

Islamic Republic of Iran

Fourth National Report to the Convention on Biological Diversity

Prepared by:
Department of Environment



FINAL

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Process of preparation, drafting team composition and contributors are listed in appendix 1 of this report.

Table of Contents

Acknowledgement.....	2
Abbreviations	7
Executive Summary	9
Chapter I - Overview of Status, Trends of and Threats to Biodiversity in Iran.....	16
1.1 Current Status of National Biodiversity	16
1.1.1 Country Context.....	16
1.1.2. Iran's Biodiversity Components	18
1.2 Overview of Status and Trends of National Biodiversity	42
1.3 Analysis of Main Threats to National Biodiversity and their Implications	47
1.3.1 Over Exploitation of Water Resources and Unsustainable Development of Agricultural.....	47
1.3.2 Unsustainable land-use conversions	49
1.3.3 Over-grazing	49
1.3.4 Hunting and Trapping	50
1.3.5 Extended Use of Fertilizers and Pesticides	51
1.3.6 Natural Drought.....	52
1.3.7 Deforestation and Land Degradation	52
1.3.8 Climate Change	53
1.3.9 Desertification	55
Chapter II - Current Status of National Biodiversity Strategies and Action Plans	57
2.1 National Biodiversity Strategies and Action Plan Project (NBSAP)	57
2.2 Current Status of National Biodiversity Strategy Implementation	59
2.3 Biodiversity Projects Supported by GEF	63
2.4 Lessons learned in achieving successes and overcoming obstacles	68
Chapter III - Mainstreaming and Integration of Biodiversity Consideration into Relevant Sectors and Cross-Sectoral Strategies, Policies, Plans and Programmes	71
3.1 National Biodiversity Legislation and Framework.....	71
3.2 Integrating Biodiversity into Relevant Sectors.....	74
3.3 Biodiversity Related Conventions and Agreements	76
Chapter IV -Conclusions: Progress Towards the 2010 Target and Implementation of the Strategic Plan.....	86
4.1 Progress Towards the 2010 Targets	86
4.2 Progress Toward the Goals and Objectives of the Strategic Plans of the Convention	97
4.3 Conclusions	103
Sources of Information	105
Appendices	109
Appendix 1- Information Concerning Party and Process of Report Preparation	109
Reporting Party	109
Process of Preparation	110
Appendix 2- GEF Portfolio in Iran.....	112
Appendix 3- Iran's species listed as being at threat by the global IUCN Red List (1996- 2009)	114

Appendix 4- Implementation of the Program of Work on Protected Areas 120
Appendix 5- Global Strategy for Plant Conservation..... 143

List of Figures

Figure 1: General map of Iran	16
Figure 2: Country's land use area	17
Figure 3: Distribution of ecological zones of Iran	22
Figure 4: Types and Location of Protected areas of Iran (Different colors show different types of protected areas)	25
Figure 5: Classification of Forests of Iran	27

List of Tables

Table 1. Area of Iran's biomes and their status	22
Table 2. Types and the Number of Protected Areas of Iran as of 2010	24
Table 3. Livestock Population in Iran	50
Table 4. Framework of Iran's Action Plan for implementation of national biodiversity strategies.....	58
Table 5. Number of accessions (all crops and percentage of Annex1 crops) in national plant gene-banks of the Near East countries (Global Crop Diversity Trust, 2006).....	89
Table 6. Field crop genetic resources accessions of Iran (National Plant Gene Bank of Iran, 2009).....	89
Table 7. Fruit tree genetic resources accessions of Iran (National Plant Gene Bank of Iran, 2009).....	90
Table 8. National contribution of Iran to the CBD strategic goals and objectives ..	97

Abbreviations

AU	Animal Units
BCH	Biosafety Clearing House
CBD	Convention on Biological Diversity
CEP	Caspian Environment Programme
CFC	Chlorofluorocarbon
CHHTO	Cultural Heritage, Handicrafts and Tourism Organization
CHM	Clearing House Mechanism
CITES	Convention on the International Trade in Endangered Species
CIWP	Conservation of Iranian Wetlands Project
CGIAR	Consultative Group on International Agricultural Research
CGRFA	Commission on Genetic Resources for Food and Agriculture
CMS	Convention on Migratory Species
CoE	College of Environment
CSP	Carbon Sequestration Project
CWANA	Central and West Asia, and North Africa
DoE	Department of Environment
ECO	Economic Cooperation Organization
ECO-IENT	ECO Institute of Environmental Science and Technologies
EIA	Environmental Impact Assessment
EPEA	Environmental Protection and Enhancement Act
ESDR	Environment and Sustainable Development Research Center
FAO	Food and Agriculture Organization of the United Nations
FRWO	Forest, Rangeland and Watershed Management Organization
GCDT	Global Crop Diversity Trust
GDP	Grass Domestic Product
GEF	Global Environmental Facility
GIS	Geographic Information Systems
GMO	Genetically Modified Organism
GPA	Global Plan of Action
GTI	Global Taxonomy Initiative
ICF	International Crane Foundation
IPPC	International Plant Protection Convention
IT	Information and Technology
TPB	Third Party Beneficiary
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for Conservation of Nature
LFCCs	Low Forest Cover Countries
LMO	Living Modified Organisms
MAB	Man and Biosphere Reserves
MEA	Multilateral Environmental Agreement
MIM	Ministry of Industries and Mines
MAJ	Ministry of Jihad-e- Agriculture
MoE	Ministry of Energy
MoU	Memorandum of Understanding
NBSAP	National Biodiversity Strategy and Action Plan
NCSA	National Capacity Self Assessment

NCSD	National Committee for Sustainable Development
NDP	National Development Plan
NEPA	National Environmental Plan of Action
NEWG	National Expert Working Group
NGO	Non-Governmental Organization
NRGB	Natural Resources Gene Bank
NSESD	National Strategy for the Environment and Sustainable Development
OPS	Overall Performance Study
POPs	Persistent Organic Pollutants
Ramsar	Ramsar Convention on Wetlands
RCF	Regional Conservation Forum
RIFR	Research Institute of Forests and Rangelands
ROPME	Regional Organization for the Protection of the Marine Environment
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SGP	Small Grants Programme
SMTA	Standard Material Transfer Agreement
TDN	Total Digestible Nutrients
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
WESCAN	IUCN West & Central Asia and North Africa Regional Office
WHC	World Heritage Convention

Executive Summary

Overview of Status, Trends of and Threats to Biodiversity

The Islamic Republic of Iran covers 164.8 million hectares situated where three climatic zones meet – the Mediterranean, the arid West Asian and the temperate humid/semi-humid Caspian zone. The country is both a meeting point for many cultures as well as for many types of climate, land, water and biodiversity. Of the total land area, about 52.4% are rangelands; 8.6% are forests and 19.5% are deserts including bare salty lands. Being dominantly in an arid environmental zone, approximately 85% of Iran's agricultural lands are located in arid and semi-arid areas. Iran's location and geographic features thus cause the country to receive an annual rainfall of 240 mm, less than a third of world average precipitation. As a result, most rivers are seasonal and their flows depend heavily upon the amount of rainfall.

The country features three main climatic zones including Arid and semi-arid regions of the interior and far south, Mediterranean climate (mainly in the western Zagros mountains, the high plateau of Azerbaijan, and the Alborz mountains) and Humid and semi-humid regions (mainly in the Caspian, but also in west Azerbaijan and the southwest Zagros). In addition Iran's plateau with a vast desert located in the central areas, and two mountain ranges, Zagros in the West and Alborz in the north, comprise a significant portion of its territory. Iran's topography has given rise to four floristic zones, namely: Irano- Touranian arid and semi arid deserts and Irano-Touranian arid and semi-arid mountains, Zagrosian, Hyrcanian, and Khalij-o-Omanian. Most of Iran's forest covers are located in Hyrcanian, Arasbaranian and Zagrosian zones.

The complex and varied climates, topography, geological formations and anthropological management of natural resources have led to a varied and unique biological diversity. In the Iranian ecosystems over 8,000 species of plants, 140 species of mammals, 293 species of birds, 219 species of reptiles, 112 species of fishes and 23 species of amphibians, have been recorded. This includes a large number of wild relatives of commercial species – both plants and animals, confirming Iran's status as a centre of genetic biodiversity. Because of its large size and varied ecosystems, Iran is one of the most important countries in the Middle East and Western Asia for conservation of biological diversity. Habitat diversity in Iran allows for a wide range of animals to inhabit in Iran.

With regards to ecosystem diversity of marine and coastal zones in the North and South of the country, it consists of 25 ecological types and units, in which the most important are coral reefs, bays and small islands.

Although much of Iran is extremely dry, the wetlands of Iran are globally significant; large populations of migratory birds winter at these wetlands or use them on their way

to and from wintering areas in Africa or the Indian sub-continent. The country possesses a great diversity of wetland ecosystems, most of which can be grouped into six major systems. Also except for the interior deserts and the lowlands along the Caspian Sea, Persian Gulf and Gulf of Oman, half of Iran is composed of high mountains.

In order to conserve existing biodiversity of the country, representative samples of the nature of land have been selected and are being conserved under different categories such as Protected Areas, National Parks, Wildlife Refuges and National Natural Monuments.

Having this rich and great diversity in the country, several factors such as population growth, unsustainable and low performance utilization of basic resources and destructive human activities especially in rural settlements is threatening the biodiversity of the country. Extensive logging and clearing of forests for agriculture have nearly eliminated the forests ecoregions. The invasion of non-native plant species has also posed a serious threat to native plant communities. Overgrazing and shrub collection for fuel is markedly reducing plant biomass and altering plant communities. Diversion of water and increasingly frequent drought is drying wetlands and rivers with unknown effects on aquatic biodiversity. Hunting and trapping of waterbirds in wetlands of Iran and important bird areas is leading to the loss of population and some important endangered bird species.

It is very difficult to assess biodiversity trends in Iran since the national biodiversity indicators are not fully developed. However, what is obvious from reports, data and statistics in general biodiversity of Iran in different ecosystems and at different levels is degrading. Although the Iranian government has taken various measures to combat degradation and rehabilitate degraded natural resources but different factors such as prolonged and frequent drought cycles and maximized use of soil, water, and plant cover has aggravated the biodiversity decline in Iran. For example the country's population is more than 73 million with an annual average growth rate of about 1.3 % per annum. More than 21 million of the population live in rural areas.

Current Status of National Biodiversity Strategies and Action Plans

The development of biodiversity strategies and action plan was a result of an enabling activity project known as "The National Biodiversity Strategy and Action Plan", which started in December 1998 in collaboration with the United Nations Development Program (UNDP), the Global Environment Facility (GEF) and the World Conservation Union (IUCN) and on the basis of the obligation assumed by the Islamic Republic of Iran upon becoming a party to the Convention on Biological Diversity.

The NBSAP has significantly influenced the development and implementation of the country's biodiversity policy framework. This framework, in turn, has led to the development of the National Biodiversity Strategy, preparation of the biodiversity National Action Plan for implementation of the national biodiversity strategies, and the preparation and delivery of many National Reports to the CBD.

Iran's four national biodiversity strategies include Promotion of public awareness and participation; Formation of biodiversity information systems; Sustainable use of biodiversity resources; and Integrated management of biodiversity. In addition the first draft of Action Plan to make the national strategies practicable were prepared in 1999, after declaration of National Strategies, and in a participatory manner involving stakeholders from governmental, non-governmental and private sectors.

It is very clear that NBSAP has redirected the environmental agenda of the Country by influencing the conservation agenda and proposing new tasks for several governmental institutions, mainly the Department of the Environment (DoE) and Forest, Rangelands and Watershed Organization (FRWO), two lead agencies in Iran.

Also Iran has benefited from the GEF funding opportunities for developing National Strategies, National Action Plans and Communications to MEAs (in particular Rio Conventions). It is appears clear that several national conservation agendas have been initiated by GEF supported projects. The best example is the success of the NBSAP, which have incorporated biodiversity conservation efforts into the national level planning.

In the process of NBSAP project there are several lessons learned. Following are few examples:

- Conservation solutions need to involve stakeholders with different priorities and needs.
- More efforts shall be put into the promotion of biodiversity conservation.
- The Department of the Environment cannot do any parturient activities on addressing and promoting the strategic significance of biodiversity to the public separately from the other related organizations and stakeholders such as Education and Training Ministry,
- Iran has entered a crucial stage for biodiversity conservation, but the biodiversity monitoring work lags far behind conservation needs.

Mainstreaming and Integration of Biodiversity Consideration

Article 50 of the Constitution is the most important accredited existing legal statement concerning protection of the environment and preventing its pollution and degradation. It states that all legal and real persons have a duty to protect the environment. The Constitution prohibits all activities, economic or otherwise, that may

result in irreparable damage to the environment. Over the past 15 years, the Government has increasingly striven to operationalise these objectives, by paying increasing attention to environmental issues and to biodiversity conservation. The Fourth National Development Plan (2005-2009), the NDP, devotes an entire Chapter to Environmental Protection. The first Article in this Chapter states the importance of biodiversity conservation and emphasises the government's commitment to implementing the NBSAP.

Since conversion of the Hunting Center (established in 1956) to an organization and then to the Department of the Environment in 1974, several regulations and laws have enacted in sectors to directly ensure environmental conservation. The article 58 of the 4th National Development Plan urges the government to implement the national action plan for conservation and sustainable use of biodiversity resources at the national level and it makes appropriate coordinations among relevant organizations.

Although the importance of biodiversity conservation has been established in environment and development policy of Iran for some time, it is only in recent years that sectoral policy and programmes have started to mention the importance of nature and/or biodiversity conservation. Now, in almost all relevant ministries such as agriculture, energy, oil, etc. there is an environment office to monitor environmental matters. For example:

- The MAJ has also initiated a plan to establishing a Decision Support System for desertification control through floodwater spreading in Iran
- In the water sector, the mandate of the Water Affairs Department of the Ministry of Energy emphasises the importance of protecting the hydrological cycle and conserving catchments areas. Recently there has been a revision in administrative and management structures for improvement of water resources management;
- In the tourism sector, Cultural Heritage, Handicrafts and Tourism Organisation, is obliged to take steps to co-ordinate the sustainable exploitation of the country's natural heritages, and to work closely with the Department of Environment.
- In the training and research sector, and in response to chapter 7 of the 4th NDP, the Environment and Sustainable Development Research Center (ESDRC), has been established affiliated to the DoE, acting as technical and scientific back stopping center to the conservation activities at the national level.

Progress Towards the 2010 Target and Implementation of the Strategic Plan

Iran has not yet completed the development of its national biodiversity targets and indicators. However, the indicators are under negotiation by the biodiversity sub-committee of the NCSD.

Iran has made some progress towards the 2010 biodiversity targets. From 2008 until the end of August 2010 the coverage of the protected areas has increased by 0.1%. At present, approximately 7.8% of the national territory is under the national protection systems and included in protected areas. These areas have been selected on the basis of being representatives of the world's ecological regions. Conservation of threatened species and their habitats are one of the main concerns of the country.

Iran has conducted research activities, enhanced legal protection of the habitats, increased public awareness and started captive breeding. Also national targets relating to the endangered species; "supporting in situ and ex situ biodiversity emphasizing on endangered plant and animal species" and "conservation of endangered species", have been included in the NBSAP.

Also Iran is well known as one of the world's major centres of origin and diversity for many important crop plants. Activities related to conservation and utilization of plant genetic resources in Iran started nearly 70 years ago, mostly with cereals. A specific unit for ex-situ conservation of plant genetic resources was established in 1977, which was then elevated to National Plant Gene Bank of Iran (NPGBI) in 1983.

However unsustainable consumption continues to be a major cause of biodiversity loss in Iran. There are some laws and regulations, which controls unsustainable consumption of biological resources and their impacts but still not enough. The government of Iran has taken steps to encourage sustainable production and consumption at all levels to keep the use of natural resources within the ecological limits.

Polluting and contamination of the natural habitats are severely prohibited and subject to high penalties. The sewage of the factories is periodically checked and has to meet the standards. However still about 60-70 % of industrial sewage is discharged into the environment. Also the use of chemical fertilizers and pesticides is very high in the agriculture. Only in 2% of the national agricultural lands crops are produced organically. The highest water pollution in the country comes from agricultural activities.

In recent years, Iran has allocated good funds for national and international biodiversity conservation programs and projects. Although these funds have not been enough to address all the critical needs of biodiversity conservation but it has

attracted the required attention of high level decision makers and other groups of the public to the issue of biodiversity conservation. Financial and technical international supports have and can help Iran in better implementation of biodiversity projects.

Strategic Plan

Iran is currently in the process of completing its legal and administrative framework to fully implement its obligations under the Cartagena Protocol on Biosafety. Iran developed its National Biosafety Framework under the UNEP-GEF capacity building project. The main reason for Iran to develop its National Biosafety Framework is to put in place an enabling mechanism for making decisions on the safe transfer, handling and use of LMOs. Also Iran has developed a National Biotechnology Document which includes the national biotechnology strategy-planning national short, mid and long-term action plans in this field. Iran has a national council and under this council National committees and working groups have been established for biotechnology in different sectors.

In addition Iran's National Institute of Genetic Engineering and Biotechnology (Ministry of Science, Research and Education) succeeded to establish a National Biosafety Clearing House as a result of "UNEP-GEF capacity Building Project for Effective Participation in BCH" in year 2009.

Conclusions

Iran is committed to the objectives of the Convention by implementing its National Biodiversity Strategy and Action Plan. Some of these objectives have been achieved but most of are still actively underway. Conservation measures on biodiversity and ecosystems in some sectors have made progress but there are still many challenges ahead. In general, it appears that the rate of decline in many species and ecosystems has increased during the past few years.

Considering the progress already achieved towards biodiversity protection and sustainable use, priority actions for the future include:

1. Revise and update the first NBSAP of Iran for incorporating biodiversity indicators, targets and specific strategies for implementing priority elements of the CBD;
2. Complete national biodiversity indicators and develop a systematic approach for their measurement;
3. Improve public awareness on conservation and sustainable use of biodiversity resources
4. Field studies on selected species and ecosystems for better understanding of biodiversity status and trends, and implementation of conservation and rehabilitation measures for threatened endemic species;

5. Implement and support further conservation projects encouraging a community-based approach to natural resource management, sustainable use and biodiversity conservation;
6. Further increase in the protected areas, including the establishment of new protected areas, the extension of existing ones, completion of all the management plans for protected areas, the improvement of management effectiveness and the facilitation of financial sustainability;
7. Establishment of a national biosafety system; and completion and implementation of the national biosafety regulation;
8. Improvement in law enforcement including the strengthening of controls on illegal resources use

Chapter I - Overview of Status, Trends of and Threats to Biodiversity in Iran

1.1 Current Status of National Biodiversity

1.1.1 Country Context

The Islamic Republic of Iran covers 164.8 million hectares between latitudes 25° and 40° N, situated where three climatic zones meet – the Mediterranean, the arid West Asian and the temperate humid/semi-humid Caspian zone. Iran is bordered with Azerbaijan (432 km) and Armenia (35 km) to the north-west; Turkmenistan (992 km) to the north-east; Pakistan (909 km) and Afghanistan (936 km) to the east; Turkey (499 km) and Iraq (1,458 km) to the west; the Caspian Sea to the north (1000 km); and the waters of the Persian Gulf and the Sea of Oman to the south (3200 km). Iran is the eighteenth largest country in the world and the second largest in the Middle East.



Source: <http://www.infoplease.com/atlas/country/iran.html>

Figure 1: General map of Iran

Existence of various cultures and ethnicities, varied climatic conditions and long history of agriculture has contributed to the richness and uniqueness of biodiversity in

the country. However, the country is considered predominantly dry where out of total land area of 164.8 million hectares (ha), 86 million ha (52.4%) are rangelands; 14.2 million ha (8.6%) forests and 32 million ha (19.5%) deserts including bare salty lands. Approximately only 18.5 million ha (11%) are under cultivation, of which 8.5 million ha are irrigated and 10 million ha rainfed¹. Due to Iran's location in the arid and semi-arid region of the world and its geographic features, the country receives an average annual rainfall of 240 mm, less than a third of world average precipitation. However, annual precipitation in the inland dry deserts of the country can be as low as only 10 mm. As a result, most rivers are seasonal and their flows depend heavily upon the amount of rainfall.

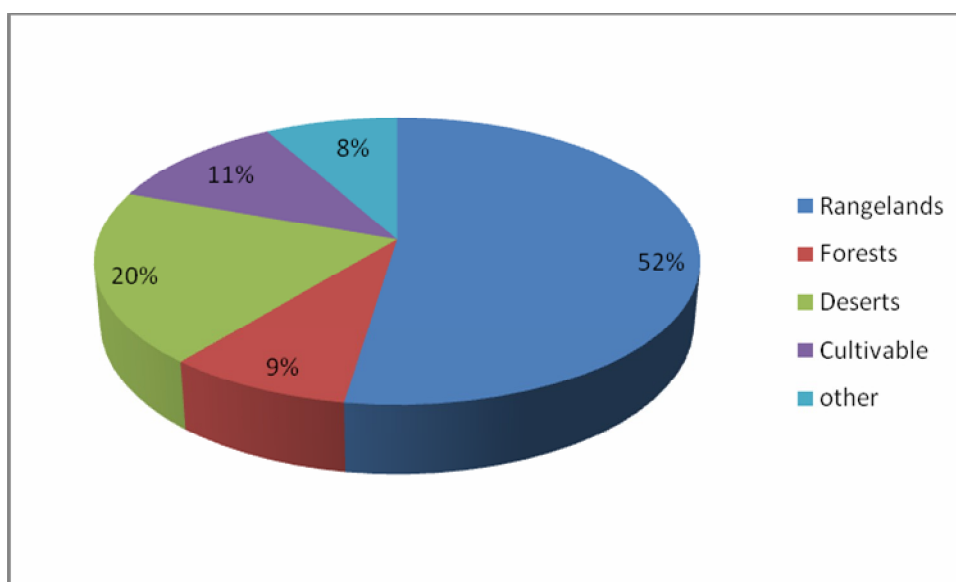


Figure 2: Country's land use area

In the Iranian ecosystems approximately 8,000 species of plants, 140 species of mammals, 293 species of birds, 219 species of reptiles, 112 species of fishes and 23 species of amphibians have been recorded. In addition, a large number of Iran's plant and tree species have industrial and traditional uses such as medicines, aromas and pigments.

The altitude range changes from -26 m to 5,770 m and the main part of the country has the height of more than 1200 meters. The temperature range changes from the minimum of -35 Celsius in the North West of the country to maximum of 50 Celsius in Persian Gulf coasts in the south.

The country features three main climatic zones:

- Arid and semi-arid zone in the interior and far south, which is characterized by long, warm and dry periods, sometimes lasting over seven months, and covering nearly

¹ FRWO, 2005

85% of the country. The annual precipitation rate in such regions varies between 30 and 250 mm.

