying that there may be an annual average temperature specific to each endangered species above which extinction becomes very much more likely. By contrast, there was no such threshold of grazing pressure: the chance of extinction increases steadily with increased grazing. The impact of grazing, however, decreased with higher levels of year-to-year variation in habitat quality. The effect of global warming did not depend upon the future level of grazing, suggesting that the impacts of global warming and grazing are additive. If the areas of habitat patches individually fall below certain prescribed levels of condition, the butterfly is likely to become extinct. Two patches were very important for their persistence: if either were lost, the species would probably go extinct. The results of this study have implications for the conservation management of all species whose habitats are at risk because of the direct activities of humans and in the longer term, because of climate change. (Hoyle and James 2005)

FIRST NATIONAL BIOSAFETY REPORT TO CBD

The First National Biosafety Report was prepared by the Nature Conservation Sector in consultation with the inter-ministerial committee representing the Ministries of Health, Agriculture, Foreign Trade and Industry, Foreign Affairs, Higher Education and Scientific Research, the Supreme Universities Council, the Academy of Scientific Research and Technology, the Industrial Union, Chamber of Commerce, NGOs, and the Clearing House Mechanism (CHM) of the Convention on Biological Diversity for Biodiversity and Biosafety. The main elements of the report are: (1) Identification of the competent authority; (2) Preparation of national legislation (currently at the Cabinet for consideration); (3) Preparation of the clearing house mechanism for biosafety in Egypt; (4) Preparation of a proposal for funding on building capacity and implementing biosafety in Egypt; (5) Status of biosafety implementation in Egypt; (6) need for risk assessment and risk management; (7) public awareness program on biosafety; (8) socio- economic considerations.

The report is available on the CBD website.

THIRD NATIONAL REPORT ON BIODIVERSITY

The Third National Report on Biodiversity was prepared in September 2005 based on those reports received monthly by the NCS, reports of NCS projects funded by donor countries (e.g. USA, Italy) and international agencies, organizations and conventions (e.g., GEF projects on wetlands and medicinal plants, CBD, CITES, RAMSAR, PERGSA, MAP), and reports received from various departments of the EEAA, and reports from other governmental agencies (e.g., police, tourism, agriculture, etc.), and from the private sector and NGOs.

These reports were submitted to the national committee established for the purpose and it was agreed that more information was needed. It was decided to hire consultants to prepare reports on specific issues, such as intellectual property rights, local communities, endangered species, etc. Funds from the GEF-UNDP were obtained and the national committee met to compile reports received, make analyses and prepare a summary report based on criteria furnished by the CBD secretariat. This was followed by a consultation process involving many stakeholders, NGOs, governmental representatives, project managers and others.

The Third National Report deals with priorities, challenges and constraints in implementation of biodiversity conservation, the 2010 target, global strategy on plant conservation, the ecosystem approach, convention articles (e.g., measures for conservation and sustainable use, in-situ and ex-situ conservation, monitoring, invasive species, traditional knowledge, incentives, research and training, public awareness, EIAs, technology transfer), thematic and cross-cutting issues, and COP decisions. This report is available on the CBD website.

BIRD FLU

Egypt is located on major migratory routes of soaring birds (birds of prey, storks, cranes, pelicans) between Eurasia and Africa. It is also an important area for wintering and migratory waterbirds. In addition, millions of small birds (passerines) fly over Egypt in a broad front covering the entire country in wave after wave during the migratory seasons.

Measures taken by MSEA against Bird Flu

The Nature Conservation Sector of the MSEA has been involved in bird flu surveillance since 2003 in cooperation with NAMRU-3 (US Navy and Army Medical Research Unit) in Cairo. With the outbreak of bird flu in the Far East, a team of experts met in Egypt to initiate a survey, making use of resources available at the Wildlife Clinic in Sharm el Sheikh. The survey collected and analyzed more than 12,000 specimens in 2003-05, and would have ceased when news came of bird flu in Turkey in the autumn of 2005.

The President of Egypt called a meeting of the Ministers of Health, Agriculture and Environment and a National Committee was established, led by the Ministry of Health with members from the Ministries of Agriculture, Environment, Interior, Defense, Aviation, NAMRU-3, and others. The main task of the Committee was to prepare and implement a national plan to deal with bird flu and to report directly to the Prime Minister on a weekly basis. The Ministry of State for Environmental Affairs issued a decree (168, 13 October 2005) banning wild bird hunting. Police and Protected Area Rangers were responsible for implementing the decree in 24 sites in Egypt. Many violators were stopped from hunting, and all hunting equipment confiscated.