- Mediterranean climate (mainly in the western Zagros mountains, the high plateau of Azerbaijan, and the Alborz mountains), characterized by warm, dry summers and cool, damp winters, with annual rainfall between 250 mm and 600 mm, and covering about 5% of the land surface.
- Temperate humid and semi-humid zone (mainly in the Caspian sea coasts, but also in west Azerbaijan and the south west Zagros), with an annual precipitation rate of 600 mm to 2000 mm, also covering about 10 % of the land area.

1.1.2. Iran's Biodiversity Components

Because of its large size and varied ecosystems, Iran is one of the most important countries for conservation of biological diversity in the Middle East and West Asia. More basic technical works and field surveys in terms of eco-biology analyses are needed in order to fully understand the country's biodiversity characteristics.

Iran's plateau with a vast desert located in the central areas, and two mountain ranges, Zagros in the West and Alborz in the north, comprise a significant portion of its territory. Iran's topography has given rise to four floristic zones, namely: Irano-Touranian arid and semi arid deserts and Irano-Touranian arid and semi-arid mountains, Zagrosian, Hyrcanian, and Khalij-o-Omanian. Most of Iran's forest covers are located in Hyrcanian, Arasbaranian and Zagrosian zones. Table 1 and figure 3 shows the area of Iran's biomes and their status.

The following biomes are considered as general vegetation regions across the country:

- a) **Irano-Touranian** which covers an area of about 3,452,775 ha with arid and semi arid deserts and plains of central Iran. Regarding topographical conditions and diversity of species, the region is divided into plain and mountainous sub - regions.

Plain sub-region; this ecoregion is dominated by the central Iranian plateau, an immense area covering 1,648,000 km² in the centre of Iran and encompassing a great variety of climates, soils and topography. It is almost completely surrounded on all sides by mountain ranges. The area can be divided into two major sections: the Dasht-e-Kavir in the north, a vast saline desert, and the Dasht-e-Lut in the south, largely a sand and gravel desert and one of the hottest deserts in the world. The plateau is also partly covered with sand dunes. Adjacent regions, such as the Kavir-e-Namak ('salt desert') and a series of marshes and lakes east of Qom, are also included in this ecoregion.

In the north-western corner of the central plateau, where the Kavir National Park is situated, habitat types range from desert and semi-desert to dry steppe. In the north-eastern reaches of the plateau, in the area of the Touran Biosphere Reserve, the variety of landforms includes extensive plains, a saline river system, alluvial fans, limestone outcrops, salt desert, and 200,000 ha of the northernmost sand dunes in Iran. While the mean annual temperature ranges from 15 to 18 degrees Celsius, the extreme maximum temperature can reach 42 degrees Celsius and the extreme minimum temperature can fall to –20 degrees Celsius. In most of the region, annual rainfall does not exceed 200 mm and in much of it, rainfall is less than 100 mm. In the northwest corner of the region, precipitation is highly variable from year to year, ranging from less than 50mm to over 300mm and falling mostly as rain from November to May.

The driest parts of Iran are found in the central and eastern parts of the plateau, with the Dasht-e-Hut receiving only up to 50 mm per year. The low amount of rainfall is aggravated by high evaporation rates. The rivers descending into the central plateau from the surrounding mountain ranges carry high levels of soluble salts, and the ground in the plateau tends to be highly saline. On the margins of the plateau, and in a few patches in the interior where the topography is such that the soil is less saline, areas of piedmont fans and alluvial soils exist and can be farmed. The central plateau can be differentiated into a series of habitats, including poorly drained flats inhabited by halophytic communities and better drained flats inhabited by a variety of *Artemisia*.

The central Iranian sector hosts the most typical vegetation of Iran's steppe and desert regions. Dwarf scrub vegetation is common in large areas of the interior of Iran and is very diverse and rich in species; in non-saline areas, a variant with many thorn-cushions is formed. Under extremely arid conditions, a very open variant of the dwarf shrublands appears, also characteristic of large areas of the Iranian interior; the dominant species are *Artemisia siberi*, *Astragalus gossypius*, and others. In areas receiving over 100 mm of rain, other genera such as *Pteropryum*, *Zygophyllum* and *Amygdalus* can also be found. With regard to vegetation of the sand deserts in the interior regions of Iran, among the more characteristic genera are *Ephedra*, *Calligonum*, *Heliotropum*, and others. Endemic shrubs and perennials include *Astragalus (Ammodendron) kavirensis* Freitag, *Heliotropum rudbaricum*, and others. Halophytic communities of varying composition are found on the margins of the undrained salt pans of the central Iranian region, such as the Dasht-e-Kevir. Characteristic genera and species include *Aellenia* spp., *Halocnemum strobilaceum*, *Haloxylon* spp., *Salsola* spp., and others. The inner parts of the salt pans have almost no vegetation.

Mountainous sub-region; in this sub-region the *Juniperus polycar* species have been developed. It has dry and cold climate, temperate summer and the annual precipitation of about 400 mm. A variety of fruit trees, medicinal, industrial, and field crop plants are grown in the mountain ecoregions of the Irano-Turanian Zone. Some of the dominating plant species of these regions are among others: *Amigdallus scoparia*, *Onobrychis cornuta*, *Acantholimon spp.*, *Astragalus spp.*, *Artemisia aucheri*, *Alleum spp*, *Bromus tumentellus*.

- b) **Zagrosian;** with an area of about 4,749,000 ha covers semi-arid Zagros mountain ranges. This ecological zone extends throughout the Zagros Mountain in the west and south. This mountain range parallels the Persian Gulf and consists of numerous parallel ridges, with the highest peaks exceeding 4,000 m and maintaining permanent snow cover. Many large rivers, including Karun, Dez, and Kharkehoriginate here, draining into the Persian Gulf or the Caspian Sea. Scenic waterfalls, pools, and lakes add to the beauty of the mountainous landscape. The forest and steppe forest areas of the Zagros Mountain ranges have a semi-arid temperate climate, with annual precipitation ranging from 400 m to 800 mm, falling mostly in winter and spring. Winters are severe, with winter minima often below –25 degreeCelsius, and extreme summer aridity prevails in the region.

The Kurdo-Zagrosian steppe-forest consists mainly of deciduous, broad-leaved trees or shrubs with a dense ground cover of steppe vegetation. The dominant species are oak (*Quercus spp.*), pistachio (*Pistacia spp.*) and a few others. In the northern reaches of the mountain range, lower altitudes (400 m to 500 m) host communities dominated by *Astragalus spp.*, *Salvia spp.*, or others while higher up (700 m to 800m) forests or forest remnants of *Quercus brantii* and/or *Q. boissieri* occur up to an altitude of about 1,700m. Above the timber line (1,900 m to 2,000 m) appears a relatively wide zone of sub-alpine vegetation. Further south along the range, the forest becomes more impoverished and a richer steppe flora develops among the trees. Forest remnants consist primarily of *Quercus persica* and, up to an elevation of 2,400m, xerophilous forest of *Quercus spp.*, hawthorn (*Crataegus*), almond (*Prunus amygdalus*), nettle tree (*Celtis*) and pear (*Pyrus spp*) predominates. Below 1,400m, the vegetation is steppic, with shrubs predominating.

- c) **Hyrcanian** which covers semi-humid and humid Arasbaran and Hyrcanian mountains and Caspian plain. This region extends throughout the south coast of Caspian Sea and northern part of the country which is bordered by the largest lake in the world. Mountains dominate the landscape of this ecoregion. Hyrcanian (Caspian) region could be divided into three subdivisions on the basis of geographical situations. These subdivisions are (1) Alborz Range forest steppe, (2) Caspian Hyrcanian mixed forest and (3) Caspian lowland desert.

At the first subdivision, the highest peak is Mount Damavand, a dormant volcano 5,766 m tall. Below Mount Damavand's crater are two small glaciers, as well as fumaroles, hot springs, and mineral deposits. Only between 280 and 500 mm of precipitation fall annually on this high elevations of Alborz mountain. The dominant trees, *Juniperus sabina*, and *J. communis*, are resistant to summer drought and heat and can tolerate winter cold equally well. However, the tree grows so slowly that it is difficult to reestablish these forests once they are cut. Shrubs include pistachio (*Pistacia Vera*), *Berberos integessima*, *Acer spp*, and *Amigdalus, spp*, with such a plant species: *Onobrychis cornuta*, *Astragalus gossipinus*, *Agropyron spp*, *Bromus tomentelus* forming the ground cover. Overgrazing at higher elevations by sheep and the continued fragmentation of habitat, which is accelerated by road construction, are also of concern because so few natural areas remain.

The second subdivision is described in more details over a paragraph to introduce Iran's forests and rangelands.

Concerning the third subdivision - Caspian lowland desert- the ecoregion lies on the southern and eastern shores of the Caspian Sea at elevations between -28 to 100 meters above the sea level. Average annual temperature is 17.1 Celsius. Annual precipitation is 187 mm. A long frostless period (271 days) encourages cultivation of crops such as olive, fig, pomegranate, and cotton. This ecoregion is covered by shrubs and grasses, which are used by livestock. The vegetation of the coastal Caspian desert within Iran is impoverished, it consists of highly specialized halophytes (salt-resistant plants) represented by shrubs and semishrubs such as various sagebrushes (*Artemisia*), tetyr (*Salsola gemmascens*), kevreik (*S. orientalis*), boyalych (*S. arbuscula*), biyurgun (*Anabasis salsa*, *A. ramosissimum*), sarsazan (*Halocnemum strobilaceum*), *Halostachys*, *Ceratocarpus*, *Nitraria*, *Kalidium*. Herbaceous vegetation is represented by species of *Aristida*, *Peganum*, *Agropyron*, *Anisantha*, *Eremopyrum*. One of the most typical halophyte plant formations is dominated by tetyr (*Salsola gemmascens*), a 30-50 cm shrub, associated with low species diversity and sparse coverage. Solonchaks are sometimes occupied exclusively by sarsazan (*Halocnemum strobilaceum*). The European portions of the ecoregion consist of northern lowland dwarf semi-shrub deserts and small areas of floodplain vegetation and coastal and inland halophytic vegetation north of the Caspian Sea.

- d) **Khalijo- Ommanian** which encompasses dry southern coastal plains with high humidity. The region with an area of 2,130,000 ha extends throughout southern parts of the country in Khuzestan, Boushehr, Hormozgan and Sistan- Baluchistan provinces. They are dominated by sub-equatorial climate. The main plant species of the these regions are: *Acacia- Prosopia- Ziziphus- Avicennia- Rhizophora- Populus euphatica- Prosopis stephaniana*. The plant species of the above four ecological zones are classified on the basis of average rainfall and altitude

Table 1. Area of Iran's biomes and their status

Biome	Area (ha)
Irano-Touranian Plain Area	3,452,775
Irano-Touranian Mountain Area	
Zagrosian	4,749,000
Hircanian	2,800,000
Khalijo-Ommanian	2,130,000

Source: Compiled from different sources



Source: Heshmati, G.A. 2007

Figure 3: Distribution of ecological zones of Iran

Habitat diversity in Iran allows for a wide range of animals to inhabit in the country. Bears, Caucasian black grouse, Sacred ibis, Euroasian lynx, river trout and crocodile can be found in these habitats. Red Deers and Roe Deers in Hirkanian forests, Urial sheep in steppe hills, wild goats, European Snow Vole, Caspian Snowcook and Caucasian Agama, and leopards on cliffs and bare heights of dry areas, wild asses, gazelles and cheetahs in desert plains are found in Iran. The pheasant, partridge, stork, Saker and Barbary Falcon, Golden and Imperial Eagle are also native to Iran. The Persian leopard is said to be the largest of all the subspecies of leopards in the world. The main range of this species in Iran closely overlaps with that of Bezoar Ibex. Hence, it is found throughout Alborz and Zagros mountain ranges, as well as smaller ranges within the Iranian plateau. Leopard population is very sparse, due to loss of habitat, loss of natural prey, and population fragmentation.

Most of Iran is located in the Palaeartic realm and is considered the centre of origin of many genetic resources of the world, including many of the original strains of commercially valuable plant species such as wheat, or medicinal and aromatic species. The southwest has some Afro-tropical features, while the southeast has some species from the Indo-Malayan sub-tropical realm. There is no clear estimation on the rate at which genetic diversity is being lost in Iran. However, recent studies and population declines indicate that genetic erosion is rapidly increasing. Low genetic variation may also limit species adaptation to disease or climate change.

Approximately 8000 plant species of 167 families and 1200 genera have been recorded in Iran, Nearly 20% of these species are considered endemic,. Field surveys confirmed the presence of 521 species of birds, 194 mammals, 203 reptiles, 22 amphibians and 1,080 species of fish. Iranian fish resources ncludes 900 species of Persian Gulf and Sea of Oman (with 9 endemic sp.) and 180 species of Caspian Sea (with 10 endemic sp.) and living in inland and fresh waters (with 15 endemic sp.).

There are 12.4 million hectares of woodland, and more than 10,000 hectares of mangroves along the Persian Gulf and Sea of Oman coast. ecosystem diversity of marine and coastal zones in the North and the South of the country consists of 25 ecological types and units, most importantly coral reefs, bays and small islands. The wetlands of Iran are globally significant; large populations of migratory birds winter at these wetlands or use them on their way to and from wintering areas in Africa or the Indian sub-continent.

In order to conserve existing biodiversity of the country, representative samples of the nature of land have been selected and are being conserved under different categories such as protected areas, national parks, wildlife refuges and national natural monuments.

To preserve the existing biodiversity over the wide geographic expanse of the country, four types of areas have been designated for conservation and protection, including: National Parks, Wildlife Refuges, Protected Areas and Natural National Monuments. In 1997, the Department of the Environment (DoE) held supervision over 7,563,983 hectares of such areas.

Table 2 illustrates the type, number and area of protected areas in Iran.

Table 2. Types and the Number of Protected Areas of Iran as of 2010

Types	Number	Area (hectare)	% in comparison to the whole PAs	% in comparison to the whole country
National Park	23	1,943,558	15.18	1.17
National Natural Monument	30	24,600.77	0.19	0.01
Wildlife Refuge	37	3,774,969	29.49	2.29
Protected Areas	113	7,055,266	55.12	4.28
Total	203	12,798,393.77	100	7.75

Source: DoE, GIS Unit

The classification of the Protected Areas in the country is more or less the same as IUCN category system:

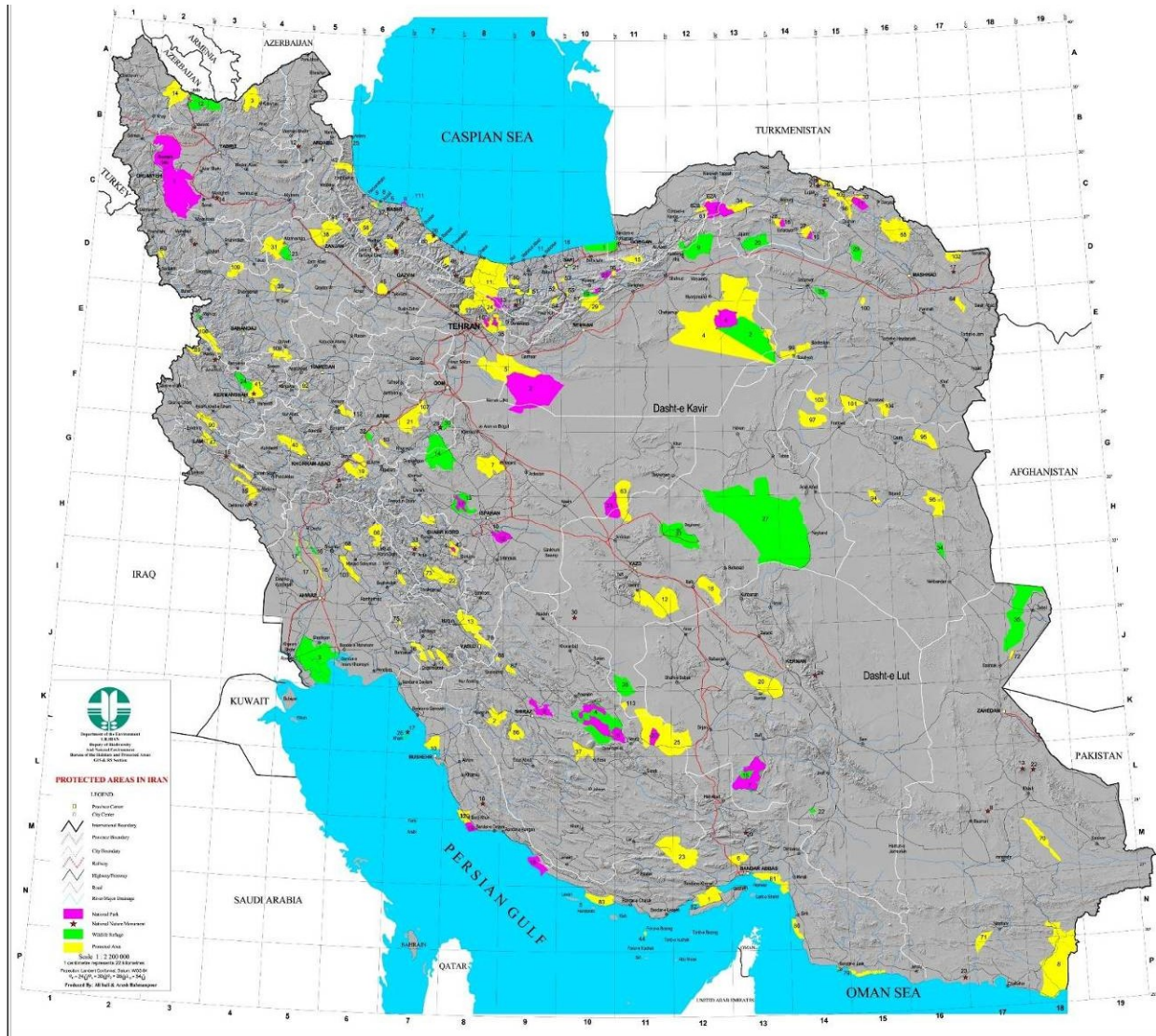
National Park (IUCN category II): Relatively vast natural areas having specific characteristics and national significance from the geological, ecological, biogeographical and scenic areas points of view are selected as national parks with the purpose of maintaining the biological and natural conditions, improvement of the population of animal species and vegetation sites and also recreational utilization. National parks are suitable places for educational and research activities as well as ecotourism.

National Natural Monument (IUCN category III): Relatively small, interesting, unique, exceptional, unconventional and irreplaceable phenomena or plant and animal collections having protection, scientific, historic or natural significance are selected as national natural monument with the purpose of their protection. Protective measures in these areas shall guarantee their sustainable non-commercial utilization.

Wildlife Refuge (IUCN category IV): Areas covering typical wildlife habitats selected with the purpose of preserving the population of animal species and improving their level of quality. The minimum area of a wildlife refuge must suffice to fulfil the animal species needs as well as the integrity and interactions among its units. These areas are appropriate places for educational and research activities especially those pertaining to wildlife. Compatible utilizations and controlled tourism are allowed in refuges.

Protected Area (IUCN category V/VI): Relatively vast areas of high protection significance are selected with the purpose of preserving and restoring plants sites and animals habitats. Protected areas are appropriate places for the implementation of

educational and research plans. Tourism and economic utilizations in proportion with each area under the comprehensive management plan of the area are allowed.



Source: DoE, GIS Unit, August 2010

Figure 4: Types and Location of Protected areas of Iran (Different colors show different types of protected areas)

1.1.2.1 Agriculture Biodiversity

Approximately 33 million ha of land area have typical to good capacity for cultivation but just 18.5 million ha are cultivated of which 8.5 million ha are irrigated and 10 million ha are rain-fed. Major soil types of Iran are xerosols, arenosols, regosols, solonchaks, and lithosols. In other terms, roughly one-third of Iran's total surface area is suited for farmland, but because of soil type and lack of adequate water distribution, some of it is not under cultivation. Only 12% of the total land area is under cultivation (filed crops and

fruit trees) but less than half of the cultivated area is irrigated; the rest is devoted to dry farming. Some 92% of agro products depend on irrigation

One third of the total land area (35%) is considered rangeland, used for grazing and small fodder production. Most of the grazing is done on mostly semi-dry rangeland in mountain areas and on areas surrounding the large deserts ("Dasht's") of Central Iran.

Approximately 53% of the total land area of Iran is not suited for typical agricultural activities and is characterised as follows:

- Approximately 35% of the country is covered by deserts, salt flats ("kavirs") and bare-rock mountains, not suited for agricultural purposes.
- An additional 11% of Iran's total surface is covered by woodlands.
- And 7% is covered by cities, towns, villages, industrial areas and roads.

Iranian agriculture is thousands of years old and this reflects the length of time during which soil and water resources of the country have been utilized for crop production. Both systems of irrigated and rainfed farming (dry farming) are practiced in different parts of the country while the area devoted to each system varies considerably depending on the annual precipitation and agroclimatical conditions. Rainfed agriculture and dry farming are most successful in the north, west and northwestern of Iran. In other parts of the country, dry farming is also practiced in hilly areas, but the yields are very low. In the central plateau, as well as the southern plains and the southern coastal areas of Iran, crop production is mostly possible only under irrigation. This is because of low rainfall and high evaporation rates. In some low lying plains of the central plateau, the annual rainfall is about 50 mm while the annual evaporation may exceed 4000 mm.

In 2008 about 12.34 million hectares were under annual crops, out of which 59.21% was under cereals; wheat, rice, corn and barley, producing 59.1%, 16.2%, 13.2% and 11.4% of the cereals, respectively². All agricultural lands are owned by the people, except some portions of which are used by the government sector for particular (research, mechanized production, etc) purposes.

About 90% of the irrigated land is under annual crops (The remaining 10% is used for production of perennial crops- mostly fruit trees). In rainfed areas, annual crops constitute about 98% of the total production. During dry years, about 8 to 12% of the total production comes from dry land areas. However, in wet years this figure can rise to 35 percent.

Traditional small-scale farming was the main structure of farming communities for centuries and this has caused a tremendous accumulation of indigenous knowledge in farming practices and food production. Therefore, natural farming used to be a widespread practice not more than half a century ago and is still appreciated to some

² <http://faostat.fao.org>

extent by the farmers. There are considerable land area under organic management but only a few registered organic farms. Although the traditional systems of food production are almost organic both in technical and social terms, but they are in operation in small scale farming or in remote areas. Production of some crops such as date, saffron, pistachio and pomegranate is generally considered organic,

1.1.2.2 Forests

The forests of Iran can be classified in five areas as follows:

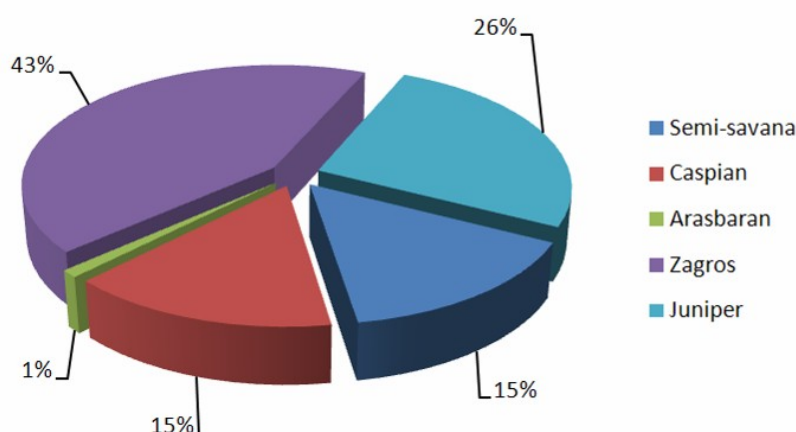


Figure 5: Classification of Forests of Iran

The Caspian Hyrcanian forests: Caspian broadleaf deciduous forests extend for 800 km in length and cover an area with 1,925,125 hectares in the mid elevation of the middle altitudes of the Alborz Mountain, whilst it was some 3.4 million hectares 45 years ago. The key trees of this area are: *Fagus orientalis*, *Carpinus betulus*, *Tilia rubra*, *Taxus baccata*, *Ulmus glabra*, *Quercus castanefolia*, *Parrotia persica*, *Alnus glutinosa*, *Punica granatum*, *Paliurus spira-ehristi*.

The Caspian Hyrcanian Mixed Forests experience abundant rainfall and snowmelt that runs off the north slope of the Alborz Mountain. It has high production capacity due to humid temperate climate and suitable soil. These forests sweep down to the coastal plain south of the Caspian Sea, where they eventually yield to coastal lagoons, swamps, and salt marshes.

Arasbaran broadleaf deciduous forests: in the northwest of Iran, with many endemic species, very degraded at present, with only 60,000 hectares remaining of the original 500,000.

Zagros broadleaf deciduous forests: consist mainly of oak forest in the west of the country. This forest has an area of 5.5 million hectares and currently produces 8 tons/hectare biomass compared to 12 million hectares and 125 tonnes/hectare five decades ago. Flora and fauna is very rich in diversity consisting of 2000-2500 plant

species out of which 7-10% are endemic and rare species. Trees and shrubs include more than 150 species.

Irano-Touranian evergreen juniper forests: almost all high-mountain environments of the country outside the deciduous forest areas, were covered by the Persian Juniper (*Juniperus polycarpus*), currently the remaining parts are scattered spots

Semi-savanna thorn forests: with an area of about 2.8 million hectares, cover narrow bands in the west of the country and a wider belt in the south along the Persian Gulf and the Sea of Oman. The biomass of these forests is currently estimated at 2 tonnes/hectare. Unfortunately, no data are available on the former area and biomass of these forests. The diversity of species in these forests is lower compared to other forest areas. Main parts of the Mangrove forests can be seen in this area.

Of the total area of the country's forest cover only some parts of the Caspian Hyrcanian forests in the north are used for commercial purposes. Other forest areas are important for conservation and protection. Almost all forest areas are adversely under threat by different factors such as fire, grazing, flood, diseases and uncontrolled utilization.

1.1.2.3. Rangelands

Rangeland as defined in Iran is "land consisting of mountains, hillsides and flat plains covered by native vegetation and providing food for animals at least on one grazing season and commonly known as rangelands". Fallows are not included in this definition. Estimates of the total rangeland area are not consistent, e.g. there is a very wide gap between the 10 million hectares (1980) and the 106 million hectares (1978). This difference, by an order of magnitude, is most likely due to inconsistent and vague definition of the term 'rangeland'. One of the reliable estimates of the area of rangelands is 90 million hectares.

For the first time in 1974, satellite images were used by an American company, leading to an estimate of Iran's rangelands of 90 million hectares. Aside from fallows, rangelands include lands located on mountains, hillsides or plains covered by natural vegetation during the grazing season and traditionally recognized as range. According to this definition, Iran's rangelands cover 90 million hectares (54.8% of the total land area of the country), which have been classified as being in poor, fair and good conditions. Annual production of these ranges is 20 m tons of dry forage. They play the most important role in soil protection. According to some recent references only 10.3% (9.3 million hectares) of rangelands could be classified as in good conditions, 41.4% (37.3 million ha) in fair conditions and 48.3% (43.4 million ha) in poor conditions.

On the basis of grazing season, rangelands could be put into two categories: mountainous, uplands characterized by cool summers; and plains, lowlands characterized

by warm winters. The area of summer grazing rangelands is estimated to be 23 million hectares producing 6.21 million tons equal to 3.415 million tons of usable total digestible nutrients (TDN). Grazing on these rangelands starts from early spring and continues until late summer. It is estimated that 54 million animal units could be grazed on these rangelands for a period of 100 days. Winter and fall grazing rangelands located on lowlands are 67 million hectares and are mostly used in winter. They produce 4.5 million tons of forage or 2.47 million tons of usable TDN.

Like other parts of the world, animal husbandry in Iran is the most productive use of the semi-arid zones bordering the desert. Approximately 31% of the meat production in Iran, 218,000 tons per year, is associated with the rangelands. In addition to forage production, mining, fuel wood, industrial use of rangeland products e.g. medicinal plants and recreation are other benefits of the Iranian rangelands.

Harvesting medicinal plants dates back to past centuries. According to current information the amount harvested was some 39,000 tons (valued at 77.7 million US\$) in 1989-1993. Considering the land area of the country, harvested products should be much more. . There are many rangeland plant species with medicinal and industrial value. The extract of *Ferula gummosa*, a plant widespread over 700,000 hectares, called galbanum is widely used in different industries e.g. medicine. The income through the export of galbanum in 1998 alone was some 180,000 USD.. The cultivation of such plants is encouraged nowadays in order to protect natural biodiversity from over exploitation. Several companies have been developed investing on medicinal crop production.

Range and livestock contribute an estimated 1.25 billion US\$ to the non-oil GDP (or 6% of the total GDP) and the sector provides livelihood for some three million families of whom it is estimated that 180,000 are nomadic.

1.1.2.4 Wetlands

Wetlands occupy the transitional zone between permanently wet and generally dry environments, sharing characteristics of both aquatic and terrestrial environments but not belonging exclusively to either. Under the Ramsar Convention (adopted at the Iranian city of Ramsar on the Caspian coast in 1971), wetlands are defined as “areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters”.

The Convention also provides that they “may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands”. Therefore, wetlands are everywhere, and it is probably simplest to think of the Convention as having an interest in the management of all water ecosystems (whether permanent or temporary, natural or artificial) which are not deep marine waters. Out of 42 types of wetlands defined by the Ramsar Convention all exist in

Iran except one, which Tundra Wetlands. This demonstrates the diversity of wetland in Iran.

While deserts cover 53% and forests more than 10% of the country, the numerous wetlands stand out. There, the resting grounds for several important migratory birds are found, including that of the Siberian Crane, flamingos and pelicans, all listed as global heritage.

Iran possesses a large number and a wide variety of wetlands, whose significance for global biodiversity is unparalleled in the region. There are more than 1000 wetlands in the country; out of this number the DoE has conducted, some studies on 181 of them and 76 of these wetlands were recognized to meet the Ramsar convention's criteria and to be listed under Ramsar sites. Till today, Iran has designated 33 wetlands in 22 Ramsar sites, amounting to a land area of 1,483,824 hectares. These range from the inlets and marshes of the Caspian lowlands to the natural inland delta of Sistan; from the vast salt lakes of the central plateau to the Mesopotamian deltas at the head of Persian Gulf, and from the lakes of Turkman steppes to the tidal mangroves and mudflats of the Persian Gulf coast. Iran supports 63 wetlands that meet one or more Ramsar criteria for international importance.

Iran's wetlands play an important role in water balance and well-being of the natural environment, wildlife and human beings given the fact that most of the country encompasses dry or semi-dry climate.

Study on Economical valuation of Iranian wetlands started and this study has taken for two wetlands during past years, which are: Hara and Miankaleh.

There is an assumption that peatlands exist in high altitude of two main Iranian mountain ranges (Alborz and Zagros). Iranian Department of Environment is now studying the existence of such wetlands.

Since Iran is located in the semi arid to arid zone of the world, thus many of Iranian wetlands are located in these areas. These wetlands have been facing prolonged drought for several years and some of the most important wetlands such as Hamoon and Urmia have been adversely impacted by the drought in alarming rate. . Also changes in the ecological character of Shadegan and Miankaleh wetlands were reported to the Secretariat of Ramsar Convention.

There are four transboundary wetlands in Iran including Hamoun (Iran- Afghanistan), Hour-al- Azim (Iran-Iraq), Aras-Kura River basin wetlands (Iran- Azerbaijan- Armenia) and Atrak (Iran-Turkmenistan).

The Kura-Aras river system is a principal source of water for industry, agriculture, residential uses and energy in Armenia, Azerbaijan and Georgia, Islamic Republic of Iran and Turkey. The rivers are important to regional cooperation as they cross and form many of the borders. Both rivers are seriously degraded in places. Water quality is impaired by the dumping of untreated municipal, industrial, medical and agricultural wastes, and by high sedimentation loads resulting from upstream deforestation. Water quantity is constrained by use of water for agricultural and hydropower purposes, which impacts upon the river ecosystem in places.

Integrated, inter-country efforts are urgently required to evaluate the degree of ongoing degradation of these river ecosystems and to take action to halt and reverse damaging trends where necessary.

Iranian wetlands can be grouped into six major systems: the wetlands of the south Caspian lowlands in Gilan and Mazandaran provinces in the north; the wetlands of the Urmia Basin in Azarbayjan province in the northwest; the wetlands of Khuzestan province in the southwest; the wetlands of central Fars province in the southern Zagros; the wetlands of the Sistan Basin on the border with Afghanistan in the east; and the wetlands along the Persian Gulf and Gulf of Oman coasts in the south.

The wetlands of Gilan and Mazandaran comprise an almost unbroken chain of freshwater lakes and marshes, brackish lagoons, irrigation ponds and rice paddies stretching for some 700 km along the shores of the Caspian Sea from the border with the Republic of Azerbaijan in the west to the border with Turkmenistan in the east. Two of the most important wetlands in these lowlands are Anzali Mordab in the west and the Gorgan Bay/Miankaleh complex in the east. The former comprises a complex of shallow, freshwater lakes with extensive reed-beds and surrounding flood-meadows, while the latter is a large shallow brackish lagoon with extensive seasonally flooded sedge marshes and tamarisk thickets, almost completely cut off from the Caspian Sea by the 60 km long Miankaleh Peninsula. One of the most important types of wetland in the south Caspian lowlands is the "ab-bandan", a small, man-made reservoir or flooded rice paddy with a luxuriant growth of underwater vegetation. These shallow wetlands, varying in size from 3 ha to 1,000 hectares, provide feeding and roosting areas for large numbers of migratory waterfowl. Most were originally built as temporary water storage areas to provide water for irrigation during the dry summer months. According to some estimates there were some 400 ab-bandans in Mazandaran alone, covering about 11,000 ha. Based on some recent studies there are still about 115 ab-bandans and "damgah" (ponds created especially for duck-trapping) in Gilan and Mazandaran, totalling some 10,000 hectares. Although these ab-bandans represent only a small proportion of the total wetland habitat in the south Caspian, they comprise a very important component of the habitat available for waterfowl because they embrace some of the richest feeding habitats in the region, and provide undisturbed areas where waterfowl can rest during the day.

The Urmia Basin in Azarbayjan, north-western Iran includes a number of important wetlands centred on Lake Urmia itself, a vast, shallow, hyper saline lake of some 483,000 hectares with numerous small islands and spectacular breeding colonies of white pelicans (*Pelecanus onocrotalus*), greater flamingos (*Phoenicopterus ruber*) and many other species of waterfowl. Although the lake is too saline to support any plants or animals other than the alga *Enteromorpha* and the brine shrimp *Artemia*, the numerous small fresh and brackish water lakes and marshes along the rivers which enter the lake support abundant aquatic vegetation and are very rich in wildlife.

In extreme south-western Iran, three large rivers rising in the Zagros Mountains (the Karun, Dez and Kharkeh) flow out onto the plains of Khuzestan and create a vast complex of seasonal floodplain wetlands, which extend southward to the head of the Persian Gulf. In the west, these wetlands are contiguous with the great floodplain wetlands of lower Mesopotamia in Iraq. The most important wetland in this region is Shadegan Marshes, some 290,000 hectares of seasonally flooded sedge marsh and brackish lagoons adjacent to the extensive intertidal mudflats at the head of the Persian Gulf. Other similar, but much smaller, floodplain wetlands occur further south along the Persian Gulf coast, notably in the delta of the Helleh River near Bushire.

Near the eastern end of the Zagros Mountains in central part of Fars province, there is a group of large wetlands set in broad valleys between rugged mountain ranges. These wetlands include freshwater lakes and marshes, such as Dasht-e Arjan and the Haftbarm Lakes, and brackish to saline lakes with extensive brackish marshes, such as Parishan, Maharloo, Bakhtegan and Tashk. Lake Bakhtegan and Lake Tashk (together known as the Neiris Lakes) are fed by the Kur River; during years of heavy rainfall they unite to form a single lake of about 108,000 hectares. In most years, however, the water surface is much less than this, and the two lakes are surrounded by extensive bare salt flats.

In the Sistan Basin, on the border between Iran and Afghanistan, there is a vast complex of freshwater lakes with extensive reed-beds which at times of peak flooding can cover over 200,000 hectares. These wetlands are unusual in that area although the three main lakes, Hamoun-i Puzak, Hamoun-i Sabari and Hamoun-i Hirmand, lie within an internal drainage basin, they are predominantly freshwater. The system is fed by the Hirmand River, which rises in the Hindu Kush in northern Afghanistan. During long periods of drought, as occurred throughout the late 1960s and again in the 1980s, the Hirmand supplies sufficient water to flood only the uppermost of the lakes, the Hamoun-i Puzak, which lies almost entirely within Afghanistan. However, during years of unusually heavy rainfall, as occurred in the late 1970s and again in 1990, the floodwaters of the Hirmand sweep through all three lakes and overflow into a vast salt waste to the southeast, flushing the salts out of the system in the process.

Each of these five major regions comprises a complex of large and small lakes and marshes, providing a wide diversity of habitat types and supporting a rich and diverse flora. Phragmites reed-beds are characteristic of many of the wetlands, and are particularly extensive at Anzali Mordab in the southwest Caspian, in the Hamoun wetlands in the Sistan Basin, at Dasht-e Arjan and Lake Parishan in Fars, and at several of the wetlands in the Urmia Basin in Azarbayjan. The reed-beds are highly productive, and provide breeding habitat for many species of waterfowl. The reeds are traditionally used for thatching, especially in Gilan, Mazandaran and Sistan, where reeds are harvested on a large scale not only for local use but also for export to other parts of the country for roofing materials and mat-making.

The sixth major wetland system in Iran comprises the numerous tidal creeks and large areas of intertidal mudflats and mangrove swamps along Iran's 2,000 km of coastline on the Persian Gulf and Sea of Oman. Mangroves are at the extreme limit of their distribution in the Gulf, and mostly comprises, *Avicennia marina* species. A detailed description of mangrove distribution in Iran is given by some scientists. Much of the largest mangrove/mudflats ecosystems is found in the Khouran Straits north of Qeshm Island, where there are some 100,000 hectares of low-lying islands, containing mangroves, mudflats and creeks. Further east, along the Sea of Oman coast in Baluchistan, offshore depths increase to over 50 m and the coastline has extensive sand dunes, long sandy beaches and stretches of sea-cliffs interrupted at intervals by large creek systems with extensive mangroves and mudflats. Where the sublittoral has hard substrates, coral reefs and sea grass beds appear. The large bays at Pozm and Chahbahar in the east lie in a region with an extremely rich and diverse marine fauna.

The wetlands of Iran constitute vital staging and wintering areas for millions of migratory waterfowl using the West Siberian-Caspian-East African and Central Siberian-Indus-South Asian flyways, and support large breeding populations of many species. Several million waterfowl utilize the wetlands as wintering habitat, while perhaps as many birds again use the wetlands as staging areas on their way to and from wintering areas further to the southwest or southeast. The wetlands of Iran are very important for seven species of birds listed as globally threatened in the 1994 IUCN List of Threatened Animals, namely Pygmy Cormorant (*Phalacrocorax pygmaeus*), Dalmatian Pelican (*Pelecanus crispus*), Lesser White-fronted Goose (*Anser erythropus*), Marbled Teal (*Marmaronetta angustirostris*), White-headed Duck (*Oxyura leucocephala*), White-tailed Eagle (*Haliaeetus albicilla*) and Siberian Crane (*Grus leucogeranus*). A further four threatened species formerly occurred in significant numbers, but are now only scarce passage migrants or vagrants, namely Red-breasted Goose (*Branta ruficollis*), Pallas' Sea-Eagle (*Haliaeetus leucoryphus*), Sociable Plover (*Chettusia gregaria*) and Slender-billed Curlew (*Numenius tenuirostris*).

1.1.2.4 Marine and Coastal Areas

Marine living resources play an important role in the food security of the country. Many of the aquatic resources are exclusive to the region, and therefore are of great importance in the context of biological diversity. Seafood protein comprises the largest proportion of protein consumption in the world. In Iran, fish consumption has increased in the last two decades, but it is still below the average global consumption, at about one third of international average. The marine environment of Iran comprises two distinct water bodies, namely, the Caspian to the north, and the Persian Gulf and the Sea of Oman to the south.

The Caspian, the largest lake in the world, is located in the northern part of Iran. The area of the Caspian is about 422,000 km² with 6397 km coastline, of which more than 900 km is on the Iranian side. About 128 large and small rivers flow into the Caspian from Iranian territories, the four largest being Sefidrood, Shalman, Shafarood, and Tonekabon. The highest salinity level, 12.7 parts per thousand (about one third of ocean salinity) is reached during the summer. The average water temperature in the coastal regions throughout the year ranges from 15.9 to 17 degrees Celsius. Water temperature difference between the coldest area (in the north) and the warmest area (in the south) is 4 degrees Celsius during winter and 16 degrees Celsius during summer.

The Caspian Sea is rich in biodiversity with about 450 species of *phytoplanktons*, 315 species of *zooplanktons*, 80 species of fish, 1 species of mammal, 466 species of birds, 1394 species of invertebrates and 2 species of reptiles.

There are over 120 species of fish in the southern Caspian, which are commercially divided into sturgeons and bony fishes. The bony fishes are further divided into kilka (small fish of the family Clupeidae) and other species. The main commercial species are as follows:

- Sturgeons: Beluga *Huso huso*, Russian sturgeon *Acipenser guldenstadti*, Iranian sturgeon *A. persicus*, and *Sevruga A. stellatus*. Iranian caviar, a famous and exclusive product worldwide, is produced by these species.
- Kilkas: *Clupeonella delicatula*, *C. engrauliformis*, *C. grimmi*.
- Other bony fishes: *Kutum Rutilus frisii kutum*, *Mulletts Mugil auratus* and *M. saliens*, *Carp Cuprinus carpio*, *Bream Abramis brama*, *Pike-perch Lucioperca lucioperca*, *Roach Rutilus rutilus* and *Salmon Salmo trutta caspius*.

The decline of fish stocks has implications for food security in some coastal regions, as communities often rely on fish diet.

There is also two very important species in the Caspian Sea including sturgeon and Caspian seal. Important types of ecosystems such as wetlands, deltas, sand dunes, etc. exist along the coastline, which are valuable habitats for different plant and animal species.

Two important water bodies are located along the southern borders of Iran. The Persian Gulf is a semi-enclosed marginal sea surrounded by landmasses and is located in the subtropical northwest of the Indian Ocean. This has imposed a harsh condition on the marine organisms, especially coral reef communities with regard to salinity, temperature and extreme low tides. The Persian Gulf has an area of 232,850 km², which stretches 930 km from the Arvandrod River to the Sea of Oman Sea, with an average width of 288 km. The maximum water depth reaches 280 m with an average of 35 m. The Persian Gulf is one of the warmest areas in Asia. The highest and the lowest water temperatures recorded are 40 degree Celsius and 13.8 degree Celsius. A rapid drop in seawater temperature (about 10° C) marks the transition from the warm to cold season between late November and December. The drop in seawater temperature coincides with the onset of the winter Shamal, a strong north-western wind carrying cold air during the months of November through April. During the early stages of a Shamal a negative surge is produced at the northern end of the Persia Gulf. This surge may exceed 3 m, which is more than the tidal amplitude. Although the salinity of the Persian Gulf is diluted through its connection to the open sea, it is still more saline than the open sea and ranges between 37 to 50 parts per thousand.

Present climatic conditions force extreme rates of evaporation, which exceed precipitation and fresh water inputs, thus driving the average salinity above 40 ppt. Inflow from the Indian Ocean through the Strait of Hormuz makes up the water balance. In later stages, the Shamal produces long period tidal oscillations, thereby effecting extreme low, meteorologically induced tides. Mean sea level reaches a minimum also during the winter months. The coincidence of low astronomical tides and Shamal-forced oscillations produce extreme low tide events. The Shamal weather system is intermittent, normally lasting from 24-72 hours.

The Sea of Oman is surrounded by Iran in the north, the Indian Ocean in the east, and Oman in the southeast. The water temperature is lower than in the Persian Gulf, because of the water depth and its connection to the open sea. The highest and lowest surface water temperatures recorded are 23 degree Celsius and 19.8 degree Celsius respectively.

Different species of marine mammals are observed in the southern waters of Iran, which some of them include blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), sperm whale (*Physeter musculus*), humpback whale (*Megaptera novaeangliae*), long beaked common dolphin (*Delphinus capensis*), black finless porpoise (*Neophocaena phocaenoides*), and dugong (*Dugong dugon*).

Coastal regions have important economic values. Many infrastructure facilities, such as harbours, oil exploitation sites, and power plants are constructed in these regions.