An intensive surveillance program was implemented to observe the behavior of some half million migratory birds at ten major sites (Manzalah, Burullus and Zaranik lakes along the Mediterranean coast, Lake Qarun, Wadi Allaqi, Siwa and Sharm el Sheikh. No abnormal behavior was observed, and of more than 3000 samples collected and analyzed at NAMRU-3, no positive results for H5N1 were found.

Television and radio programs provided the public with information, and these and newspaper and other articles were analyzed regularly for content and to obtain feedback from the public. Brochures were distributed to schools, companies, universities, research centers, and the private sector. The NCS provided information on migratory birds and their possible role in transmitting bird flu. The Ministries of Health and Agriculture carried out similar publicity campaigns regarding the role of poultry, and media assessments were made regularly. Emergency stations were established at the Ministries of Health, Environment and Agriculture to receive calls from the public and provide information, as well as to receive any information concerning sick birds or humans.

The NCS designated sites in important bird areas where, in case of infection, birds could be directed away from human and poultry concentrations. A task force was established to coordinate activities related to bird monitoring, collection of bird samples for analysis, to established enclosed areas, and to prevent bird hunting. Reports were made daily to the Minister of Environment, and weekly to the National Committee for transmittal to the Prime Minister. An intensive training program was prepared and implemented jointly by the NCS and Ministry of Health in Cairo, Luxor and other sites. Protected Area Rangers were equipped with protective suits, masks, disinfectant materials, and other items needed to cope in case of bird infection in the Protected Areas. Simulation programs were implemented in Lake Manzalah. A risk map for likely sites of outbreak were prepared, priority being given to the northern lakes.

Reports from Egyptian embassies were transmitted from the Foreign Office and assessed, and information published on H5N1 on the internet was collected and disseminated regularly to concerned agencies and individuals. Senior staff of the Ministries of Health, Environment and Agriculture attended many regional and international meetings, as Egypt was considered by international agencies (WHO, FAO, OIE) as a country at risk.

The first case of bird flu in Egypt was announced to the public on the 16th of February 2006. The Cabinet met the same day to review the situation and to move from the preparation phase to the crisis phase. The rate of bird flu infection was high and by mid-March most of the Nile Delta and Nile river governorates were affected both at chicken farms owned by individuals in villages and even at houses in cities. The governorates of North and South Sinia, the Red Sea, and Matruh, were unaffected.

Thousands of people from local governorate authorities, the army, police, governmental and non-governmental agencies and agencies were involved in the control of H5N1. Local committees were established in each governorate, chaired by the governor, with members of environment, veterinary, health and local government authorities, to coordinate activities at infected sites, and to report to the national committee in Cairo.

By mid-May 2006, more than 20 million infected birds had been collected and either buried in special landfills prepared and supervised by the EEAA, or burned on site. Six people died, of several hundred infected. An intensive surveillance program was prepared and implemented throughout Egypt to ensure that no more chicken or human infections occurred. An assessment committee was established to determine how H5N1 reached Egypt, and to prepare for any further outbreak. A case study on lessons learned was prepared and presented at regional and international meetings and conferences.

PART VII

PROPOSED FUNDED PROJECTS

1. Strengthening the national system of Protected Areas in Egypt
2. Environment, innovation and competitiveness: winning strategies for sustainable development of the Mediterranean area
3. Monitoring Egyptian Red Sea coral reefs for sustainable use
4. Rehabilitation and management of coral reefs in the Hurghada area, Egyptian Red Sea coast
5. Preliminary concept for a GEF funded biodiversity conservation intervention in the Elba-Wadi Allaqi Protected Areas, Egypt
6. Mainstreaming multi-environmental agreements (MEAs) in national development plans in Egypt
7. Design, testing, and evaluation of strategies and methods for in-situ conservation of economically important wild plant species
8. Conservation of soaring birds in Egypt
9. Implementation of the Global Taxonomy Initiative in Egypt
10. Implementation of the National Invasive Species Program

Strategy for Mobilizing Resources for Biodiversity Conservation in Egypt

Considerable progress has been made in biodiversity conservation in Egypt. However, to meet requirements for achieving 2010 targets, considerable financial resources are needed. It is suggested that efforts be made by decision makers in Egypt to reform the NCS into an Authority to be self-financing within the next five years.