A large variety of plant and animal species are observed in the coastal ecosystems. Mangrove forests are unique coastal wetlands, important fish habitats. Marine turtles, many on the endangered list, live in these ecosystems. The following marine turtles have been observed in Iranian waters: Green Turtle (*Chelonia mydas*), Leatherback Turtle (*Dermochelys coriacea*), Olive Ridley Turtle (*Lepidochelys olivacea*), Loggerhead Turtle (*Caretta caretta*), Hawksbill Turtle (*Eretmochelys imbricate*), and Black Turtle (*Chelonia agaziz*) - recently reported for the first time. Under the Oceanography Project for the Persian Gulf, Sea of Oman and the Caspian Sea, several biodiversity related projects and topics were defined and put to operation. These include:

1. Bio-division of the Mangrove forests in Hormozgan province.
2. Role of cyanophyte bacteria in controlling environmental pollution in the east Persian Gulf.
3. Land-based pollution within the Persian Gulf and Sea of Oman basins.
4. Geo-chemical characteristic of the extent of pollution caused by heavy metals such as Cd, Cu, Hg, Pb.
5. Classification of the Anzali Wetland environment and implementation of the Integrated Management Research Project.
6. Conducting joint studies with the Atomic Energy Organization on the recognition of radioactive elements present in the Caspian Sea.
7. Conducting microbiological studies in the Persian Gulf.
8. Conducting seasonal studies on the presence of microbial contamination in the rivers south of the Caspian Sea
9. Carrying out a study on land-based pollution over the northern region of the Persian Gulf
10. Survey of the damages left to the Persian Gulf coral reefs as a result of the "Gulf War" in 1990.
11. Active participation in the Caspian Environment Program (CEP).
12. Holding a Conference for the Plenipotentiary Representatives of the Caspian Sea Coastal Countries
13. Management of two research tours across the Caspian Sea within the CEP schedule
14. Holding training workshops on the preparation of technical regulations for the assessment of marine pollution and the risk it poses to human health, the integrated management of coastal areas, combating the pollution caused by maritime accidents and emergencies and pollution monitoring.
15. Preparation of reports including:
 - Report on environmental management of the Mangrove forests in the Khamir region.

- Report on biological pollution occurring in marine environments due to the introduction of not indigenous plant species and discharge of urban and industrial wastes.
- Report on types of heavy metals and the extent of the contamination found in four Persian Gulf fish species.
- Report on the effects of tourism in coastal regions.
- Report on the preparation of a checklist of the plants and birds found on the Persian Gulf coasts and islands.
- Report on the impacts of pesticides on the Caspian Sea marine environment.
- Report on the geo-chemical survey of water and deposits in Bushehr Port
- Report on chlorine-based poisonous chemicals present in the rivers flowing into the Caspian Sea

16. Conducting studies on the Bill of Damages to be paid for the environmental losses and impacts left on Iran's southern coastal resources due to the invasion of Kuwait by Iraq in 1990, and presenting the report, including nine projects, to the United Nations of which six projects were approved and received a credit of about 2.5 million dollars.

1.1.2.5 Arid and Semi-arid Lands

Since Iran is in the arid region, some 65% of its territory is arid or hyper arid, and approximately 85% has an arid, semi-arid or hyper arid environment, the specific features and location of Iran causes it to receive less than a third of the world average precipitation. Only the Caspian plain in the north receives more than 1,000 mm of rain annually. The central and southern lowlands and the east of the country receive very little precipitation. Due to shortage of precipitation and its uneven distribution in these areas, most rivers are seasonal and their flows depend heavily on the amount of rainfall: if rainfall is above average, flash floods are common.

Rainfall varies both temporally and spatially, i.e. some places at the Caspian Sea coast receive over 1,000 mm, while some have below 50 mm in central Iran. Even if the country is not experiencing drought there are three provinces, Sistan and Baluchistan, Hormozgan and Kerman which in 2004 had a rainfall of 13%, 28% and 48% of mean annual long run, respectively.

The plant cover in semi-arid regions is usually scattered and due to micro-climatic variation and soil conditions and adapted plant species are generally tolerant to drought and, salinity. In terms of biodiversity, 69% of the main flora approximately about 5600 species are in arid and semi arid areas. Yellow deer, Persian wild ass, Asian cheetah and the crocodile are some of the endangered species inhabiting in arid region of the country.

1.1.2.6 Island Biodiversity

Islands of the Persian Gulf

The Persian Gulf has many large and small islands. There are about 130 islands in the Persian Gulf, of which 25 belong to Iran. Each of these islands has special characteristics that are always of interest. The islands are either naturally parallel to the coast or they are more or less round. The islands of the Persian Gulf can be studied for their origin and forms. These islands are divided into four groups; sedimentary islands, manufactured islands, islands that were created by movement of the earth's crust and coral islands. A number of islands, especially in the mouth of the Persian Gulf, follow the Zagros promontories. Geologically, they display the characteristics of the Zagros fold. Almost all the Iranian Persian Gulf islands are inhabited. Some of them have few residents such as Hangam and Siri Islands. Some of the islands also have more families and life on those islands even goes back to the period before Christ.

In the south-eastern part of Qeshm Island there are caves with round entrances on a relatively high plateau, which are actually stone entrances. This island is comparatively warm in respect to its surroundings and has a warm and humid climate. The centre of this island is the city of Abumoosa.

Kish Island (economic free zone) is located to the southwest of Bandar Abbas, and is an oval shaped island with an area of 89.7 sq. Its centre for cultured pearls and large aquariums are one of the attractions of this island. This island lies to the north of Hormoz Strait, its length being 115 km. Besides which, its forested vicinities such as Harrah (mangroves) Protected Area located between the north of the island and Bandar Khamir are wonderful sights to visit. It is accessible through the Indian Ocean and the Persian Gulf.

Situated in the southern Iran in Persian Gulf, Kish Island is well known for its coral coasts. The Island is highly dependent on tourism as its major economic life. Since 1993, Kish Island has been governed as a Free Trade Zone to promote tourism and business in the area. The Island is environmentally unique acknowledging its coral coasts and habitats for a very valuable species of turtle. Since there has not been an environmental management plan for the Island, during the past few years, its environment has been suffering from impacts due to both economic activities and also efforts to develop the Island. Particularly, the coral reefs in the most parts of the Island coast are now destroyed and the survived parts are also highly threatened due to construction and recreational activities in the coastal zone. Appreciating the environment as a basis for sustainable tourism, recently, it is decided to protect the Island ecosystem through an environmental management plan. The plan relies on an ecological evaluation model to assess the ecological potentials and constraints of the Island.

Iran's Islands inside Persian Gulf, especially the islands in the Strait of Hormuz, are located on a narrow strip of tropical vegetation in the Northern Hemisphere, with the Persian plateau to the north and the Arabian Peninsula to the south. In addition to their special geographic and climatic attributes, many Islands such as Kish, Forur, Hendurabi, Shatuar and Lavan and even Qeshm, is under the sway of the semi-equatorial climate dominating this band of vegetation.

Island of Ashooradeh in Caspian Sea

Ashooradeh is one of the divisions of Bandar Torkaman (Torkaman Port) in Golestan province. This island is located at the eastern end of Miankaleh peninsula and its approximate altitude is about -28 from free sea level. In the western part of this island, the Miankaleh peninsula is located. In the past years because of digging a canal (Khozeini Canal) the land that connects this island to the shore has been cut off and the connection with Miankaleh peninsula has been interrupted so Ashooradeh became an independent Island.

Because of limitation in the land sources, the plant diversity of Island has specific limitation. The Ashooradeh Island has generally the ecosystem of dry regions so there is no many and different types of plant vegetation, there are only some fruit – trees in the home gardens and there is no other commercial agricultural plantation. As this region located in a protected area, the rich wild life makes the area one of the very special regions of biodiversity in the world. This place has favourable life conditions for two groups of immigrant and native birds as well as some mammals. Its native birds are mainly pheasant and francolin. Ashooradeh in the eastern Caspian region receives the average rainfall of about 398 mm per annum with 21/8 % in winter, 21/6% in spring, 6/2% in summer, and 50% in fall. It must be noted that wind has great effect on the situation of the Island, causing sand storm and creating strong water waves on the sea surface.

Generally, wind blows from west to east that in winter it replaces with the northern-east wind to western-south wind and with Siberian origin

1.1.2.7 Mountains

Iran is one of the world's most mountainous countries, its landscape dominated by rugged mountain ranges that separate various basins or plateaux from one another.

Except for the interior deserts and the lowlands along the Caspian Sea, Persian Gulf and Gulf of Oman, half of Iran is composed of high mountains. The main mountain chains are Alborz, Zagros, Kopet Dagh and Khorassan and Makran. Iran is a typical high mountain country with alpine life zones and a diverse alpine flora. The populous western part is the most mountainous, with ranges such as the Caucasus, Zagros and Alborz Mountains. Altitude amplitude is from 26 m below sea-level, on the shores of the Caspian Sea to 5,670 m at the summit of Mt. Damavand, which is the highest peak west of the Hindu Kush in whole Eurasia. There are many mountain peaks in Iran with an elevation higher than 4,000 m.

The two largest mountain ranges, the Alborz lies along the northern border of Iran at the southern shore of the Caspian Sea and extends about 650 km from west to east. Besides several other mountains in Khorasan, Baluchestan and Central Iran they provide diverse orophytic ecosystems. The Iranian high mountains are a rather continuous mountain chain especially at the Alborz and Zagros. The Alborz interpose between Hindu Kush-Himalaya Mountains in the east and Anatolia and Caucasus Mountains in the west. Therefore, this transition area exhibits some very important historical, evolutionary, phytogeographically and biogeographical aspects.

The Zagros region lies to the West of Iran, stretching from close to the north-western border with Turkey, parallel to the border with Iraq down to the Persian Gulf and stretching inwards towards the central deserts of Iran. The region is approximately 1,500km long, 400km wide at its widest, and covers approximately 400,000 km² or one quarter of Iran. The Zagros Mountains, covering 70% of the Zagros region, generally divide the Mediterranean climatic zone (to the west of the mountains) from the arid-west Asian zone. The Zagros ecosystem falls into the Palaeartic realm.

The complex and varied climates, topography, geological formations and anthropological management of natural resources for many millennia have led to a varied and unique biological diversity. In Iran, mountain regions have been a source of progress to civilization. The adaptations and appropriate displacements of the mountain societies of Iran for responding to seasonal climatic differences re-enforced by the altitudinal variation, have transformed constraints in mountain environment into specific advantages.

1.1.2.8 Other Natural Areas

Iran has more than 3,450 rivers (including seasonal rivers). Within the six main watersheds there are 37 major river basins. The most important (with their average annual flow) are: Karoun River (Persian Gulf) 14,619 million cubic meters; Dez (Persian Gulf) 8,825 million cubic meters; Sefidrood (Caspian) 6,491 million cubic meters; Aras (Caspian) 2,317 million cubic meters; Zayandehrood (Markazi) 1,473 million cubic meters; Atrak (Sarakhs) 877 million cubic meters; Hiramand (Hamoun) 142 million cubic meters; the inflow to Lake Urmia (from all rivers) is 5,971 million cubic meters. These figures show clearly that the head of the Persian Gulf and the Caspian receive the highest flows, while the other four watersheds receive relatively low inflow. Rivers are considered as natural habitat for aquatic species, small animals, birds and specialized flora. They offer important and valuable ecological services as well.

Traditionally, in most parts of the country, the rich underground water resources in the higher altitudes are transferred by the man-made underground water channels systems to the lower and dryer agricultural and settled areas which are known as Qanat or Karez.

1.2 Overview of Status and Trends of National Biodiversity

It is very difficult to assess biodiversity trends in Iran since the national biodiversity indicators are not fully developed. However, what is obvious from reports, data and statistics in general biodiversity of Iran in different ecosystems and at different levels is degrading. Although the Iranian government has taken various measures to combat degradation and rehabilitate degraded natural resources but different factors such as prolonged and frequent drought cycles and maximized use of soil, water, and plant cover has aggravated the biodiversity decline in Iran. For example the country's population is more than 73 million³ with an annual average growth rate of about 1.3 % per annum⁴. More than 21 million of the population live in rural areas.

While extinction is a natural process, but the current rate of extinction in Iran is greater than typical extinction rate in the fossil record. For example from 50 to 60 years ago, Iran has lost two of its most spectacular carnivores, the Persian Lion and Caspian Tiger, as a result of uncontrolled hunting and habitat destruction. There are some other threatened species, which demonstrate the urgent need for conservation measures. The same condition exists for plant species. Studies show that 32% of the vulnerable and endangered plant species are being used directly and indirectly by people. Iran plans to conduct more studies on the condition of plant species.

A variety of national processes evaluates the status and estimate the level of threats mostly for vertebrate species of Iran.

In a long-term plan (for the next 15 years), Iran plans to decrease the number of its species in the IUCN Red List by 50% and implement management plans for all the protected areas. In addition, there are reintroduction programs for endangered species. There will be efforts in place to control the utilization of wildlife based on the population capacity.

Guidelines of the Convention on Biological Diversity changed protection priorities from species to ecosystems in Iran. This may be clear in approach, but the implementation of regulations faces many problems, mostly due to inadequate size of protected areas, technical and administrative management inadequacies, and discouraging rigidity of protected area acts. However, the new approach to the protected areas and to conservation of biological diversity calls for inclusion of environmental concerns in any national or regional development policy.

Iran's biological resources have been described and managed in different sectors including: aquatic, coastal area, agricultural, forest, desert and wetland resources.

³ <http://www.tabnak.ir/fa/pages/?cid=124062>

⁴ <http://www.dolat.ir/NSite/FullStory/?id=188734>

Despite the richness of biodiversity in the country, several factors such as population growth, unsustainable and inefficient utilization of basic resources and destructive human activities, especially in rural settlements, is threatening the biodiversity of the country.

The CBD's 2010 Target is to reduce the rate at which biodiversity is being lost. Rigorously assessing this target is very difficult, because it requires at least two quantitative measures of the status in the past to determine historical rate of biodiversity loss and at least one recent measure to determine if the historical trend has changed.

Satellite image analysis and recent surveys show that forests are rapidly disappearing in both the Alborz and Zagros region. Today forest areas cover some 14.2 million hectares (about 8.6% of the area of the country)⁵ which was estimated to be about 18 million hectares 40 years ago. According to the existing estimates, 165,000 hectares of forests in Iran are degraded, annually, from which 45,000 hectares are commercial forests. The area of Mangrove forests in the south was about 200 thousand hectares 25 years ago, whilst this figure has decreased to 120-130 thousand hectares, indicating a loss of about 2500 hectares of Mangrove forest every year.

Extensive logging and clearing of forests for agriculture have nearly eliminated the forests ecoregions. The invasion of non-native plant species has also posed a serious threat to native plant communities. The yield of forests has been reduced from 300 tons/ha to 100-110 tons/ha during the last four decades. The area of forestlands was estimated at around 3.4 million hectares 50 years ago with a biomass of 30 tonnes/hectare. Currently the most optimistic figures are 500,000 hectares, with a biomass of 5 tonnes/hectare. The national goals to improve the conditions of forests and reduce the speed of degradation include:

- Utilizing forests based on their carrying capacity
- Moving livestock out of forests and strengthening control mechanisms on grazing
- Halting commercial and industrial use of forests
- Improving soil and plant cover in the forests
- Developing ecotourism in forest ecosystems, considering benefits and rights of local communities
- Promoting values of forests
- Rehabilitating native species
- Increasing the area of forests
- Conducting EIA for large scale development projects near or within the forest ecosystem

Overgrazing and shrub collection for fuel continue to markedly reduce plant biomass and alter plant communities. Overharvest of natural plant populations mainly for the market is

⁵ Based on the national definition and statistics provided by the Forest Organization

a recent phenomenon threatening plant biodiversity in the country. Diversion of water and frequent drought is drying wetlands and rivers with unknown effects on aquatic biodiversity. Hunting and trapping of waterbirds in wetlands of Iran and important bird areas is leading to the loss of population and some important endangered bird species, such as the Siberian Crane. Large mammals such as the Asiatic cheetah, are endangered and the population has rapidly declined during the past years.

The Caspian Sea is under threat due to increase in the coastline population and increase in the utilization of the resources, presence of invasive and alien species, different types of pollutions entering the sea, lack of effective integrated management systems, low awareness and insufficient involvement of local communities in conservation of biodiversity. The rise of sea level in the past decade, has reduced the area of coastal ecosystems and increased hazards to human settlements. Degradation of coastal ecosystems will have negative impacts on the tourism industry.

In many parts of Iran, the level of exploitation of wetlands is high. Flood plain wetlands, river banks and lake shores are utilized for the cultivation of cereals, rice or vegetables, while the rivers and lakes themselves support intensive freshwater fisheries. The wetlands provide vital sources of water for domestic and industrial consumption, and constitute natural water storage reservoirs which can be utilized for irrigation purposes. Many of the larger rivers have been dammed to provide hydro-electricity, while some of the inland salt lakes are exploited as an abundant source of various salts. Reeds are widely used for thatching and weaving purposes or as fuel, and in the vast reed-beds of the Sistan Basin, marsh-dwelling communities were until recently almost totally dependent on reeds for their construction needs. Large numbers of domestic livestock, particularly cattle and water buffalo are allowed to graze on wetland vegetation, and in some areas, aquatic plants are harvested to provide fodder during the winter months.

Despite the high human pressures on wetland resources and increasing demand for more land for agriculture, there have been relatively few major losses of wetland habitat in Iran in recent decades. Locally, losses have been severe, especially in the wetlands of Khuzestan in the southwest and in the Hamoun wetlands in the Sistan Basin. However, in most regions of the country, many of the wetlands remain in relatively good condition. This is due in large part to the active policy of wetland conservation pursued by the Government of Iran since the late 1960s, and the establishment of an effective network of protected areas which includes many of the country's most important wetlands. Iran has long term plans to reach the ideal condition for its wetlands. Some of the goals to be reached within 15 years are:

- National wetlands especially internationally recorded wetland to receive the amount of water required for their ecological functions
- Decreasing the number of Ramsar sites recorded in The Montreux Record (currently seven) to zero

- Increasing the number of Ramsar sites to 30 (currently 22) with comprehensive management plans
- Developing ecotourism for wetlands based on their values and ecological functions
- Decreasing land conversion in wetland ecosystems
- Increasing public awareness about the values and sustainable utilization of wetland ecosystems

A drastic erosion is also taking place in the rangelands, where approximately 500,000 hectares of rangelands are degraded every year because of unrestricted use of these resources by human, livestock grazing and other natural factors.

Since the livelihood of many rural communities are heavily dependant on rangelands degradation of the range is inevitable. Based on information published by the Technical Bureau of Rangeland, approximately 5.4 million cubic metres of range shrubs are cut-off or uprooted annually just to provide fuel for rural people. Some of the major factors contributing to the degradation of rangelands are as follows:

- Overgrazing;
- Untimely grazing (early or late grazing);
- Inefficient management of range and livestock in transhumance;
- Competitive utilization of range among transhumant groups;
- Collecting fuel;
- Over harvesting medicinal plants
- Ploughing rangelands and expanding the area of low yield rainfed crop cultivation on the slopes;
- Overpopulation

Recently, conservation of fragile ecosystems in dry, sub-dry and sub-humid areas is specifically taken into consideration and restoration of these ecosystems is given high priority in executive programmes. For instance, some degraded mangrove forests are rehabilitated in recent years. Furthermore, private sector involvement in planning, formulation and implementation of projects is stipulated in the law. Local communities, farmers, herders and NGOs are formally involved in the process of formulating, planning and implementing forest plans and policies. At present forest and rangeland, protection is mainly carried out with the collaboration of local communities.

Based on scientific estimates, 1% of the total area in Iran is annually degraded to desert land. Frequent drought cycles and unsustainable methods of use of soil, water, and plant cover has aggravated the desertification process in Iran. The net result is the lack of opportunity for the vegetation to develop resulting in reduced biological productivity of agricultural lands and natural vegetation.

Iran has taken several measures to promote the conservation and sustainable use of the biological diversity of dry and sub-humid lands. A national action plan to combat the loss

of biological diversity in such areas has been implemented. The most important measures in this action plan are as follows:

1. Strengthening the cooperation among various relevant national organizations (FRWO, DoE, MAJ, MoE, etc.).
2. Promoting the Involvement of major stakeholders in undertaking planned activities,
3. Raising public awareness and facilitating participation, especially affected populations,
4. providing required financial resources at different levels (provincial, sectoral and local),
5. Building capacities of local communities and relevant administrative bodies.

1.3 Analysis of Main Threats to National Biodiversity and their Implications

Different factors threatening the biodiversity of Iran, can be categorized into two main groups which are natural and human induced.

However the most important threatening factors to the biodiversity are as follow:

1.3.1 Over Exploitation of Water Resources and Unsustainable Development of Agricultural

Considering the diversity of geological, climatic, and hydrological conditions of Iran, it is no surprise that many factors (human kind and naturally induced) play a role in the development of salinity problems in Iranian agriculture. The natural causes of soil salinity in Iran are geological conditions, climatic factors (evaporation, rainfall, and wind), salt transport by water, and intrusion of saline bodies of water into the coastal aquifers. Nevertheless, what seems to be of greater concern and importance is the human induced salinity. This type of salinity stems from poor water management, following, over grazing, and improper land levelling. In addition, ground waters overdraft, which enhances saline water intrusion, is another human induced salinity factor.

In many regions of the world, the increasing demand for food in the coming decades cannot be met by extending the area of land under cultivation but only by increasing the productivity of their agriculture. A more efficient use of the land as a result of increased productivity requires less forest to be cleared for farming purposes and preserves a greater genetic diversity of plant species. In Iran, arable land area could in principle be increased but increased crop productivity is needed to compensate in particular for water scarcity. Due to limited water resources, it is unlikely that the irrigated area can be increased to provide for the required level of crop production. Biodiversity and genetic resources play a central role for enhancing agricultural production. The efficacy of all other elements on agricultural development such as land consolidation and levelling, improved irrigation methods, balanced fertilization, high quality seeds, disease and pest control and mechanization are strongly dependant on the existing genetic potential of crop cultivars.

Also wetlands in Iran, as elsewhere in the region, are increasingly coming under pressure from man's activities. Undoubtedly, the most serious threats to wetlands have been the drainage and "reclamation" of wetlands for agriculture, industry and urban development, and diversion of water supplies for irrigation purposes. Flood control projects and irrigation schemes on the Hirmand River in Afghanistan have considerably affected the wetlands of the Sistan Basin, especially during years of low rainfall.

Increased siltation is becoming a problem at some wetlands, as deforestation and overgrazing in the water catchment areas lead to severe soil erosion, increased silt loads in the rivers and flash-flooding. Such problems are especially serious in the south

Caspian lowlands; the wetlands of the Anzali Mordab complex, in particular, are threatened by increased rates of siltation and accelerated eutrophication. Because of soil erosion in the catchment areas, many of the dams have silted up much more rapidly than anticipated, with consequent loss in water storage capacity and greatly reduced value for water supply and generation of electricity.

In the 1970s, increased coastal erosion in the delta of the Sefid Rud in the south Caspian was attributed to a reduction in the amount of silt reaching the delta following the construction of a large dam upstream in the Alborz Mountains. At some wetlands, especially in the Sistan Basin, heavy grazing of marsh vegetation by domestic livestock is inhibiting natural plant succession, and is causing permanent damage to aquatic plant communities as the highly palatable species are grazed to extinction. This degradation of wetland vegetation and the introduction of exotic fish species have had a detrimental effect on some of the native freshwater fishes.

Some of the mangrove communities in the Persian Gulf have also been degraded by excessive utilization for fuelwood and fodder, and over-grazing by camels. Many wetlands, especially those downstream of large urban centres and major farming areas, have been polluted with domestic sewage, herbicides, pesticides, fertilizers, industrial effluents and other waste products, and some of Iran's coastal wetlands and inshore waters are now badly polluted. The petrochemical industry in the Persian Gulf continues to pose a number of threats to the environment, not least pollution. The movement of oil tankers through the Gulf presents a continued threat to marine life and to the increasingly important Gulf fisheries.

As described before, Iran has several important lakes and wetlands which are rich sources of biodiversity and many of them are increasingly at threat from over exploitation of water resources and drought. Overexploitation of water resources from wetland and rivers causes major threat to natural ecosystems. The underground water table has dropped dramatically in many regions due to excessive drilling of wells and over exploitation of water resources.

As an example, Lake Urmia located in northwest Iran, is one of the most important and valuable aquatic ecosystems in this country and in the region. It is the largest inland lake in Iran, and because of its unique natural and ecological features it has been given national park status and has been designated as a Ramsar Site (wetland of international importance) and a UNESCO Man & Biosphere Reserve.

Lake Urmia lies at the centre of a closed drainage basin, with all surface and ground water draining towards Lake Urmia. Here, the particular geology of the basin and the high evaporative and continuous deposition of salts leads to hyper saline conditions. The lake is surrounded by a number of freshwater wetlands, which together form an important Ecological Zone around the Lake.

The construction of large dams on the main rivers at some time in the future would render many of the ab-bandans obsolete for irrigation purposes, and could lead to their conversion into agricultural land, very much to the detriment of wintering waterfowl. In recognition of this potential threat, the maintenance and preservation of ab-bandans has become an important part of the Iranian Department of the Environment's programme of wetland conservation in the southern Caspian region.

1.3.2 Unsustainable land-use conversions

Land conversion in the country has different faces. Farmland converted into land for settlement, forest changed into agricultural land or small-size farming may change into large-scale agro-industrial farming and more land may be needed to provide or should change into smaller parcels for new families. In many cases, the land conversion is not carried out in a sustainable way.

Agriculture is the primary driver of land use change. Much of the pressure to convert forests into agricultural uses comes from increasing population growth and development demands.

In Iran, a spatial and land use planning system is only in place in some municipalities and districts, e.g. master plans for rural areas, but not for the whole country. In particular, there is a lack of planning on the regional and central levels.

The main reason for converting land and destroying the key habitats is for facilitating development plans and promoting economic activities. All stakeholders including decision makers, planners, and some local community are involved in land-use conversion. For example converting forests and rangelands in mountain areas is usually due to agricultural development and building construction, scarifying some important ecosystems. Land conversion was easier before but now it is not as easy. Still conversion is not impossible and continues to take place. Increase in human population increases the need for development plans and therefore the pressure on natural resources will continue to increase.

1.3.3 Over-grazing

Rangelands have been used sustainably for ages, because the human population was very restricted, the rangelands were of good to high potential and they were used below their grazing capacity. Population explosion and its increasing demand for food and income cause more rangelands to be cultivated and more livestock to graze to meet the requirements of an increasing population. Thus, rangelands are, now, under pressure.

Based on table 4, there are about 124 million livestock across the country, which calculating their dependence rate on rangelands, suggest that some 83,000,000 animal units currently graze over rangelands. It reveals that the rangelands are being exploited 2.2 times more than their grazing capacity. It should be noted that part of this shortage of forage is maintained by other sources such as tree foliage and agricultural by products,

but still rangelands are the main source of forage for sheep and goats in extensive livestock raising as it is the main cheapest source of forages.

One of the main complicated problems of rangeland management is the disagreement between the natural resources managers and environmentalists in Iran on the definition of rangeland. From the natural resources point of view rangeland is defined as a grazing land and while from environmental point of view it is also seen as an ecosystem which requires conservation. Based on the definition natural resources managers, rangeland is not considered as an ecosystem and therefore it is not included in ecosystem management programs. In this traditional definition that has been used since long time ago, by local community and management organizations in Iran, low-density forests are also considered as rangelands. In some areas even the plant diversity is changed by introducing alien and invasive species with good forage production for livestock. Therefore, planting imported plant species in rangelands and even in wetland ecosystems has caused severe destruction for native plant diversity.

Table 3. Livestock Population in Iran

Row	Livestock	Population (1000 heads)	AU equivalency	Population (1000 AU)
1	Sheep	54000	1	54000
2	Goat	25757	0.75	19318
3	Native Cattle	5500	4	22000
4	Hybrid Cattle	1806	6.5	11739
5	Pure Cattle	741	9.5	7044
6	Camel	143	5.5	786.5
7	Buffalo	475	6.5	3087.5
8	Draughts	1727	3.5	6044.5
	TOTAL			12400

Source: Badripour, H et.al. 2006. Rangelands of Iran

1.3.4 Hunting and Trapping

Although national laws and regulations are in place for controlling hunting and trapping in different areas of the country but hunting still occurs and it is difficult to analyze its trends. Usually hunting and trapping happens for livelihood of the people and if alternative livelihoods were developed, it would be possible to decrease and control the pressure of hunting.

The freshwater wetlands and lakes across the country provide important habitats for waterbird hunting. Usually people have a permit issued by DoE to be allowed for limited bird hunting. With this permit, they can hunt certain species of birds from the beginning of September to mid-March. In the past, hunting occurred only to supply the local demand for meat (i.e. subsistence hunting) but now the hunted birds are being brought to the market.

Waterfowl hunting occurs at wetlands throughout Iran. Sport hunting is common, and occurs on a large scale at wetlands near the larger cities. In many rural areas, however, waterfowl are shot, netted or trapped primarily for their meat value. In the south Caspian lowlands in particular, enormous numbers of waterbirds are harvested on a commercial basis, and provide a livelihood for hundreds of people. Between the 1970s and the early 1990s, the number of waterfowl wintering in the south Caspian region dropped dramatically, almost certainly as a result of the excessive hunting pressure, and the annual harvest.

During the last decade, due to drought and water abstraction, the conditions for waterbirds have deteriorated and numbers have dramatically decreased. Thus, at present, the intensity of bird hunting is much reduced (evidenced by the drop in membership of the waterbird hunters' society). Under the current conditions it seems that waterbird hunting will continue to decline in importance; any recovery will depend on the revival of the reed beds and the wetlands.

There is no evidence in the country that the number of birds harvested has had a major impact on the waterbird populations, since hunting has been undertaken for centuries. However, with the loss and degradation of many wetlands, the disturbing effects of hunting may have a serious impact on the populations.

1.3.5 Extended Use of Fertilizers and Pesticides

Agriculture has long been considered a leading threat to the biodiversity. The scale of agricultural impact is much greater than had previously been recognized. Over a third of the agricultural land area is in high-intensity continuous cropping systems that use high levels of agrochemicals and reshape land and waterways. The rest of the agricultural area is under extensive farming systems that use far fewer inputs, but require relatively large expanses of land to produce relatively low crop and livestock yields. Both types of agriculture have had negative impacts on biodiversity.

When pesticides are applied in the field, they also spread into the environment. Generally, pesticides reach the soil either through application on the soil or through run-off. Gaseous chemicals may escape into the air. In the soil, pesticides can bind to soil particles and/or move into groundwater. When a pesticide is highly persistent in the environment, it may cause undesirable biological effects, such as negative effects on soil-flora and fauna, aquatic life, ecological diversity and air quality (pollution). From the crop management viewpoint, there are some additional, serious disadvantages of the use of chemical pesticides. In addition to the target pest, pesticides may kill beneficial organisms such as natural enemies, bumble bees, and antagonistic micro organisms.

Over 27,000 tonnes of pesticides were used in Iran during 2000-01, about 16,000 tonnes of which are formulated in the country. Of 241 pesticides in use, insecticides make up

33%, herbicides 30%, fungicides 20%, acaricides 6.2%, rodenticides 3.8%, nematicides 1.5% and others 5.5%. Iran spent US\$125 million on pesticide imports in 2002. Although this huge volume of pesticides is distributed all over the country, 60% of all pesticides are applied in the three northern provinces, close to the Caspian Sea, while rice production alone accounts for a quarter of national pesticide use.

Of the pesticides in common use, 25 are banned in other countries and some have been withdrawn from use in Iran, yet farmers can easily obtain them on the black market or via cross-border smuggling and continue to use them in rice, cotton, citrus and other crops. One investigation has found very high levels of the organophosphate insecticide diazinon at Kiashahr port on the Caspian Sea. This pesticide was used for stem borer control in more than 250,000 out of 400,000 ha of rice paddy. Diazinon levels in the Babol Rud River on the Caspian coast of 4.1 parts per billion (ppb) were recorded, with diazinon, ethion and methyl parathion insecticides the commonest pesticide contaminants in this river. Another study determined the level of diazinon as 9.5 ppb in the Shirud River.

1.3.6 Natural Drought

Drought has frequently happened as a natural disaster in wide areas of the world. Iran has experienced prolonged drought for several years. During these years, the amount of rainfall was even lower than 50 percent of the average annual rainfall in the country. The drought that happened in 1998-1999 was the most severe drought in 30 years and influenced all parts of the country. In this period, the rainfall was about 26% lower than average rainfall in 30 years.

The great droughts have negative impact on various sectors in the country such as water resources, agriculture, forests and rangelands, soil fertility, livestock and deserts. Droughts also affected industries, society, national economy and government budget. Periodical droughts are new to Iran, because of its geographical and natural conditions. However, recent evidences indicate that dry periods are increasing in frequency, time period and intensity. Therefore, this important fact cannot be overlooked in related decision making processes for the future of the country.

1.3.7 Deforestation and Land Degradation

Two of the major environmental hazards affecting the planet are deforestation and desertification, Marine, freshwater, atmospheric, near-space and terrestrial environments have suffered and continue to suffer environmental degradation. Shifting agriculture is the primary cause of deforestation.

Iran's forests have been severely degraded during the last half century. According to data published by Forest, Range and Watershed Organization, between 1944 and 2000, total forest area diminished from 19.5 million to 12.4 hectares with an average deforestation rate of about 125,000 ha per year.

There are several studies on the underlying causes of deforestation and forest degradation in Iran, of which most of them deal with processes outside the forestry sector. Up to 1960, one of the greatest factors contributing to forest degradation was fuel wood production which led to the expansion of rangelands in the country. After 1962, when the whole forests of the country was nationalized, and although forest exploitation was licensed just for traditional animal husbandry, the population growth due to high standards of living, increased needs for food and crop lands and therefore aggravated deforestation trend coupled with policies for wheat and meat self-sufficiency increase of foreign currency rate as well as urbanization, rural development and expansion of industries., On the basis of new laws in recent years any land use change of agricultural lands is forbidden.

Over the last four decades, intensive deforestation and rangeland overgrazing have contributed to soil erosion in watershed areas. According to the Ministry of Jihad-e-Agriculture, soil erosion leading to dam sedimentation results in a loss of reservoir storage capacity of 236 million cubic meters per year. Flooding has increased during recent decades in Iran. Furthermore, the number of floods recorded in the 1980s and 1990s is more than five times the number recorded in the 1950s and 1960s. Poor land use management and deforestation can contribute to increases in the frequency and intensity of floods (World Bank, 2005). Clearly, identifying the causes of floods is very complex and estimating a damage cost is difficult. However, it is believed that the dramatic increase in the number of floods over the last three decades is closely related to increased deforestation, which took place over the same period.

One of the main sources of rangeland degradation is overgrazing. There are already about 46 million animal units above the carrying capacity on Iranian rangelands. Unsustainable production is an inevitable consequence, which, in turn, causes declining trends in pastures, transformation of good pastures into poor ones and of the latter into non-productive pastures. Over the past 30 years, the quality of rangelands has worsened. Results of a recent survey show that rangelands in good condition have decreased by around five million hectares, rangelands in fair condition have decreased by around 23 million hectares, while rangelands in poor condition have increased by around 28 million hectares.

1.3.8 Climate Change

Impacts of climate change mitigation activities on biodiversity depend on the context, design, and implementation of these activities. Land-use, land-use change, and forestry activities (afforestation, reforestation, avoided deforestation, and improved forest, cropland, and grazing land management practices) and implementation of renewable energy sources (hydro-, wind-, and solar power and biofuels) may affect biodiversity depending upon site selection and management practices.

For example: 1) afforestation and reforestation projects can have positive, neutral, or negative impacts depending on the level of biodiversity of the non-forest ecosystem being replaced, the scale one considers, and other design and implementation issues; 2) avoiding and reducing forest degradation in threatened/vulnerable forests that contain assemblages of species that are unusually diverse, globally rare, or unique to that region can provide substantial biodiversity benefits along with the avoidance of carbon emissions; 3) large-scale bioenergy plantations that generate high yields would have adverse impacts on biodiversity where they replace systems with higher biological diversity, whereas small-scale plantations on degraded land or abandoned agricultural sites would have environmental benefits; and 4) increased efficiency in the generation and/or use of fossil-fuel-based energy can reduce fossil-fuel use and thereby reduce the impacts on biodiversity resulting from resource extraction, transportation (e.g., through shipping and pipelines), and combustion of fossil fuels.

The “direct” adverse impacts of climate change include changes in precipitation and temperature patterns, water resources, sea level rise and coastal zone, agriculture and food production, forestry, drought frequency and intensity, and human health. The “indirect” adverse economic impacts result from the response measures taken by the developed countries.

Biological diversity as fauna or flora normally refers to the different variety of life forms at various organizational levels from biomes down through genotypes.

The link between climate change and biodiversity has long been established. Although throughout the history of Earth the climate has always changed with ecosystems and species coming and going, rapid climate change adversely affects ecosystems and species ability to adapt and therefore, biodiversity loss increases.

To confront ecological changes, the world must adopt an economy where the carbon dioxide emissions is reduced to minimum levels. Iran officials have no objections in this regard, because this is a view that is based on scientific evidence. Iran's position stress's on supporting the environmental protection conventions and the Kyoto Protocol, and Iran has long-term planning for combating climate change in its agenda.

Changes in biodiversity at ecosystem and landscape scale, in response to climate change and other pressures (e.g., changes in forest fires and deforestation), would further affect global and regional climate through changes in the uptake and release of greenhouse gases and changes in albedo and evapotranspiration.

Based on the research and assessment carried out during the Climate Change Enabling Activity Project under UNFCCC, and using the scenarios proposed by IPCC, it is estimated that if the CO₂ concentration doubles by the year 2100, the average temperature in Iran will increase by 1.5 - 4.5°C which will cause significant changes in water resources, energy demand, agricultural systems and products, and coastal zones.

It can be said that during the last half century, climate in forest area in Caspian region has become warmer. Precipitation trends especially in Anzali station that has highest precipitation records in Iran and also in Gorgan station have decreased 409.4 mm and 55.6 mm, respectively. Precipitation trends in Rasht and Baboulsar stations have shown a positive change. During last 49 years in Rasht station mean annual temperature increased about 1.28 °C and even its minimum temperature shows 2.45 °C increases. The mean annual temperature in Baboulsar station in the last 54 years has increased 1.44 °C. Distribution of plants are directly depends upon temperature and precipitation conditions in each climatic zone. Generally, with 100 meters increase in altitude temperature will decrease by one degree centigrade. In study zones especially in Gilan and Gorgan area temperature increases more than one degree and main species of vegetation cover moved upward about 100 meters.

1.3.9 Desertification

Due to Iran's geographical situation and topographical features, about 80% of Iran's total area have arid or semiarid climate. Even though, there is a variation in reports on quantity of deserts areas in Iran, because of different definitions; some real estimations showed that, at the present the area of desert regions and sandy lands is estimated to be 34 million hectares (5 million ha active and 12million inactive sands and remain areas is salt accumulation lands, saline and alkaline soils, gravelly lands, etc.), and that of the poor and desertified rangelands which is 16 million, it reaches to 50 million hectares.

There is a great integrated survey to definition and mapping Iranian deserts, for getting actual numbers. However, after more than 40 years of executive programs and 3 decades of research activities for solving desert problems, a large quantity of reclaimed desertic area has been ready for life of human communities. The most important finding is to rational management of water; especially utilization of flood flows in arid regions is the key for solving the problems. Furthermore, involving and sharing the benefit with the local people (who are the actual owners of the lands), is one of the successful ways to sustainable rehabilitation of deserts.

Land degradation and desertification in Iran have accelerated during recent decades due to the following factors:

- Population has doubled during last 25 years (since 1979) and naturally the demand for agricultural and animal products have increased proportionally. Thus, people were encouraged to increase the number of their livestock and to use the land more extensively. In order to increase the area of agricultural lands, people converted the rangelands and forests into farms and croplands. They also cultivated marginal lands for rainfed crops without any consideration of their long-term potentials. These activities in many cases have resulted in abandoning the land after few years due to

low yield and thus, causing desertification. In addition to overgrazing due to excessive livestock numbers, most of the rangelands experienced untimely grazing in the forms of early grazing or late grazing.

- The new agricultural machinery was used to plow more rangelands and to cut more trees and bushes from the rangelands and forests.

- Overuse of wood and plants as fuel for household cooking and heating and use of natural regulation denudes the soil and intensify desertification. Just a little portion of the villagers were able to use petroleum fuel before the Islamic revolution in 1979. In addition to the demand for fuel to meet household cooking and heating needs, some factories are also using fuelwoods.

- Denuded soil is exposed to wind erosion and shifting sand dunes destroy orchards, gardens and farmlands, threaten industrial and economical centres, and leads to total collapse of economy, devastation of the environment, abandonment of settlements and migration of people to other cities and residential centres. In Iran wind erosion and its effects on natural resources and the environment has been a serious problem in the last 25 years.

- Irregular and uncoordinated exploitation of water resources; overexploitation of ground water reserves for expansion of agricultural lands caused water table to drop to a critical level almost in the whole central plateau. As drought years persist, ground water table increasingly reused by stakeholders to meet their needs for irrigation and other uses. Since water table is not replenished in drought periods, thus resulted in aquifer deterioration and leads to land abundance. These processes finally resulted in desertification.

- During civil war in Afghanistan both when Taliban governed and also during conflict between former Soviet and Mojahedin forces, many Afghan people left their country and settled in Iran as refugees. Some of these refugees settled in the eastern part of Iran particularly in Khorasan and Sistan provinces and excessive pressure exerted on land due to the activities to meet their requirement. Demand for fuelwood as an example, caused more than 1.2 million hectares of lands being degraded.

On the other hand, in arid and semi-arid areas nomadic pastoralists are often seen as being in direct competition with threatened species including the rare Asiatic cheetah. Nomads are frequently seen as major threats to biodiversity. The expansion of agriculture into arid and semi-arid lands is possibly a much greater threat and has, in any case pushed nomads and their livestock into smaller areas. There have been promising efforts to develop collaborative management approaches which may help to resolve some of the conflicts and which involve nomads in the conservation process, building on local and traditional knowledge. Collaborative management of the Asiatic cheetah, while controversial, is an important initiative in this area.

Chapter II - Current Status of National Biodiversity Strategies and Action Plans

2.1 National Biodiversity Strategies and Action Plan Project (NBSAP)

The development of biodiversity strategies and action plan was a result of an enabling activity project known as “The National Biodiversity Strategy and Action Plan” or NBSAP, which started in December 1998 in collaboration with the United Nations Development Program (UNDP), the Global Environment Facility (GEF) and the International Union for Conservation of Nature (IUCN) and on the basis of the obligation assumed by the Islamic Republic of Iran upon becoming a party to the Convention on Biological Diversity. The NBSAP project had a complementary stage so called as add-on phase as a continuum to the original project with three basic activities: traditional knowledge, clearing house mechanism and taxonomy from 2001 to 2003.

The Project Steering Committee was the first body established before the implementation process. This Committee was headed by Deputy Head for Natural Environment & Biodiversity, Department of Environment (DoE), comprised of representatives from Management and Planning Organization (MPO), Ministries of Science, Research & Technologies, Jihad-e-Agriculture, Energy, Interior, Foreign Affairs, Biodiversity Sub-Committee of the National Committee on Sustainable Development, University of Tehran, Environmentalists Association (NGO), and UNDP.

The initiation phase of the project was completed in 1999. Several technical working groups were established to carry out the project. The outcome of these groups led to preparation of a series of reports. These reports have been prepared through consultation with several national and international consultants, and each assessed by special questionnaires distributed among the members of the Project Steering Committee. A special Synthesis group was set up later to combine and analyze these reports and prepare a single document.

The National Biodiversity Strategy and Action Plan (NBSAP) has significantly influenced the development and implementation of the country's biodiversity policy framework. This framework, in turn, has led to the development of the National Biodiversity Strategy, preparation of the Biodiversity National Action Plan for implementation of the national biodiversity strategies, and the preparation and delivery of many National Reports to CBD as follows:

- First National Report to CBD (2001)
- Second National Report to CBD (2003)
- National Biodiversity Strategy and Action Plan (2001)
- Thematic Report on Alien and Invasive Species (2001)
- Thematic Report on Forest Ecosystems (2001)
- Thematic Report on Mountain Ecosystems (2003)
- Thematic Report on Protected Areas (2003)

- Thematic Report on Technology Transfer and Cooperation (2003)
- Voluntary Report on Implementation of Expanded Programme of Work on Forests (2003)
- Interim National Report on the Cartagena Protocol on Biosafety (2005)
- First Regular National Report on the Implementation of Cartagena Protocol on Biosafety (2007)

2.1.1 National Biodiversity Strategies

The text of the National Biodiversity Strategies was finalized in June 2003, following the approval of the National Committee on Sustainable Development and approval of the Environmental High Council. Four national biodiversity strategies were recognized in this document:

1. Promotion of public awareness and participation in conservation of biodiversity
2. Formation of biodiversity information systems
3. Sustainable use of biodiversity resources
4. Integrated management of biodiversity

2.1.1 National Biodiversity Action Plan

The first draft of Action Plan for implementation of national biodiversity strategies was prepared in 1999, in a participatory manner involving stakeholders from governmental, non-governmental and private sectors. A series of 25 basic actions were proposed, each with several activities and sub-activities (Table 1).