Studies have already been made and a request was sent to the Egyptian Cabinet for consideration. During the next five years, the proposed Authority would continue receiving governmental funding. In addition, efforts will be made to enhance the environmental fund of the EEAA. The environmental fund has received more than 130 million US $ from Protected Areas (entrance fees, concessions, law violations). It is also suggested that more investment projects be implemented with the Protected Areas, particularly for ecotourism and medicinal plants, to generate revenue and provide job opportunities for local communities.

Partnership with NGOs, the private sector and other stakeholders will be enhanced based on experiences developed in St. Katharine Protected Area. Finally, efforts will continue to be made to receive funding from bilateral and international agencies (e.g., UNEP.GEF, UNDP/GEF, EU, Italian Cooperation, USAID).

PROPOSED PROJECTS

1. Strengthening the National System of Protected Areas in Egypt

Organizational, institutional and financial barriers have inhibited the determination of cost-effective protected area management and system financing targets. There has been no financial or business plan prepared at the system level. National policy and legal frameworks function to constrain rather than promote protected area financing. A variety of laws, regulations, and procedural requirements prevent the revenues of protected areas being retained, managed, and used locally.

Individual, donor-funded, site-specific protected area projects provide valuable models for developing protected areas, but independent development on a project-level basis also results in policies and procedures that are too narrowly defined and site specific.

Specific threats to habitats and species are present in all protected areas, constituting barriers to sustainability of the national protected area system at the site level and thus the long-term national environmental, social, and economic benefits that would accrue from an effectively established and managed national protected area system.

The project goal is to achieve a comprehensive, ecologically representative and effectively managed national protected area system in Egypt, in line with commitments to the Convention on Biological Diversity (CBD). This proposal offers the opportunity to advance national objectives while achieving significant global biodiversity benefits.

The project will result in:

1) Maintaining the value of protected areas as premium tourist destinations;

2) Funding the protected area estate primarily from entrance and user fees, largely paid by foreign visitors, thus reducing the burden on the Egyptian taxpayer;

3) Creating significant investment and employment opportunities in and around the protected areas.

2. Environment, Innovation and Competitiveness: Winning Strategies for Sustainable Development of the Mediterranean Area

a. Support for the White Desert Protected Area

The White Desert Protected Area with its stunning landscapes is rapidly becoming a prime tourism destination in the Western Desert. There is a pressing need to develop and implement an integrated management plan for the site that addresses visitor-use issues and involvement of local communities. In remote areas such as the White Desert the basis of effective management prescriptions lies with an empowered local community, where the community has a major stake in the site's conservation. The NCS is developing policies to accommodate local communities in the management of protected areas. There is a dynamic NGO (Farafra Development Association) based in Farafra with influential local stakeholders, and a strong local government interest in the protectorate at the governorate and municipal levels. The management planning process for the White Desert should therefore be an inclusive process involving local stakeholders in the identification, design and implementation of management needs and interventions.

A project supporting the management of the White Desert Protected Area would accord closely with the scope of the Mediterranean Initiative, in:

- Promoting the conservation of natural and cultural heritage;
- Securing and consolidating management of the White Desert PA;
- Being locally focused at the governorate and municipal levels;
- Involving and benefiting local people by creating jobs and income opportunities;
- Helping diversify and develop sustainable nature-based tourism activities.

b. Support for Qarun Protected Area

Italian Cooperation for Development is currently supporting the development of Wadi el Rayan Protected Area, which also benefits from a twinning arrangement with Gran Sasso National Park, Italy. The adjacent Qarun Protected Area, administratively linked to the WRPA, however, has received no donor support and suffers from inadequate management. Qarun Protected Area contains highly significant archaeological and natural heritage assets, including fossil deposits of global significance which may be as important as the fossil deposits in Wadi Al-Hitan (part of WRPA), recently designated a World Heritage Site.

It is proposed that the two Protected Areas be physically and functionally linked, diversifying and extending opportunities for sustainable tourism activities in the broader Fayoum area and facilitating an integrated approach to land use planning and development.