Table 4. Framework of Iran's Action Plan for implementation of national biodiversity strategies

Basic actions	Related national strategy
1. Developing principles, guidelines, policies and execution procedures for preparation of formal education curricula in conservation of biodiversity,	1,2
2. Developing principles, guidelines, policies and execution procedures for preparation of informal education modules in conservation of biodiversity,	1
3. Awareness raising of specialists and other human resources in different fields of biodiversity	1, 2, 4
4. Utilization plan of social institutions in conservation of biodiversity, emphasizing promotion of awareness and strengthening of public participation, especially local stakeholders and communities	1, 3, 4
5. Comprehensive program for protection of traditional knowledge, innovations and practices related to conservation of biological diversity,	2
6. Strengthening of research infrastructures related to conservation of biodiversity,	2, 4
7. Establishing and development of national biodiversity assessment, monitoring and reporting,	2, 3
8. Compilation of principles, strategies, policies and regulations for biotechnology development	2, 4

9. Developing and strengthening of international and regional cooperation in conservation of biodiversity issues,	1, 3, 4
10. Compiling and implementation of strategies in development sectors	3, 1, 4
11. Strengthening of national legal and jurisdictional procedures for the conservation of biodiversity	4, 3, 2
12. Strengthening of economic and environmental considerations in national management systems of biological diversity resources,	3, 2, 1
13. Strengthening land use planning of the country,	2,
14. Developing principles, policies and regulations for application of environmental rules	3, 4, 2
15. Development of cleaner industrial production procedures	3, 2, 4
16. Developing sustainability indicators and their application plan in biodiversity related activities	3, 4, 2
17. Developing and implementation of the comprehensive plan for eco-tourism,	1, 3
18. Developing and implementation of the integrated plan for conservation of Agro-biodiversity,	4, 3
19. Establishment of the proper structure for coordinating Governmental Organizations activities related to biodiversity,	4, 1, 2
20. Organizing forest and rangeland rehabilitation activities,	4, 3, 1
21. Supporting in-situ and ex-situ biodiversity, emphasizing on endangered plant and animal species,	3, 4
22. Correction and strengthening of Protected Areas Network,	4, 3
23. Confronting biodiversity-Loss,	3, 2, 4
24. Conservation of aquatic biomes,	3, 4
25. Conservation of endangered species	3, 2, 4

Source: NBSAP report 2005

Iran continues to fund the implementation of National Biodiversity Strategies for achieving its goals and objectives.

2.2 Current Status of National Biodiversity Strategy Implementation

It is very clear that NBSAP has redirected the environmental agenda of the Country by influencing the conservation agenda and proposing new tasks for several governmental institutions, mainly the Department of the Environment (DoE) and the Forest, Rangelands and Watershed Organization (FRWO), two Iranian leading agencies in conservation of natural resources.

One of the results of this Enabling Activity Project has been the inclusion of the biodiversity strategies in the 3rd and 4th National Development Plans (2000-2010). Articles 58 and 67 into the 4th National Development Plan, which were approved by the Parliament, particularly, are addressing the implementation of the National Biodiversity Action Plan and the ecosystem approach for conservation of the wetlands. Inclusion of the strategies in the National Development Plans places biodiversity conservation high in the agenda of the country.

One of the other major impacts of the NBSAP has been its influence in bringing all stakeholders together in dialogue over the difficult issues facing biodiversity conservation.

This Project, as a whole, had a very strong positive impact on policy, strategy and the action plan of the country. A biodiversity data management mechanism has been introduced by the College of Environment and through the dissemination activities, including capacity building, a number of provincial offices of the DoE and other organizations have considerably improved their know-how to prepare policy statements, development strategies and concrete action plans.

It is necessary to point out that the proposed strategies emphasize on developing of a strong systematic link between the national biodiversity management and the planning bodies of the country.

Biodiversity sub-committee established under National Sustainable Development Committee consists of representatives from related ministries and organizations and continue to work to update some parts of the action plans according to the developments at the national and regional levels.

Various other activities were also conducted under the NBSAP project including; organizing more than 20 workshops, meetings and seminars, and also publishing more than 10 books and number of pamphlets, brochures, posters, CDs and fact sheets. The main progresses made through the implementation of each of the national strategies in Iran are as follow:

2.2.1 Strategy 1: Awareness raising and public participation

Awareness raising and public participation have been planned together, because public awareness can lead to increased participation of people in biodiversity conservation. The public participation itself can reciprocally enhance awareness among the public. Informal training of different groups of people at different levels was suggested as an important element of the action plan for enhancing public awareness on the biodiversity related subjects. Some of the actions implemented under this strategy are as below:

- Biodiversity related festivals, exhibitions and competitions (e.g. festivals for biodiversity international day, clean air day, natural digital photography, green industries congress, etc.)
- Development of promotional materials such as posters, brochures, books, papers, etc.
- Training courses for environmental NGOs, firms and experts
- Cooperation with media (for production of promotional films and video clips)
- Active engagement of local councils in conservation
- Including biodiversity topics in educational programs and books
- Increasing public awareness of the local people living in protected areas
- Development of natural history and biodiversity museums
- Promoting biodiversity through radio and television programs
- Organizing the Green Film Festival
- Development of a network of environmental NGOs

2.2.2 Strategy 2: Formation of biodiversity information system

Formation of biodiversity information system is a crucial step towards establishing an information sharing mechanism among various biodiversity stakeholders. Biodiversity research is necessary for enhancing technical capacity for developing and implementing biodiversity conservation plans. Conducting research programs for biodiversity conservation requires facilities such as research institutes and laboratories. In addition, collection of basic information related to protected areas is necessary in planning and decision making for the effective management of these areas. The activities conducted under this strategy include:

- Launching country driven CHM website (www.CHM.ir)
- Developing biodiversity database
- Developing GIS techniques for updated mapping of protected areas
- Updating protected areas information databases
- Establishing laboratories for biodiversity researches (e. g. biotechnology laboratory, gene banks, herbariums, seed banks)
- Conducting EIA for huge development projects
- Organizing workshops on biosafety
- Supporting student research and thesis projects related to biodiversity

2.2.3 Strategy 3: Sustainable use of biodiversity resources

This strategy covers activities that have considerable impact on biodiversity. One important point about implementation of this strategy is study and development of policies for fair distribution of biodiversity related benefits among local community. Also integrating biodiversity concerns in development plans, development of framework for utilization of biodiversity resources and monitoring this utilization are the main aims of sustainable development approach. Other important factors under this strategy include review and improvement of environmental laws and regulations especially development of national laws related to biosafety and ecotourism. Since economic motive is one of the main reasons for unsustainable utilization of biodiversity resources, identifying and demonstrating different aspects of the economic values of these resources is very important.

Some of the activities conducted under this strategy are as below:

- Developing environmental criteria for utilization of biodiversity related resources (e.g. water resources, wildlife, forest, etc.)
- Estimating the economic values of biodiversity resources
- Developing national biosafety legal framework and holding related meetings and seminars

- Compiling ecotourism related laws and regulations
- Encouraging planting native species for rehabilitation of rangelands
- Improving the management of wetlands and rivers according to the laws and regulations
- Establishing a national committee on sustainable development
- Conducting a project for balancing livestock with the capacity of rangelands
- Conducting a project for protecting Caspian forests

2.2.4 Strategy 4: *Integrated management of biodiversity resources*

Conservation of biodiversity only happens when all the stakeholders are involved. Integrated management of biodiversity resources requires that all organizations, research centre, universities, etc., work together under a systematic framework. In order to make the integrated management work effectively, different activities were or are being carried out:

- Development of a comprehensive management plans for protected areas
- Increase in protected areas from 7.3% in 2006 of the country area to 7.8 % in 2010 of total country area
- Enforcing land use planning and EIA for all large scale development projects in the country
- Signing several MoUs for mutual and multilateral cooperation in the field of biodiversity conservation at regional and international levels
- Establishing a new unit for ecotourism in DoE and also National Committee for tourism
- Developing and implementing a national project on protection of sensitive ecosystems
- Wildlife census and plant inventories
- Establishment of the National Biodiversity Committee under the National Commission on Sustainable Development with the membership of relevant governmental and nongovernmental organizations.
- Addressing biodiversity related issues in the 3rd and 4th NDPs
- Developing and fund raising for conservation projects (e.g. Cheetah, Siberian Crane, Zagros and Wetlands projects)
- Development of National Environmental Guidelines for consideration by different sectors
- Establishing Eco-tourism National Committee
- Ratification of the Biosafety Protocol
- Strengthening *ex situ* conservation activities for wildlife species

2.3 Biodiversity Projects Supported by GEF

Iran has benefited from the GEF funding opportunities for developing National Strategies, National Action Plans and National Communications to MEAs (in particular Rio Conventions). Several national conservation agendas have been initiated by GEF supported projects. The best example is the success of The NBSAP as one of these projects which provided the opportunity for incorporating biodiversity conservation agenda into the national level planning, ratified by the parliament.

Iran's GEF portfolio are heavily weighted toward the Climate Change and Biodiversity focal areas. Other focal areas have generated interest mostly in the governmental system, but are not well represented with the GEF portfolio and no immediate global environmental benefits have been reported. Capacity development has been a major underlying theme of almost all these projects.

Biodiversity projects have helped increase governmental and non-governmental organizations' capacity, and have been influential in developing integrated conservation measures by supporting the formation of relevant national and provincial policies and regulations. The majority of the these projects have incorporated technical capacity building efforts, including environmental and ecological baseline studies, utilization of Geographic Information Systems (GIS), development of communication strategies, and capacity building programs. Training activities for stakeholders also includes activities which contributes to changing institutional behaviour at the national and provincial levels.

In the *biodiversity focal area*, GEF has supported four national and one regional project in Iran which are, briefly, described below:

- **Conservation of Iranian Wetlands**

Conservation of Iranian Wetlands Project is a joint initiative among Iran's Department of Environment (as the national execution agency), GEF and UNDP which aims to "systematically remove or substantially mitigate threats facing globally significant biodiversity and sustainability of wetland ecosystems". This project started in 2005 with 7 years duration, which was proposed to extend for 1 year in a recent mid-term evaluation.

According to the project document, activities of CIWP fall into four phases (shown below) including the inception phase, studies, management planning and endorsement, and implementation of management plans at demonstration sites. In 2009 project has entered the fourth and the last phase.

The fourth phase is the most important and the most complicated phase of the project. At this stage, all the participatory-prepared management plans must be endorsed and then implemented by all the stakeholders. In this phase, implementation and

effectiveness of the management plans will be constantly monitored, to prepare the ground and necessary infrastructure for development of a management system and implementing it for all the wetlands of the country. Indubitably, 2009 is the beginning of this phase and necessary activities have been predicted in project annual work plans, until the end of the project.

In fact, as it is obvious that results of project activities and effectiveness of management plans at demonstration sites will be monitored and evaluated during the 4th phase. The feedback received from this evaluation will help to improve the process for enhancing the efficacy of the national system.

During implementation of the project, several activities were planned and implemented with cooperation of project stakeholders.

Endorsement of management plans for project demonstration sites and establishment of inter-sectoral structures for implementation of these plans were among the main tasks fulfilled in 2009. Fortunately, at the end of 2009, both management plans were directly or indirectly endorsed by the cabinet as well as project stakeholders. The establishment of Lake Parishan local, technical and coordination committees was one of the main targets of 2009 work plan. This year, the focus was on integrated management of water resources. In this regard, several meetings of Lake Urmia Water & Agriculture Working Group were held with active participation of West & East Azerbaijan and Kurdistan water authorities, and the Ministry of Energy.

Also at national level, project activities were followed up by holding several inter-sectoral meetings, public awareness, communicating with related DoE sectors and which prepares the ground for establishment of a core group for sharing best practices related to wetlands and developing a national wetland data bank. In this regard, one of the important steps taken in 2009 was starting the process of developing a National Wetland Strategy and Action Plan as a high-level document for management of Wetlands throughout the country.

- **Conservation of Biodiversity in the Central Zagros Landscape Conservation Zone**

This project aims to conserve the biodiversity in the Central Zagros Landscape Conservation Zone. Over an area of 2,500,000 hectares, the project works with the agriculture, forestry, rangelands, water and tourism sectors in order to mainstream biodiversity conservation and sustainable use into the sectors. It will also strengthen the ability of the protected area system to complement this mainstreaming. The project will also demonstrate biodiversity mainstreaming at the local level in a series of villages across the Zone, and establish mechanisms to facilitate the dissemination and replication of the successful village approaches. The project adopts a business-

oriented approach to biodiversity conservation, and is designed to support ongoing efforts to improve livelihoods and stimulate economic development across the Zone.

Unfortunately, in the Zagros project, certain delays were experienced in inception phase and the proposed timetable was not met, and outputs were produced in some instances with considerable delay. Despite the fact that some of the objectives of this project yet to be achieved, the initial expectations have been fulfilled, given the political and economic difficulties faced at the time of development and inception.

- **Conservation of the Asiatic Cheetah, its Natural Habitat and Associated Biota**

This Project assists Iran in developing a program for conserving a complex of rare and endangered wildlife species and their natural habitats, with the Asiatic cheetah as model species. The project is expected to identify biotic territories representing crucial habitats of the Asiatic cheetah and related species, which will lead to enhanced knowledge of cheetah population dynamics, behaviour and survival factors. This in turn will enable improved management of the crucial biotic territories by governmental and non-governmental bodies with relevant interests and concerns. Enhanced sustainable welfare of the human communities living within the proximity of such natural habitats will be an important element of the project as will enhanced awareness and support of the Iranian government and society on relevant issues and concerns. The main elements of the project include biological studies on cheetah habitats and collaborative management and social communities. The project draws on the technical and scientific experience of the IUCN in order to ensure sound and efficient implementation of the project activities.

The Asiatic Cheetah Project has demonstrated significant impact in conserving Iran's cheetah population as well as raising awareness on relevant issues and concerns, in particular regarding the prevention of non-habitat related threats to the cheetah. Rough estimates indicate that the number of cheetahs in Iran is currently between 70-100, in contrast to approximately less than 60 in 2001. However, this increase cannot solely be attributed to the GEF project, but is rather seen as a contribution to the overall increase in numbers of the cheetahs. As stated in the draft terminal evaluation of this project it has *"laid the ground for the long term conservation of the Asiatic Cheetah and has become a model conservation project in Iran and the Middle East"*. Notably, the coverage area of this project has increased in recent years. The expanded intervention area covers 6-7 million hectares and includes an ambitious activity list. The project started with five sites in 3.7 million hectares in 2001 and by receiving very good co-financing from the government; they increased sites to 14 in all 6 million ha. In 2008, the first phase of the project was evaluated and in order to ensure the cheetah survival in the country, it has been extended for four more years from 2009 until 2012 with 10 habitats as project sites.

- **Development of a Wetland Site and Flyway Network for Conservation of the Siberian Crane and Other Migratory Waterbirds in Asia**

This regional project was led by the International Crane Foundation (ICF) and was designed in collaboration with the Secretariat of the Convention on Migratory Species (CMS) and the governments of Iran, China, Kazakhstan and the Russian Federation. This project contributed towards a major international initiative for the conservation of the Siberian Crane as a paradigm for the conservation of a network of wetland sites and the full range of biodiversity. This project addressed threats at 16 internationally important wetlands along these flyways, seeking to secure their ecological integrity for the benefit of a wide range of biodiversity. Additional national level activities support site and migratory waterbird conservation.

The project had a major international component, improving coordination and strengthening capacity for flyway conservation efforts. The project supported international flyway conservation efforts within the framework of existing strategies and agreements, including the Asia Pacific Migratory Waterbird Conservation Strategy 2001-2005 and its component action plans, the Central Asian Flyway initiative, the Convention on Migratory Species Memorandum of Understanding Concerning Conservation Measures for the Siberian Crane. The project facilitated the development of wetland site networks in Asia and provides resources and training for the conservation of selected wetland sites within these networks.

Siberian Crane Wetland Project was the first full-sized GEF project at the global level with a flyway focus, and hence had to address several design issues for which little precedent existed. For example, given the strong emphasis under GEF on ecosystem approaches to conservation and the lack of inclusion of species-oriented projects within the GEF portfolio, major emphasis was put on interventions at 16 key wetland sites along the two flyways. Accordingly, Siberian Crane Wetland Project aimed to strengthen management of key sites for Siberian Cranes and other waterbirds, as a strategy to enhance the integrity of the flyway as a whole. This approach also reflected the very hands-on nature of the decades of conservation effort on behalf of the Siberian Crane, where field activities had taken strong precedence.

Lessons Learned from implementation of the UNEP/GEF Siberian Crane Wetland Project (SCWP)

The SCWP was the first flyway project to receive funding under the GEF Full-sized Project portfolio, with a second project, the African-Eurasian Flyways Project ("Wings Over Wetlands" or WOW), starting shortly after. Both projects cover multiple flyways that extend thousands of kilometres north to south, but the Siberian Crane's two flyways include only four countries that participated in the project. SCWP put most funding into site level activities—80% of funding was allocated to support work at 16 sites in four countries—with much

The lessons learned from the SCWP can be categorized into two categories, but actually there is considerable overlap.

Lessons related primarily to flyway-scale initiatives

For flyway conservation, long-term projects and long-term commitment are needed.

- Due to the complexity of the project, flyway projects require a long start-up time.
- Due to geographic scope and complexity of the project, flyway projects need to put considerable emphasis into strategies for sustaining conservation impacts after project completion.
- Successful flyway conservation requires diverse components that complement one another.
- This complexity of flyway conservation makes project management and technical oversight correspondingly complex.
- Phasing of flyway projects provides opportunity to pace the work, to adjust plans between phases, and to respond to early successes or new findings.
- While many site level activities may be appropriately undertaken through single-country projects, certain sites or clusters of sites may be critical to the viability of the flyway itself and therefore deserve significant attention in flyway scale projects.
- Where site level activity is planned in flyway projects, priority should be given to strategies or demonstrations that can be replicated elsewhere, and to supporting similar interventions within multiple countries while ensuring that exchange of staff members and information fosters learning across sites and countries.
- While flyway projects emphasize transboundary and multi-country aspects, flyway-scale activity within countries can be highly important to strengthening flyway protection.
- Do not underestimate the importance of fostering support at the national level by taking into account the common issues and interests of stakeholder groups.

Lessons related more generally to effective wetland and waterbird conservation

- As the UNEP/GEF project had a rather large scale investment at the site level, we were able to develop demonstration activities at multiple sites and then continue to support those that proved to be most successful.
- Leadership in community conservation and environmental education can come from places other than the nature reserves.
- Conservation solutions need to involve diverse stakeholders who have very different priorities and needs. In building such involvement and enlarging alliances, care is needed in communicating about conservation threats and conflicts in order to include multiple players in the solutions.
- Close partnership between international and domestic specialists led to better results than either side working alone.

- Given the length of this project, there were important opportunities to develop co-financing as the work progressed that complemented the GEF-funded activities.
- For longer projects, it is important to be able to adjust workplans and budgets in response to emerging threats or opportunities.
- Given the diverse audiences who must be involved in solutions to waterbird and wetland conservation, communications must be a vital component.
- Use of the internet and project websites was less effective than anticipated in some cases, but valuable in others
- Opportunity for project participants to travel to other sites within their flyways was highly effective for learning about project successes and challenges and gaining a flyway perspective.
- An active and balanced Steering Committee should be established early on

Source: Zandri, E., and C. Prentice. 2009. The experience of UNEP GEF and partners in flyway conservation. UNEP GEF Portfolio Outlook and Evolution. Biodiversity Issue Paper BD/001. UNEP, Nairobi, Kenya.

In addition GEF/UNDP/SGP projects in this focal area have also focused on wetlands of international importance (Ramsar Sites) and Biosphere Reserves (UNESCO MAB).

GEF has supported many other projects in Iran in different focal areas other than biodiversity. Full report on these projects can be seen in the GEF Fourth Overall Performance Study (GEF OPS4) Case Study for Iran.). In addition, a complete list of the activities funded by the GEF in Iran can be found in Appendix 2 of this report.

2.4 Lessons learned in achieving successes and overcoming obstacles

Taking into consideration the successful completion of NBSAP project, we hope that its goals are followed up in the 5th development programme during next 5 years but a clear and accurate assessment of the progress is not possible without a suite of indicators and also a transparent monitoring mechanism.

Some of the successes of NBSAP implementation include:

- Developed and disseminated scientific information and technical knowledge related to biodiversity conservation and management
- Incorporation of biodiversity conservation in the 3rd, 4th, and 5th National Development Plans (2000-2015)
- Introduced and developed national CHM platform,
- Prepared national mandatory and voluntary reports to CBD,
- Supported country commitments to other biodiversity related conventions,
- Continued NBSAP project as a national plan

- Increased public awareness on sustainable use of biodiversity and its values
- promotion of awareness among decision makers at different levels

Problems and obstacles encountered during the implementation of the project include:

- Insufficient cooperation between conservation and development sectors,
- Insufficient financial mechanisms for developing projects with international partners,
- Gaps in laws and regulations related to sustainable management and utilization of biological resources,
- Insufficient performance of biodiversity related regulations,
- Insufficient technical capacity for monitoring and evaluation procedures,,
- Insufficient clarity in responsibilities of business sector for EIA, restoration and development,
- Conflict of interests between private and public stakeholders,
- Imperfect understanding of government decision makers and the public regarding the strategic significance of biodiversity conservation

In the process of NBSAP project there are several lessons learned. Following are few examples:

- Conservation solutions need to involve stakeholders with different priorities and needs. In building such involvement and enlarging alliances, care is needed in communicating about conservation threats and conflicts in order to include multiple players in the solutions.
- More efforts shall be put into the promotion of biodiversity conservation. Since the CBD entered into force, the term "biodiversity" is heard more often among the public.
- The Department of the Environment cannot do all the activities on addressing and promoting the strategic significance of biodiversity to the public separate from other related organizations and stakeholders such as Ministry of Education,
- Iran has entered a crucial stage for biodiversity conservation, but the biodiversity monitoring work lags far behind conservation needs. The establishment of the national biodiversity monitoring system shall be accelerated and long-term biodiversity monitoring shall be carried out.
- It's necessary to develop efficiency and influence indicators to implement related regulations and monitor its effects on national biodiversity status.
- Given the diverse audiences who must be involved in solutions to biodiversity conservation, communications with key target groups should be improved.
- Integrated approach to biodiversity conservation, involving different sectors and stakeholders in Iran is a new concept and is being introduced by international projects. Because of being new and challenging, it is very important to consider the

time and the process of integrated management from the very start. We should not be expecting to see the results and achievements very soon, but it is important to plan the right process and move forward smoothly. We may not have reached the results that we ambitiously expected, but the development of the process itself and its positive impacts should be considered as considerable achievements.

- Biodiversity conservation requires more involvement and stronger support from all governmental and non-governmental organizations. Through various forms of promotion, education and participatory activities, local governments and related departments publicized scientific knowledge and demonstrated achievements of biodiversity conservation to make people aware of the importance and urgency of biodiversity conservation and enhance the extent of and capability for public participation in particular local communities.
- In order to reach biodiversity strategies and sustainable utilization of resources; it is important to consider individual, institutional and organizational capacities. Development of a new project without paying attention to the existing capacities can be a waste of resources. Therefore, it is necessary to consider capacity building while designing a project.
- Stakeholder participation is not enough; they should have a sense of ownership over conservation programs and projects. Therefore, they should be involved in both the planning and implementation phases.
- Social and political trends of the country should be considered in the development and designing of the NBSAP. Sustainability of the action plans is under question without considering such obvious fact.
- There should be a synergy between CBD plans and actions with other Rio conventions. This approach will be more cost-effective and it helps to avoid overlaps.

Chapter III - Mainstreaming and Integration of Biodiversity Consideration into Relevant Sectors and Cross-Sectoral Strategies, Policies, Plans and Programmes

3.1 National Biodiversity Legislation and Framework

Regulations and rules pertaining to the protection and utilization of natural resources including water, forests, rangelands and wildlife were in effect long before regulations concerning protection of the environment. Before 1925, there were some traditional regulations in place for utilization of natural resources. In the first laws and regulations, conservation of natural resources especially forests, rangelands and water were the main attention along the development plans. Traditional forest management has been registered since in 1921 for north forests of Iran. In addition, until 1948 in most of the regions of Iran developed. In 1962, forests were nationalized, before this time ownership were governmentally and privately and it was not any law and policy to exploit. This was a turning point in natural resource management in Iran. However later on, after the Islamic Revolution, A number of articles were adopted in the Constitution of Islamic Republic of Iran to ensure that the protection of the environment is observed in every aspect of Iranian life. Article 50 of the Constitution⁶ is the most important accredited existing legal statement concerning protection of the environment and preventing its pollution and degradation. It states that all legal and real persons have a duty to protect the environment. The Constitution prohibits all activities, economic or otherwise, that may result in irreparable damage to the environment. Over the past 15 years, the Government has increasingly striven to operationalise these objectives, by paying increasing attention to environmental issues and to biodiversity conservation. The Fourth National Development Plan (2005-2009), the NDP, devotes an entire Chapter to Environmental Protection. The first Article in this Chapter states the importance of biodiversity conservation and emphasises the government's commitment to implementing the National Biodiversity Strategy and Action Plan (NBSAP). However, this implementation has faced many challenges during the last decade. Environmental conservation is usually considered as a barrier to big national development projects and therefore DoE has faced several difficulties in mainstreaming the National Biodiversity Action Plan.

Article 45 of the Constitution is also related to environmental protection and natural resource preservation.

Since the establishment of the Department of the Environment in 1974, several regulations and laws have enacted, directly, in sectors to ensure biodiversity conservation such as:

⁶ **Article 50 of the Constitution of the Islamic Republic of Iran:** " It shall be considered a public duty in the Islamic Republic to protect the natural environment in which the present as well as future generations shall have a developing social life. Therefore, economic activities or otherwise which cause pollution or an irreparable damage to the environment shall be prohibited".

- The Environmental Protection and Enhancement Act (EPEA), 1967
- The Executive Rules of the EPEA, 1975
- Coastal Properties Act, 1975
- Fair Water Distribution Law, 1983
- The Clean Water Act, 1984
- Law for the Protection of Natural Resources and Forest Reserves, 1992
- The Amendment to the Clean Water Act, 1994
- Regulations on EIA and Amendments, 1994, 1997, 1999
- Law for the Protection and Utilization of Aquatic Resources, 1995
- The National Strategy for the Environment and Sustainable Development (NSES⁷), 1996
- National Environmental Plan of Action (NEPA)⁸, 1997
- Guidelines for Installation of Septic Tanks and Sewage Treatment Units 1998
- Establishment of "Participation Bureau" in DoE to assist environmental NGOs, 1998
- Guidelines for Industrial Location, 2000
- Standards for Air Emissions and Waste Water Discharge, 2000
- The Law of the Third National Development Plan, 2000
- The National Biodiversity Strategy and Action Plan (NBSAP), 2001
- National Seed Law , 2003
- The Law of the Forth National Development Plan, 2005
- National Law on Registration of Patents and Trademarks, 2008
- National Law on Biosafety, 2009
- National Law on Animal Husbandry, 2009

There are notable Customary Laws concerning utilization of rangelands especially those observed by the nomadic animal husbandry and in the grazing of livestock.

⁷ The **NSES** was a collaborative project undertaken by the Islamic Republic of Iran (Department of Environment), UNDP and the World Bank. The project was financed by the UNDP (may be GEF??). It was conceived at an early stage of Capacity 21 and during the advanced preparatory stages of Iran's Second Five-Year Development Plan (1994-99). It commenced in early 1993 and was one of the first projects to be approved by Capacity 21. Finally, the "Integration Report" was prepared in December 1996 and submitted to and approved by the National Committee for Sustainable Development.

⁸ The **NEPA** deals with danger zones in the areas of climate control, noise pollution, water resources preservation, protection and management; soil stabilization and anti-erosion measures. Measures for protection of forests and rangelands; fighting desertification; safeguarding biodiversity; monitoring and mitigation measures being taken for the nation's littoral waterways are also included. Environmental education and encouraging public participation have been emphasized in all these areas. The basic objectives and policies developed in this scheme have been integrated in the Third National 5-Year Development Plan.

In 1999, in line with the Constitution, the Supreme Council of the Environment⁹ approved new regulations for implementation of EIA for major development projects. According to this regime, all major development projects- Petrochemical plants, oil refineries, power plants, steel mills, dams and other water civil structures, industrial towns, solid waste recycling plants, large abattoirs, urban waste landfills and airports- are obliged to implement EIA procedures simultaneous with planning and preparation of feasibility studies. According to this regulation, the responsibilities of the DoE are well defined. The Department is obliged to present the necessary EIA outline and methodology to applicants as well as monitoring the implementation of these policies. Projects should proceed in parallel with DoE inspection. Start of any construction activities for such tasks are possible only after approval of the EIA report by the DoE.

The article 58 of the 4th National Development Plan (NDP) urges the government to implement the national action plan for conservation and sustainable use of biodiversity resources at the national level and it also requires appropriate coordinations among relevant organizations.

The Operational Framework

Modern and formal environmental management program in Iran was established at 1956 as explained in Chapter I. The program was upgraded and restructured as the Department of the Environment in 1974. Its agenda was improved, accordingly, to insure the enhancement and promotion of policies designed to establish equilibrium between the needs of social development and environmental protection.

With the ratification of the new Constitution in 1979, new legislative ground was forged and environmental enhancement became an important part of the country's legal framework. The Department of Environment was given more visibility under the auspices of the Vice-President of the Republic to be the front body for preparation, and implementation of environmental laws and regulations, and, also, monitoring the status of environmental and biological resources in the country.

To, effectively, respond to the technical and legal needs of environment at the national and international levels, several divisions were established in the Department of Environment (DoE):

⁹ **The Supreme Council of Environment** is a legislative body that enacts relevant regulations and the classification of protected areas. The Chairman is the President of the Islamic Republic of Iran. Other members are Ministers of Agricultural Jihad, Foreign Affairs, Industry and Mines, Interior, Health and Medical Education, Science –Technology and Research, the Heads of the Department of Environment, Administration and Planning Organization and the Institute of Standard and Industrial Research. The Head of the DOE is also a member and the Secretary of the SCE.

- Division of Natural Environment and Biodiversity, which covers all issues in the field of biodiversity, biosafety, endangered species, natural habitats, protected areas, wetlands, and *ex-situ* conservation.
- Division of Human Environment, which deals with all issues related to the environmental pollutions, climate change, EIA, etc.
- Division of Marine Environment; addresses environmental issues in transboundary water basins including rivers, Caspian Sea, Persian Gulf and the Sea of Oman.
- Division of Education and Planning; it is charged with coordination and planning of the policies needed for development of training, information and pooling of public collaboration.
- Division of Administrative and Parliament Affairs is responsible for provisions of administrative, accounting, budgeting, organizational support and coordination necessary for effective operation of the organization.

The DoE stretches its intervention and monitoring throughout the country through its Provincial Offices. The offices are in close contact and coordination with other local and provincial authorities, to pursue objectives, plans and programs of the Department at the provincial level.

However, due to the fragmentation of tasks and functions among several ministries and organizations, involvement of other government institutions in this multi-disciplinary task is indispensable. Accordingly, regarding preparation and enforcement of climate change or biodiversity laws and regulations, the DoE share the responsibilities and/or seek the proper intervention/support of other government institutions, such as the Ministry of Jihad-e- Agriculture (MAJ), Ministry of Petroleum and the Ministry of Energy.

3.2 Integrating Biodiversity into Relevant Sectors

In the context of operational framework and cooperation of different sectors for conservation of biodiversity; also taking into account various technical considerations and the legal nature of environmental issues, the National Committee for Sustainable Development (NCSD) was established in May 1994, upon the approval of the Supreme Council of the Environment, to ensure national coordination amongst all stakeholders. Its creation was also an outcome of the 1992 Rio Summit. The secretariat of NCSD is hosted within the Department of the Environment, and the Committee is presided over by the Vice-President of the Republic and head of the DoE. There are 18 members in the National Committee including the Chairperson, Vice-Chair and representatives from the Ministries of Energy, Industries and Mining, Foreign Affairs, Jihad-e-Agriculture, Housing and Urban Development, Science, Research and Technology, Oil, Interior, Information Technology and Communications, and Health and Medical Education; and those from the Directorate for Planning and Strategic Supervision in the Office of the President (previously Management and Planning Organization), Meteorology Organization, Department of the Environment, NGOs' Network and Academy of Science. Some

representatives of other governmental or non-governmental organizations are invited to attend the meetings accordingly and have the right to vote.

Several sub-committees have been established under the guidance of NCSD. Each of these sub-committees are in charge of a different international environmental convention and are chaired and organized by another ministry or organization than the Department of the Environment. These subcommittees, in addition to the technical, legal and political aspects of the conventions, should also address preparation of national reports to the conventions, and propose, approve and monitor implementation of the relevant national and regional environmental projects. In addition, national steering committees are in place to coordinate, monitor and evaluate implementation of such projects. These steering committees should keep NCSD informed on a periodical basis.

Although the importance of biodiversity conservation has been established in environment and development policy of Iran for some time, it is only in recent years that sectoral policy and programmes have started to mention the importance of nature and/or biodiversity conservation. Now, in almost all relevant ministries such as agriculture, energy, oil, etc. there is an environment office to monitor environmental matters. For example:

- In the forest sector, the Ministry of Jihad-e-Agriculture is implementing several programmes to protect forest covers in Iran, of which a principal objective is to conserve biodiversity. Simultaneous with development of NBSAP the government council approved a regulation for conservation of the Caspian forests in north of Iran with the aim of reducing commercial utilization of forests. Several other policy and programmes stated the need to conserve biological resources in forests and rangelands in order to implement article 69 of the 4th NDP.
- The MAJ has initiated a plan for establishing a decision support system for desertification control through floodwater spreading in Iran
- In the water sector, the mandate of the Water Affairs Department of the Ministry of Energy emphasises on the importance of protecting the hydrological cycle and conserving catchments areas. Likewise, the Watershed Management Unit in MAJ has issued policy statements stressing the importance of conserving biodiversity in relation to the protection of water resources. Recently, there has been a revision in administrative and management structures for improvement of water resources management;
- In the tourism sector, the Cultural Heritage, Handicrafts and Tourism Organisation (CHHTO), is obliged to take steps to co-ordinate the sustainable exploitation of the country's natural heritages, and to work closely with the Department of Environment. Article 114 of the 4th NDP, also, requests the government to recognize, protect and to conduct research in order to promote cultural heritage, in particular, sustainable ecotourism.
- In the training and research sector, and in response to chapter 7 of the 4th NDP, the Environment and Sustainable Development Research Centre (ESDRC), has

been established affiliated to the DoE, acting as technical and scientific back stopping centre to the conservation activities at the national level.

Iran has also developed close cooperation with relevant international organizations (FAO, CGIAR, etc.). According to such cooperation and based on new approaches, several activities and programmes have been developed by MAJ in which, specific assessments of components of agricultural biodiversity are undertaken.

It has to be notified that the relevant administration bodies in the country (e.g. MAJ) are mandated to develop some policies and plans, based on what is previewed in the 4th NDP.

The Ministry of Industries and Mines (MIM) is working with other relevant agencies at the national level for dissemination of environmental knowledge and capacity building in the private sector for conducting restoration and rehabilitation of mining projects.

Article 67 of the 4th NDP urges to develop and implement an integrated management plan for conservation of fragile ecosystems especially Lake Urmia. The DoE in cooperation with the other relevant ministries should plan and develop this program. Recently there has been an agreement between DoE and other related organizations including MAJ to cooperate in conservation and restoration of Lake Urmia.

3.3 Biodiversity Related Conventions and Agreements

Iran is a committed and active member of several international agreements, which in part reflect its moral, ethical and scientific obligations towards the protection of its national biological resources and the global biodiversity. Due to this commitment and immense biodiversity it has unsurpassed opportunities for long-term conservation plans.

Currently Iran has bilateral environmental cooperation with the governments or research institutions of many countries.

Among the ratified biodiversity related multilateral agreements, which Iran is a party are:

1- Ramsar Convention on Wetlands

The Ramsar Convention on Wetlands, signed in Ramsar, Iran in 1971, is an intergovernmental treaty, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

The Convention on Wetlands came into force for the Islamic Republic of Iran on 21 December 1975. Iran presently has 22 sites designated as Wetlands of International Importance, with a surface area of about 1,500,000 hectares. The two most important

recent activity conducted under this convention in Iran include removal of Alagol, Almagol and Ajigol sites from the Montreux Record and extension of Kiashahr Ramsar site to total area of Boujagh National Park.

Regional Centre for Training and Research on Wetlands in West and Central Asia has been established in Ramsar city, in Iran. This centre works under the supervision and guidance of the Ramsar convention and it was approved to be established at the 8th Conference of Parties to Ramsar Convention held in Valencia. The overall goal of the centre is to enhance the implementation of the Ramsar Convention in the region through training, research, advocacy and public awareness programmes. To date the centre has conducted many regional workshops and meetings. More information on the centre is available at: <http://www.rrc-cwa.org/en/index.php>

2- Convention on Biological Diversity (CBD)

Iran signed the convention in 1992 and became a party to CBD in 1996. With the current report so far, Iran has submitted four national reports on the implementation of the Convention. Iran has been actively participating in CBD meetings and events. In 2000, Iran also signed the Cartagena Protocol on Biosafety, leading to its ratification in 2004.

The Regional Capacity Development Workshop for Central Asia on National Biodiversity Strategies and Action Plans (NBSAPs) and the Mainstreaming of Biodiversity co-hosted by the Department of the Environment and the Ramsar Regional Center for Central and Western Asia, took place in Ramsar City of Iran from 9 to 12 March 2009. It was organized by the CBD Secretariat, and brought together more than 20 participants including representatives from following member countries of the Economic Cooperation Organization (ECO): Azerbaijan, Iran (Islamic Republic of), Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan and Uzbekistan.

The overall purpose of the Workshop was to strengthen national capacities for the development, implementation, reviewing and updating NBSAPs and the integration of biodiversity concerns into relevant sectors, through exchange of experiences; and to provide an opportunity for countries to identify ways and means for overcoming challenges in the implementation of NBSAPs. The field trip of the workshop also provided valuable insights in the link between biodiversity conservation and development.

CBD Secretariat, UNEP-WCMC, UNU, IUCN and IAU gave numerous presentations on introducing tools for the preparation of the fourth national reports, progress towards the 2010 Biodiversity Target, the Clearing House Mechanism of the Convention and the Conservation Commons, national reports feed into the 3rd Global Biodiversity Outlook, integrated planning of protected areas and economic valuation of ecosystem services. Additional information about the Workshop can be found at: <http://www.cbd.int/nbsap/workshops/central-asia.shtml>

3- United Nations Convention to Combat Desertification (UNCCD)

The objective of the UNCCD is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/ or desertification. The UNCCD is working to develop long-term integrated strategies that focus simultaneously on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level.

Iran is one of the first countries that signed the Convention to combat desertification and completed the ratification processes in 1996. In line with its commitments, Iran submitted its First National Report on the Implementation of the Convention in February 2000. The Second and the Third National Reports were also submitted to the UNCCD secretariat in May 2002 and May 2006, respectively. National strategies and actions have been defined for this convention and there is a permanent secretariat in Iran. Also, national committee on desertification has been formed including authorities from related organizations.

4- The Convention on Migratory Species (CMS)

The CMS aims to conserve terrestrial, marine and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the aegis of UNEP, concerned with the conservation of wildlife and habitats on a global scale. The CMS was also called the Bonn Convention, sometime ago.

Iran acceded as 106th Party to the Convention in February 2008. Migratory species represent an important component of Iran's biodiversity. Altogether, 24 Appendix I and 136 Appendix II CMS listed migratory species live in Iran, among them species like the Blue Whale, Humpback Whale, Indo- Pacific Hump-backed Dolphin, Whale Shark, Dugong as well as 5 turtle species and such majestic animals as the Imperial Eagle and the White-tailed Eagle.

Iran has joined, a Memorandum of Understanding concerning Conservation Measures for the Siberian Crane (MoU) in 1993 and other MoUs for Slender-billed Curlew and Marine Turtles, both, under the auspices of CMS to help further protect and conserve these important endangered species.

5- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES is an international agreement between governments, which came into force in 1975. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

The convention was ratified by Iran in August 1976 and according to the provisions of the Convention, 3 months later, in November 1976, it entered into force for the country. The official custom of Iran follows this Convention very strictly and all the imported and exported species are controlled according to the CITES appendices.

The recent activities conducted under CITES in Iran include:

- 1) Participation in the 15th meeting of the Conference of the Parties in Doha (Qatar), 13-25 March 2010,
- 2) Inclusion of salamandrid species *Neurergus kiaseri* in Appendix I of the convention
- 3) Membership in advisory Committee of the convention secretariat to review Appendix II,
- 4) Coordination with customs duties throughout the country to control the import and export of plants and animals.

6- The World Heritage Convention (WHC)

The World Heritage Convention (WHC) is an international agreement that was adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1972. It is based on the premise that certain places on Earth are of outstanding universal value and should therefore form part of the common heritage of mankind. The Convention seeks to identify and safeguard our world's most outstanding natural and cultural heritage.

Iran became a Party to the Convention in February 1975. Currently there are 10 cultural World Heritage Sites in Iran including Persepolis (1979), Tchogha Zanbil (1979), Meidan Emam, Esfahan (1979), Takht-e Soleyman (2003), Pasargadae (2004), Bam and its Cultural Landscape (2004), Soltaniyeh (2005), Bisotun (2006), Armenian Monastic Ensembles of Iran (2008), Shushtar, Historical Hydraulic System (2009).

Iran is also a party to the following regional and international biodiversity related MEAs and initiatives:

7- The Regional Convention for Co-operation to Protect and Improve Coastal Zones and the Marine Environment (ROPME)

ROPME undertakes promotion of environmental policy, research and the implementation of joint projects in the Persian Gulf area. Pollution prevention, emergency response, biodiversity conservation and improved coastal zone management are major policies pursued.

This convention which was adopted by the Persian Gulf Littoral States in April 1978, was approved by the Iranian parliament paving the way for Iran to become an active party in protecting the marine environment in the Persian Gulf and the Sea of Oman. Recent activities and achievements under this convention in Iran include:

- Organizing oceanography tours throughout Persian Gulf and Sea of Oman (ROPME Marine Area),
- Implementation of some survey projects on Persian Gulf and Sea of Oman
- The confirmation by Ministers' Council of Persian Gulf and Sea of Oman Area (Kuwait Convention) to establish the Marine Biodiversity Regional Center in Iran.

8- UNEP Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran Convention)

The Iranian government is happy to announce that during the 7th meeting of the littoral states of the Caspian Sea, held in July 2002, Tehran, the text of UNEP Convention for the Protection of the Marine Environment of the Caspian Sea was finalized.

The Caspian Environment Programme (CEP) is a regional umbrella programme developed for and by the five Caspian Littoral States, Azerbaijan, Islamic Republic of Iran, Kazakhstan, Russia and Turkmenistan, aiming to halt the deterioration of environmental conditions of the Caspian Sea and to promote sustainable development in the area. The need for joint protection and management of the Caspian environment and its resources has been an ongoing issue for the Caspian States. During the Ramsar meeting held in the Islamic Republic of Iran, in May 1998, the CEP was officially launched. Iran signed an agreement with the Caspian Sea littoral states (CEP) to combat pollution in the Caspian Sea in 1992. Some of the recent achievements under CEP include:

- Compiling the drafts of four extension protocols to the framework of the convention
- Implementing organizational obligations in the plan of coastal areas of the Caspian Sea
- Holding the second Conference of Parties to the Tehran Convention in Tehran-Iran in November 2008

9- The International Union for Conservation of Nature (IUCN)

The World Conservation Union brings together states, governments, and a diverse range of non-governmental organizations in a unique world partnership about 1300 members across nearly 150 countries. Its mission is to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. Through its six Commissions, IUCN draws together over 10,000 expert volunteers.

From Iran one government organization which is the Department of Environment and four NGOs (Kanoon-Bazneshastegan-e Sazman-e Mohite Ziest, Moaseseyeh Tahghigh Va Tosee Paydare Sarzamin, Centre for Sustainable Development and Mountain Environment Protection Society) are a member of IUCN.

As a member state to IUCN, A Memorandum of Understanding was signed in November 2006 between IUCN WESCANA Regional Office and Department of Environment to hold The 6th Regional Conservation Forum (RCF) in Tehran in May 2007. This forum provided a platform for all the experts, NGOs and governments in the region to participate and exchange knowledge to provide a secure living for a just and healthy environment in line with IUCN's vision.

10-Low Forest Cover Countries (LFCCs)

In large areas of the world, and especially in many developing countries, forest cover is limited in extent. In these countries, scarce forest and wooded lands are particularly significant in terms of their economic, social, cultural, environmental and subsistence values. Low forest cover poses special challenges in meeting national needs through sustainable development and ensuring adequate access to the many goods and services provided by forests, including wood and non-wood products, watershed protection, soil conservation, biodiversity conservation and carbon storage. Strategies for rehabilitation and conservation of forests are crucial steps towards sustainable development in low forest cover areas

The progress in implementation of the Intergovernmental Panel on Forests/International Forum on Forests Proposals for Action relating to Low Forest Cover Countries (LFCCs). Reference was made to national reports to the CSD, CBD and CCD, among other sources. The definition of LFCCs; here a threshold of less than 10% land area covered by forest was adopted, giving a total of 67 LFCCs.