The Mediterranean Initiative would be an appropriate framework, as the project would:

- Have a provincial and local focus so that various levels of support would be chosen as appropriate;
- Extend opportunities for a regional approach to sustainable development, including water management and organic farming issues;
- Address natural and cultural heritage conservation as well as ecotourism and rural employment issues;
- Build upon existing Italian experience in the area.

c. Organic farming, packaging and marketing with the protected area network, a model project in the Fayoum area

Many of the protected areas in Egypt have substantial populations who are in some cases involved in traditional or commercial cultivation. The produce from these individual farms is usually substandard and sold at low prices. The NCS is promoting organic farming of valuable and untraditional crops (e.g., medicinal plants) as a means of increasing benefits to local people within protected areas.

Water pollution issues are significant in the Qarun area, where communities adjacent to the lake have inadequate sewage disposal systems which, with untreated agricultural runoffs, is causing pollution in the protected area.

The Italian supported project actively encourages organic farming systems and traditional products in its various regions, such as the Grand Sasso park. Work in Fayoum Governorate promoting organic agricultural production should be extended in the Qarun area through a joint project between the EEAA (NCS) and the Ministries of Agriculture and Water Resources and Irrigation.

d. Support for marketing and sustainable financing strategies

Currently, an institutional reform initiative is underway within the EEAA aimed at transforming the Nature Conservation Sector into an autonomous, decentralized body, the Nature Conservation Authority. Critical elements for the successful transformation of the NCS will be support for:

- Development of marketing strategies and action plans for promoting Egypt's protected areas, nationally and internationally, and leveraging additional funding for nature conservation in Egypt;
- "Branding" and projection of appropriate images and profiles of the new Authority.

Italian parks, individually and collectively, have strong brand images and are very professionally marketed. We believe that Egypt could benefit from this Italian experience and expertise.

e. Support for invasive species control

Invasive species pose an increasing threat to Egypt's natural and agricultural biodiversity. At present Egypt has limited capacity to respond strategically and practically in controlling the impact of invasive species. The current concern over the transmission of avian flu (though not an invasive species in the strict sense) into Egypt is highly topical, but represents the tip of the iceberg in terms of the numbers and threats from invasive species in the country.

f. Support for ecotourism initiatives within the protected areas network

Protected areas encompass the most important natural resource base for ecotourism in Egypt. However, efforts to capitalize on this resource have been sporadic, unorganized, not well informed, and have not made significant contributions to local or national economies. While "ecotourism" has become a fashionable term used in the development realm, its practical implementations have been of variable quality. There is great need and scope for introducing new and innovative ideas to harness the potential of protected areas in Egypt, and ecotourism can be both attraction and safeguard.

g. Integration of biodiversity information via a Mediterranean Biodiversity Network

Europe has invested heavily in making biodiversity information available to all who need to use it, as is evidenced by the quality of the EU's Clearing House Mechanism and the EU Nature Information System. Egypt has followed with its National Biodiversity Unit and the BioMap project. This project needs to be developed so that all available information on species, habitats and sites important to biodiversity conservation is available to users in the same format as that used by the EU. We have an inventory of Egypt's Important Bird Areas, and the same must be done for plants, mammals and other groups. This work should be integrated with similar work by all Mediterranean partners of the European Neighborhood and in Pre-accession Policies, integrating biodiversity related information and thereby enabling and enhancing cross-border cooperation. The objectives are therefore, to:

- Complete data for every important area for biodiversity in Egypt, according to a standard format;
- Formulate a habitat classification for Egypt to extend and integrate with the EUNIS habitat classification and produce a GIS layer of these habitats for Egypt;
- Use the database of records from the BioMap project to enable users to access information on distribution, occupancy of important areas, and habitats of any chosen species;
- Work with other Mediterranean countries to replicate methodology so as to enhance cooperation and partnerships, creating a Mediterranean Biodiversity Network.

h. Sustainable conservation funding

Egypt's 24 Protected Areas include World Heritage Sites and a Global BioSphere Reserve, but areas without such sites also contain natural and cultural resources of

international importance. Funding their management sustainably is an ongoing challenge. Consideration has been given recently to establishing endowed funds to support environmental work in Egypt for the long term.

Sustainable funding is needed at three levels to support management and appropriate development of the protected areas and to avoid the damages caused by sudden loss of resources and benefits when short-term projects end:

- Operational costs of the protected areas for maintenance and management;
- National funding for community development initiatives in protected areas, increasing potential for self-sustainability;
- Local funding for community development initiatives in areas with potential to help themselves.

Community foundations benefit people in a specific geographical area by creating an endowment fund from pooled donations of individuals and companies. Grants are usually made to NGOs and only the fund's income is spent. International cooperation in this field is a very recent development, with examples being eagerly studied in numerous countries.

By supporting the establishment of this successful model of sustainability in a country where it is so far unknown, the Initiative for a Mediterranean Partnership would not only generate benefits for people and the environment in Egypt's protected areas, but would provide leadership in this fast-growing field.

3. Monitoring Egyptian Red Sea Coral Reefs for Sustainable Use

Reef-based coastal tourism to the Red Sea (snorkeling, diving) has expanded exponentially to the point where it now makes a major contribution to the national economy. It is mandatory that Egypt protect its coral reef resources and manage them sustainably. The Egyptian Government, with the support of the EU, has invested heavily in effective management of these areas along the Gulf of Aqaba coast and much of the Red Sea coast of the Egyptian mainland. Impacts of tourist development have been minimized through prohibition of infilling and sewage discharge and reef fisheries exploitation has been optimized in areas where permitted through establishment of a series of no-take zones. Despite these efforts, there is uncertainty over the effects of increasing human impacts and particular concern as to the true carrying capacity of reef environments in relation to visitor use and tourism development in general.

It is essential that an efficient and cost-effective system of environmental monitoring be put in place. It was always envisaged under EU support to the EEAA that a long-term monitoring scheme in the South Sinai protectorates would be established. A pilot project to establish 12 coral reef monitoring stations was funded in 1996-97, but for various administrative reasons this program was not sustained. In the Gulf of Aqaba Monitoring Program, 8 stations were monitored in 2001 and 2002 using video-transects at different depths, but because of the nominal amount of funding made available at that time and up to the present, the work was also halted. A coral monitoring program was implemented along the Red Sea coast from Hurghada to Wadi Gemal, in 2001-04.

In view of the mounting local and global threats to the integrity of coral reef systems, it is now urgent that an effective reef monitoring program for rapid assessment be established on a permanent basis.

The overall aim of a progressive, long-term monitoring program is to provide reliable assessment of the conditions of Egypt's coral reefs on a yearly basis, serving as benchmarks against which reefs subject to local and global natural and human impacts may be assessed.

The operational objectives of the long term monitoring program are:

- In 2007, to monitor changes of coral and fish communities since the last surveys in 2002 at 9 permanent stations and install and monitor 6 other permanent monitoring stations in the Gulf of Aqaba;
- From 2008 to 2010, to establish a network of 57 permanent stations from Taba to Shalateen (Gulfs of Aqaba and Suez) in collaboration with other projects and programs.

4. Rehabilitation and Management of Coral Reefs in the Hurghada Area of the Egyptian Red Sea Coast

Studies and projects have shown that exceeding the carrying capacity of reefs and lack of cooperation between stakeholders are major causes of coral reef degradation. This project aims to introduce the artificial reef concept, in which artificial reefs are used in educational programs to accommodate trainee divers. It will also apply internationally approved methods in restoring damaged reefs, as a demonstration of the possibilities of employing the diving community under scientific supervision of an NGO and university marine biology experts. The project will also serve management efforts in drafting a national strategy for conservation of coral reefs in Egypt.

The project includes two major goals:

- Restoration of some corals lost in the Hurghada area due to diving operations, with the assistance of university experts in cooperation with the diving community through an NGO representing the major diving operators in the area;
- Establishment of an operational coral reef management system for Red Sea coastal areas generated and supported by the diving community as the major beneficiary, linked with the National Biodiversity Strategy and regional programs for biodiversity in the area.

The Hurghada area has two major stakeholder groups: governmental organizations (Red Sea Governorate, local councils, Protectorate Division of the EEAA) who are the owners and managers of the land sea in the area, with whom there is already a high degree of cooperation. The other group is represented by non-governmental organizations of which there are only two in the Hurghada area, one of which is an active participant in similar projects carried on to date.

The Red Sea Diving and Water Sports Association represents most of the community working in activities related to coral reefs. Financial support for the project has been verbally agreed to by all parties. Participation of the diving community in rehabilitation will increase awareness within the community for the type and amount of effort required for the process, encouraging the EEAA to enforce laws for protection of coral reefs with the help and support of these communities.

5. Preliminary Concept for a GEF Funded Biodiversity Conservation Intervention in the Elba and Wadi Allaqi Protected Areas

Elba and Wadi Allaqi Protected Areas have a combined surface area of about 65,300km2, representing one of the largest conservation areas in the world. The region is rich in biodiversity both at the species and habitat levels. The habitats within this huge area are largely intact, with little human habitation, and include maritime islands, coral reefs, mangrove swamps, sand dunes, mountains, mist oases, fresh water habitats and extremely arid territories. Species diversity is considerable and includes many globally threatened species and several endemic or localized species, making the region of high global importance. Elba has long been recognized as Egypt's top biodiversity hotspot. Six Important Bird Areas are found in the region and Allaqi Protected Area includes a biosphere reserve.

The indigenous populations are composed of two principal tribes who still have very strong links with nature and biodiversity. Their presence provides a unique opportunity for sustainable conservation of the region's resources, and they will benefit the most from improved management of their environment.

This project would address five of the primary goals of the CBD's program of work on protected areas, particularly those concerned with establishing protected areas in extensive undisturbed habitats and transboundary areas. The region also provides a unique opportunity for the development of ecotourism, which would transform the socioeconomic future of the entire region.

6. Mainstreaming Multilateral Environment Agreements in National Development Plans in Egypt

Multilateral Environmental Agreements (MEAs) are the basis for achieving sustainable development. A long term vision for fulfilling MEA commitments should be made clear at the national level. The three thematic areas of biodiversity, climate change and desertification embodied in the Rio conventions are considered critical in achieving national sustainable development.

Although Egypt has the legal framework required to fulfill its commitments to achieving sustainable development, the current administrative system of the EEAA does not allow monitoring nor regular fulfillment of commitments under the conventions. Apart from coordination overload, weak monitoring and reporting systems are the two main constraints in fulfilling commitments to the MEAs. The EEAA lacks the technical and administrative capacity to monitor and report effectively on the achievement of convention goals or to link national policy issues to the objectives of these global conventions.

The National Capacity Self Assessment program has shown the importance of MEAs as a tool to mainstream environmental dimensions within other sectoral plans. The main challenges are the state's capacity to manage funds and improve their use, its capacity to coordinate with other national stakeholders in meeting obligations, and in developing a long term vision that links these commitments to national priorities and projects.

After signing some 66 separate MEAs, the country is in the process of developing a national strategy for sustainable development and a national indicator program that will take into consideration these global environmental commitments. It is proposed that establishment of a long term vision for each of the MEAs should be a prerequisite not only to relate implications of the MEAs' full implementation to the formulation of national policies, but also to ensure that associated financial resources have maximum leverage.

7. Design, Testing and Evaluation of Strategies and Methods for In-situ Conservation of Economically Important Wild Plant Species

The objective of this project is to ensure that in-situ conservation and sustainable use of economically important wild plant species (EIWPS) are advanced by national strategies, to provide practical demonstrations of conservation and sustainable use, enhance technical capacities in the field, increase stakeholder and public awareness, and improve availability of relevant information.

The practical implementation of in-situ conservation measures for EIWPS in the four project countries (Egypt, Lebanon, Morocco, Turkey) is currently very limited. This increases the risk that species will be lost through over-exploitation and habitat loss.

Project activities involve development of national strategies for in-situ conservation and sustainable use of EIWPS, the design and testing of practical methodologies, practical demonstration of in-situ conservation, establishment of long-term conservation monitoring systems, improving national capacities for in-situ conservation of economically important wild plant species, increasing stakeholder and public awareness, understanding the value of and threats to EIWS, improving availability of relevant information, and the establishment of websites and other networks for dissemination of information.

8. Conservation of Soaring Birds in Egypt

The Red Sea flyway is the second most important flyway for migratory soaring birds in the world and the most important route of the Africa-Eurasia flyway system. Over 1.2 million birds of prey and 300,000 storks migrate along this corridor between their breeding grounds in Europe and West Asia and wintering areas in Africa each year. In total, 39 species of soaring birds, six of which are globally threatened, regularly use the flyway. Fifty to one hundred percent of some species' global or regional populations pass along routes and "bottlenecks" or concentration points over Egyptian territory in the space of a few weeks during approximately three autumn and three spring months, where the desert and arid environments of Egypt present these birds their maximum physiological challenges.

The removal, or serious decline in numbers, of these birds, by allowing threats to their populations to continue, would upset the balance of prey populations and disrupt the assemblage of species in critical ecosystems in Europe, West Asia and Africa. The difficulty in predicting exactly where migratory soaring birds will fly, which is dictated by daily local weather conditions, makes it unfeasible to improve the safety of the flyway simply through the protection of key sites. The project therefore aims to mainstream *consideration* of migratory soaring birds into all national sector activities located along the flyway that pose risks to their safe migration.

The overall project goal is to ensure that globally threatened and significant populations of soaring birds migrating along the Rift Valley and Red Sea flyways are effectively maintained. The immediate objective is that conservation management objectives and actions for migratory soaring birds are integrated effectively in the hunting, energy, agriculture, waste management and tourism sectors along the flyways, making these routes safer for soaring birds.

9. Biodiversity Resource Assessment of Mediterranean Coastal Water of Egypt: Development of a Mediterranean Biodiversity Database and Integrated Biodiversity Management

Marine habitats along the Egyptian Mediterranean coast are subjected to increasing human stress of various types and to various degrees:

- Nine major drains discharge large volumes of domestic, agricultural and industrial waste water to the Nile delta coastal zone. Coastal engineering and the proliferation of tourist infrastructures have caused degradation of the marine and coastal environment along a large segment of the coast from Alexandria to the Libyan border. Trawl fishing over seagrass meadows, combined with pollution, have led to the destruction of this type of habitat over vast areas.

- Knowledge of marine habitats and their biodiversity in Egyptian waters is geographically very unequal.

- No data base and no reference collections exist.

- A program for a systematic survey of biodiversity resources and a descriptive inventory of the habitats is a priority.

- A prerequisite for the implementation of this program will be capacity building in cooperation with the Mediterranean Taxonomic Initiative (MTI) and the programs of RAC/SPA for the protection of marine turtles, marine animals and marine vegetation.

The general objective of this project is to achieve conservation and protection of marine biodiversity resources in Egyptian Mediterranean waters as part of a sustainable and integrated coastal zone management plan. Actions include:

- Field survey of coastal and marine habitats of Egyptian Mediterranean waters, using remote sensing as appropriate;

- Taxonomic inventory of flora and fauna together with data on status, distribution and vulnerability;

- Establishment of a reference collection and data base of major taxa;

- Program for capacity building in taxonomy and marine ecology developed in cooperation with MTI;

- Pressure on decision makers at all levels for law enforcement regarding protection of marine environments.

10. Egyptian National Invasive Species Program

Invasive species represent the second leading cause of species extinction and loss of biodiversity in aquatic environments worldwide. They also result in considerable economic effects through direct losses and management and control costs, while dramatically altering ecosystems supporting commercial and recreational activities. Invasive species are one of the most critical problems facing natural communities. Nearly half of the species currently on the Endangered Species List are threatened by invasive species.

Egypt's total flora of some 2100 species is about 5 percent invasive plant species introduced either intentionally or accidentally. During the past 200 years, plant invasions have occurred at a rate of one species every two years, but the rate seems to be accelerating. Generally, plant invasions in Egypt are less frequent in arid habitats that are subject to periodic drought cycles.

The water hyacinth *Eichhornia crassipe* is the most serious floating aquatic weed problem in the world and in Egypt causes acute problems through blockage of waterways where irrigation and drainage are of economic importance, hindrance of water transportation and fishing activities, and general environmental disturbance. Outstanding examples of invasive fauna include the crayfish *Procambarus clarkii*, the snail *Bulinus truncates* which is the intermediate host for *Schistosoma haematobium*, and the Mediterranean Fruit Fly *Ceratitis capitata* which is a serious pest to many crops. The Red Palm Weevil *Rhynchophorus ferrugineu* poses a serious threat to the palm tree and date industry in Egypt, one of the largest in the world.

The action plan for this program includes:

- Early intervention and rapid response;
- Containment, control and restoration;
- Reaching important audiences through education and training;
- Broadening knowledge through research and technology transfer;
- Assuring adequate funding;
- Creating an adequate and effective legal structure;
- Coordinating invasive species control efforts.

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