The expert meeting held in Tehran, 1999, helped greatly to provide clear guidance on the issues that are most important for forest management in LFCCs. The launch of the

Tehran Process and the founding of its secretariat represent additional steps forward. However, progress has been slow in establishing the full capability of the process and its secretariat, and additional international resources are needed to make the expected progress. There is little evidence that restoration of degraded forests or re-establishment of native forest landscapes has been given any priority. It is also difficult to assess what level of progress has been made in forest conservation among LFCCs. Data on unique forest types and their protections are limited. Technical and institutional capacities have been identified by most LFCCs as serious limitations in progress towards implementing the IPF/IFF Proposals for Action, and especially drafting and implementation of national forest programmes. International co-operation and financial assistance are required to help remedy these problems. Donor countries and institutions will need to recognise the importance of forests to poverty alleviation in LFCCs and make long-term commitments of resources in order to assist them in improving their capacities. LFCCs themselves need to accord higher priority to forest issues, including the mobilization of domestic resources.

As recommended by the 14th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), the Conference of the Parties is invited to adopt a decision on this matter along the following lines:

- Takes note of the importance of collaboration with all relevant regional and international bodies mandated to promote conservation and sustainable use of various types of forests, including those in countries with low forest cover (LFCCs) and fragile forest ecosystems;
- Requests the Executive Secretary to explore, together with the Low Forest Cover Countries (LFCCs) secretariat, the possibility for developing a workplan, including identification, development and implementation of targeted joint activities to support Parties, in particular developing countries with low forest cover, in the implementation of the programme of work on forest biodiversity;

11-International Treaty on Plant Genetic Resources (ITPGRFA)

The objectives of this Treaty are the conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity. These resources are essential for achieving sustainable agriculture and food security, while no country is self sufficient in genetic resources. Therefore, the newly established Treaty can play an instrumental role in the fight against hunger and poverty and for the achievement of Millennium Development Goals 1 and 7.

Iran has played a very constructive role for achieving such an important international agreement through:

- Being a bureau member (vice-chair) of the Contact Group for Negotiating the Treaty under FAO
- Being the only developing country hosting the Contact Group Meeting (in June 2000, Tehran)
- Co-Chairing the very delicate negotiations on ANNEX 1 Crops
- Chairing the Panel of Experts for developing the list of food crops
- Chairing the Panel of Experts for developing the list of forage crops
- Chairing the Near East Group since 2000 in the Treaty negotiation meetings
- Chairing the Third Party Beneficiary (TPB) Committee
- Co-chairing the Ad hoc Advisory Working Group on Compliance and Issues of Non-compliance
- A bureau member (vice-chair) of the Governing Body of the Treat

12-Standard Material Transfer Agreement (SMTA)

The fair and equitable sharing of benefits arising from the use of these resources has for the first time been practically implemented at the international level through the development and Implementation of SMTA of the Treaty. Iran has served as the bureau member of the contact group for negotiation of the SMTA and played a key role in settling the benefit sharing rate (1.1% of the seed sale) for the genetic material accessed from the multilateral system of the Treaty.

13-Commission on Genetic Resources for Food and Agriculture (CGRFA)

The Commission on Genetic Resources for Food and Agriculture in FAO is a permanent International forum where members work to raise international awareness for the conservation of genetic resources and develop global policies related to biodiversity for food and agriculture. Iran is currently chairing the Commission which has a membership of 171 countries and the European Union. Iran has been an active member since the establishment of the Commission in 1983 and served in its Bureau as vice-chair for the Near East Region for more than ten years. The Commission has provided the forum for negotiations that established other international instruments such as:

- International Treaty on Plant Genetic Resources for Food and Agriculture.
- Global Plan of Action for Conservation and Sustainable Utilization of Plant Genetic Resources (GPA-Plant)
- Global Plan of Action for Animal Genetic Resources (GPA-An)

14-Global Crop Diversity Trust (GCDDT)

GCDDT is a unique public-private partnership which established an endowment fund for providing appropriate and continuous funding for key crop genetic resources, in eternity. In line with the ITPGRFA and the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture,

GCDT's goal is to advance an efficient and sustainable global system of *ex situ* conservation by promoting the rescue, understanding, sustainable use and long-term conservation of valuable plant genetic resources. Iran worked closely with the Trust in developing Global Strategies for conservation of several important crop genetic resources. Iran has also played a key role in developing Regional Strategy for conservation of plant genetic resources in the Near East.

15-International Plant Protection Convention (IPPC)

The International Plant Protection Convention (IPPC) is an international plant health agreement, established in 1952, that aims to protect cultivated and wild plants by preventing the introduction and spread of pests. The Convention extends beyond the protection of cultivated plants to the protection of natural flora and plant products. Iran is an active member of this convention and plays a regionally distinct role in orchestrating regional plant health regulation and control measures.

16-Consultative Groups on International Agricultural Research (CGIAR)

The CGIAR is a strategic alliance of members, partners and international agricultural centres that mobilizes science to benefit the poor. Objective of CGIAR are:

- Food for People: Create and accelerate sustainable increases in the productivity and production of healthy food by and for the poor.
- Environment for People: Conserve, enhance and sustainably use natural resources and biodiversity to improve the livelihoods of the poor in response to climate change and other factors.
- Policies for People: Promote policy and institutional change that will stimulate agricultural growth and equity to benefit the poor, especially rural women and other disadvantaged groups.

Iran and CGIAR have a long history of close cooperation in advancing agricultural research and development in Iran and CWANA region. CGIAR has established sub-regional offices for three CGIAR international centres in Iran including:

- International Maize and Wheat Improvement Centre
- International Centre for Agriculture Research in the Dry Areas
- International Water Management Institute

17-Bioversity International

Bioversity International is the world's leading organization dedicated to researching on agricultural biodiversity to improve people's lives. This Institute in partnership with other CGIAR centres, national agricultural research systems and centres of excellence seeks sustainable solutions to meet three important challenges:

- Malnutrition and hidden hunger of missing micronutrients
- Sustainability and resilience in food supplies and farming systems
- Conservation and Use of agricultural biodiversity, ensuring that these resources remain accessible to all

Iran has, particularly, collaborated with Bioversity International and the CGIAR centres in the region in enhancing the capacity of national programs on genetic resources in the countries of the CWANA and Africa region through organizing technical workshops and joint training programs.

In addition to the above said conventions and agreements, Iran has been engaged in some negotiations for a number of other regional environmental agreements on establishing new mechanisms for conservation matters. For instance to recognize importance of environmental issues and the similar environmental structure characterizing the countries in the region, cooperation among the Economic Cooperation Organization (ECO) member states¹⁰ is of prime importance. Other regional environmental issues also must be resolved through coordination, collective efforts, political will and cooperation of governments and private entities of the countries within the region. Also ECO Institute of Environmental Science and Technologies (ECO-IEST) has been established in Iran for the ECO region to support awareness raising and capacity building in environmental research and trainings.

The rationale for promoting synergies and collaboration among the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC) is to avoid duplication of efforts, to strengthen joint efforts and to use available resources more efficiently by taking into consideration the interlinkages between the issues that they address under the common objective of sustainable development as defined by the Rio Earth Summit and its Agenda 21.

The introduction of a new reporting and monitoring system is an important element and is in line with the current paradigm shift of the Rio Conventions towards indicator based reporting and results based management. In recent years, there has been a growing recognition of the high reporting burden, which is even increasing, because each convention provides guidance on content and format of their new indicator based reports independent from the other Conventions creating an "artificial" institutional fragmentation at the national level along individual convention themes resulting in duplication, overlaps and inefficiencies.

Recognizing the benefits of synergetic implementation of the three Rio conventions, including integrated reporting, an informal collaboration committee has been established between DoE and MAJ to exploring and enhancing synergies, with due regard to their respective mandates, in the elaboration and implementation of strategies and action plans under the respective conventions.

¹⁰ Members States of Economic Cooperation Organization including: Afghanistan, Armenia, Azerbaijan, I.R. of Iran, Kazakhstan, Kyrgyzstan, Pakistan, Turkey, Turkmenistan and Uzbekistan.

Chapter IV -Conclusions: Progress Towards the 2010 Target and Implementation of the Strategic Plan

4.1 Progress Towards the 2010 Targets

Iran's progress on meeting relevant targets of the Provisional Framework is reported here. Iran has not yet completed the development of its national biodiversity targets and indicators. However, the indicators are under negotiation by the biodiversity sub-committee of the NCSD.

Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats, and biomes.

Target 1.1: At least 10% of each of the world's ecological regions is effectively conserved.

From 2008 until the end of August 2010 the coverage of the protected areas has increased by 0.1%. At present, approximately 7.8% of the national territory is under the national protection systems and included in protected areas.

These areas have been selected on the basis of being representatives of the world's ecological regions.

Target 1.2: Areas of particular importance to biodiversity protected

Areas protected by the biodiversity program of the Department of Environment cover 12.7 million hectares that count for over 7.8% of the land area. In order to preserve domestic biodiversity throughout the vast territory of Iran, the DoE-managed areas have been classified as: "National Parks", "Wildlife Refuges", "Protected Areas" and "National Natural Monuments".

In addition, until now there are 101 non-hunting areas under management of the Department of Environment, with a total area of more than 5 million hectares. Also there are 22 Ramsar Sites, and around 105 Important Bird Areas. Iran also participates in the UNESCO MAB Programme, and since 1976 designated nine Biosphere Reserves covering a total area of 1.9 million hectares.

Nayband Marine-Coastal National Park was declared as a Marine-Coastal protected area in Year 1978. The area, which covers 16,920 hectares, is home to important populations of plant and animal species such as wolf, jackal, wild sheep, rabbits and important marine species of whales and dolphins.

The area is also home to many bird species. Nayband Marine-Coastal National Park is considered the marine protected area and also the first of its kind designated in Iran.

Goal 2. Promote the conservation of species diversity

Target 2.1: Restore, maintain, or reduce the decline of populations of selected species

Conservation of threatened species and their habitats are one of the main concerns of the country. Establishment of protected areas based on the existing species and their importance as well as financing and conducting of different studies and surveys are the major activities followed by conservation activities. The noteworthy activities are captive breeding for the important species such as Persian Fallow Deer and Onager. Such activity is, also planned for other threatened species. The national targets based on the 2010 goals and covering the national/international needs have been drafted and are under negotiation for finalizing them.

The main attention and measures have been on important "threatened species" like Asiatic Cheetah, Siberian Crane, Onager, Hubara and Fallow Deer and captive breeding of some of them in original habitats have started. The success story is that the number of monitored cheetah has improved during the past 2-3 year.

Target 2.2: Status of threatened species improved

Iran has conducted research activities, enhanced legal protection of the habitats, increased public awareness and started captive breeding. Also national targets relating to the endangered species; "supporting *in situ* and *ex situ* biodiversity emphasizing on endangered plant and animal species" and "conservation of endangered species", have been included in the NBSAP.

The Government has implemented several measures to reintroduce the Caspian Tiger into its natural habitat in Iran. In 2010, a pair of tigers were transferred from Russia to Iran.

There are more than 50 Asiatic cheetahs left in the wildlife of Iran living in Arid and semi arid deserts and steppes of Iran.. Reasons for the cheetah's decline include natural habitat disturbance and land degradation, including desertification; decline in prey; poaching and unsustainable hunting.

Habitats have been degraded due to spreading agriculture, human settlement, mining and infrastructure construction. Increasing numbers of livestock – goats, sheep and camels resulted in the degradation of pastures and reduced densities of the wild animals on which the predators such as cheetah preys. The construction of roads through remote areas, the use of vehicles for hunting and an abundance of firearms facilitate poaching of cheetah and other wildlife species, while the provision of legal hunting licenses can be considered over-generous. Fines for illegal poaching of cheetahs were raised from US\$ 2,500 to US\$ 20,000 and tracks of cheetahs and their rivals were studied and their prey skeletons were collected. GIS maps were prepared for identified cheetah habitats.

Goal 3. Promote the conservation of genetic diversity

Target 3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.

Iran is well known as one of the world's major centres of origin and diversity for many important crop plants such as wheat, barley, oat, rye, chickpea, lentil, safflower, many vegetables, forages, fruit trees and nuts. Activities related to conservation and utilization of plant genetic resources in Iran started nearly 70 years ago, mostly with cereals. A specific unit for *ex-situ* conservation of plant genetic resources was established in 1977, which was then elevated to National Plant Gene Bank of Iran (NPGBI) in 1983. These activities are concentrated under the Ministry of Agriculture and in line with the global strategies and frameworks advocated by Food and Agricultural Organization of the United Nation (FAO), such as Global Plan of Action for Conservation and Utilization of Plant Genetic Resources. According to a recent report published by the Global Crop Diversity Trust (2006), Iranian programme on plant genetic resources is, now, considered the largest in the Near East region (Table 5) and includes a wide range of crop plants, their wild relatives and forest/rangeland species.

Objectives of the program

- Studies of biodiversity, geographical distribution and conservation biology of plant populations.
- Collection, characterization, regeneration, maintenance and multiplication of plant genetic resources
- Identification of desirable agronomic traits such as resistance to pests and diseases, and biotic and abiotic stresses
- Introgression of useful genes from wild species to commercial cultivars
- Development of pre-breeding material for improvement of field and horticultural crops
- Using molecular genetics and biotechnology for enhancing the conservation and utilization of plant genetic resources.
- Development, introduction and transfer of modern plant breeding technologies
- Development, enhancement, documentation, networking and utilization of related data bases.
- Exchange of germplasm and information, and safeguarding the related national interests in the national and international levels.

Table 5. Number of accessions (all crops and percentage of Annex1 crops) in national plant gene-banks of the Near East countries (Global Crop Diversity Trust, 2006)

Holders	All Crops	Annex 1 Crops	%
Iran, NPGB	60000	49079	81.80%
Turkey, NGB-AARI	56000	25620	45.80%
Pakistan, NARC	23000	15835	68.80%
Morocco, INRA	22000	15405	70.00%
Egypt, NGB	20000	12127	60.60%
Syria, GCSAR	11500	8252	71.80%
Jordan, NCARTT	4500	2301	51.10%
Yemen, AREA-NGRC	3000	2571	85.70%
Oman, MAF	900	259	28.80%
Libya, ARC	600	328*	54.70%
Tunisia, MOA	n.a.	3132	--
Algeria, INRAA	n.a.	525*	--
Total	201500	135 434	Average 66.2%

Major achievements:

- Collection, characterization and *Ex-situ* conservation of more than 70,000 accessions of various crop plants and their wild relatives
- *In-situ* conservation of 213 species as wild relatives of crop plants.
- Field collections of 6500 accessions of various fruit trees in 30 locations across the country
- Establishment of disease-free *in-vitro* collection and nucleus seed of vegetatively propagated vegetable crops.
- Developing virus eradication and rapid diagnostic system for potato viral and bacterial diseases.
- Morphological evaluation of approximately 60% of the collection under field conditions.
- Specific evaluations for biotic and abiotic stresses and identification of valuable resistant accessions.
- Introgression of salt tolerance from *Aegilops* to bread wheat.
- Application of molecular markers to genetic diversity and finger printing studies in many field and horticultural crop plants

Table 6. Field crop genetic resources accessions of Iran (National Plant Gene Bank of Iran, 2009)

Crop	No. Accessions
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Cereals	17876
Barley, oat and rye	7210
Wheat wild relatives	4785
Rice	2852
Food legumes	11612
Vegetables	10254
Forages	7714
Oilseeds	2988
Others	851
Total	66062

Table 7. Fruit tree genetic resources accessions of Iran (National Plant Gene Bank of Iran, 2009)

Fruit tree	No. accessions
Pomegranate	760
Almond	477
Stone fruits	529
Apple & pear	666
Grape	800
Citrus	234
Pistachio	240
Date palm	۲۴۴
Walnut	1065
Olive	520
Fig	140
Hazelnut	250
Other	250
Total	6500

Future perspectives

- Restructuring and capacity building to undertake the comprehensive national mandate
- Establishing an efficient network system for the management of plant genetic resources involving all stakeholders
- Upgrading conservation and utilization technologies of plant genetic resources
- Trait focused evaluations for identifying agronomically valuable genes and transferring them to commercial cultivars

New gene-banks or collections are also being established in different related organizations, mostly for doing research studies. Department of Environment has recently established a biotechnology section, which is equipped with required laboratory equipments for studying the conservation and genetic diversity of plant and animal species and micro-organisms. Currently more than 2000 biological specimens of plant and animal species are stored in this gene bank.

Goal 4. Promote sustainable use and consumption

Target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity.

While this target is difficult to achieve for some major components of biodiversity such as forests, it seems that unsustainable consumption continues to be a major cause of biodiversity loss in Iran. There are some laws and regulations, which controls unsustainable consumption of biological resources and their impacts.

In response to the second National Strategy on Conservation of Biological Diversity and the decisions of the National Committee on Sustainable Development, the government of Iran has taken steps to encourage sustainable production and consumption at all levels to keep the use of natural resources within the ecological limits.

Target 4.2: Unsustainable consumption of biological resources, or that impact upon biodiversity, reduced.

Over harvesting and exploiting of natural resources are under severe control by related governmental bodies. In protected areas, any harvesting of animal and plant species require official permit and any illegal hunting is subjected to fine.

Recently, penalties for killing of the conserved animals and plants has been increased in the country.

Target 4.3: No species of wild flora or fauna endangered by international trade.

Any trade on species needs for the permit and any export and import of the fauna and flora is subjected to be checked. The official custom regulations of Iran follow the CITES

Convention very strictly and all the imported and exported species are controlled according to the CITES appendices. Iran has ratified the CITES, in 1976.

Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.

Target 5.1: Rate of loss and degradation of natural habitats decreased.

The number of protected areas in Iran has increased from 175 in 2006 to 191 in 2009. Conducting EIA is mandatory for all development plans in the protected areas. Any destructive project is prohibited in these areas. Also some national targets have been predicted regarding this issue in the NBSAP: "improvement and strengthening of the protected areas network" and "conservation of aquatic biomes". However many of the habitats and ecosystems have degraded due to human activities. The main threatening factors were presented in chapter 1 of this report.

Land degradation and natural drought have resulted in increased levels of dust pollution

Goal 6. Control threats from invasive alien species

Racoon was recorded in north west of Hircanian jungles less than 10 years ago and now, research shows that this invasive species has expanded its geographic range to Gorgan in east of Hircanian forests. However, the main and identified pathways are controlled.

Some activities on the major problems like jelly fish in Caspian Sea and Azolla in the wetlands on North of country are underway. Some mechanisms for monitoring potential invasions from ballast water are also planned.

It is important to note that I.R. of Iran is one of the leading members of a global program funded by GEF by which Port of Khark island in the Iranian Waters of the Persian Gulf has been selected as demonstration site in the Persian Gulf and the Middle East.

Goal 7. Address challenges to biodiversity from climate change, and pollution

Target 7.1: Maintain and enhance resilience of the components of biodiversity to adapt to climate change.

As a section on "synergies with other international conventions" in Iran's Second National Communication to the UNFCCC and under the chapter on Vulnerability and Adaptation, a study was carried out to assess the impact of climate change on biodiversity of Iran. The draft final report of this section is ready, a summary of which will be included in the Second National Communication. In addition, in the Climate Change Act, which is under preparation for the 5th National Development Plan to be approved by the Parliament next year, the impact of climate change on biodiversity will be taken into consideration.

In addition, Iran has developed some activities in the NBSAP: "Studying on interaction of climate change and biodiversity".

Target 7.2: Reduce pollution and its impacts on biodiversity.

Polluting and contamination of the natural habitats are severely prohibited and subject to high penalties. The sewage of the factories is periodically checked and has to meet the standards. However still about 60-70 % of industrial sewage is discharged into the environment. Also the use of chemical fertilizers and pesticides is very high in the agriculture. Only in 2% of the national agricultural lands crops are produced organically. The highest water pollution in the country comes from agricultural activities.

The national target (No. 15) in the NBSAP of Iran recognizes the impact of industrial threats on biological diversity, and thus emphasizes on the "development of cleaner industrial production procedures.

Also Department of Environment has developed some related study projects addressing this issue, as below:

- Studying environmental impacts of mines in East-Alborz region, and presenting control guidance on conservation of water, soil and wildlife resources.
- Studying the effect of different densities of urban sewage on growing and reproducing characters and functions of main plants in Southern Tehran.
- Studying the effect of irrigation by urban sewage and the well water on accumulation of heavy metals in the plants of Southern Tehran.

Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods

Target 8.1: Capacity of ecosystems to deliver goods and services maintained.

Iran's forest per capita is 0.2 hectares as compared with the global standard of 0.8 hectares. The forage availability from the rangeland is 5.9 million tons total digestible nutrients (TDN) which can feed only 36 million Animal Units (AUs) during a seven months grazing period. However, the current AU is 83 million, which is 2.2 times the capacity of Iranian rangelands.

The major mitigation measures include:

- Limits on the amount and time of the harvest as well as limits on species as the main measures.
- Improved farm and livestock management,
- Protection of forestlands and other natural resources,
- Control and treatment of wastewater,
- Disposal management and recycling of solid waste.
- Afforestation, reforestation and

Switching from wood to fossil fuel Also land degradation in dry areas is one of the most serious issues in natural resource management around the world. Land degradation is underway in almost all dry-land areas of the world due to various

causes including climate change, population growth, overexploitation of water and soil resources, and human poverty. Iran, through its Forest, Rangeland and Watershed Management Organization (FRWO), has made land rehabilitation and desertification control a priority item of its agenda. Rangelands constitute 54% of Iran's land surface. Of the total rangeland area of the country, 54% is located in arid and semi-arid climate zones.

Target 8.2: Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained.

In Iran, wetlands and marine ecosystems are especially important for the populations living in the north of Iran. They provide resources for food and livelihood of the people. Local communities have the right to hunt and trap non-protected bird and fish species. Also in the west part of the country in the Zagros region local community are dependent on grazing and animal husbandry.

In recent years, overexploitation due to increased population has intensified the pressure on natural resources in the country. In 2003, FRWO started the implementation of Carbon Sequestration Project (CSP) in Hosseinabad Plain of South Khorasan Province. The project aimed to show that deserted land can be reclaimed and sustainably used while increasing the carbon storage in vegetative biomass and enhancing the vegetation and biological diversity. The Project also demonstrated the feasibility and cost-effectiveness of rangeland rehabilitation through participatory approaches. The CSP was an innovative and integrated initiative that was based on participatory management concept and practice. It gave the local communities a principle role in restoration and conservation of natural resources.

Goal 9. Maintain socio-cultural diversity of indigenous and local communities

Target 9.1: Protect traditional knowledge, innovations and practices.

Iran has developed a national target (No. 5) in the NBSAP: e.g. "Comprehensive program for protection of traditional knowledge, innovations and practices related to convention of biological diversity".

Target 9.2: Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit sharing.

Until recently, the traditional political decision making systems and resource management structures of farmers and the local communities were poorly understood or appreciated. However further steps are being considered to protect the traditional knowledge, innovations and practices, including the rights of local communities and to study its scope.

However, there is not any specific measure to share the benefits arising from the utilization of genetic resources.

Within the Forest Management Plans, all forest dwellers have their own traditional and customary rights to access and use forest resources. Based on an annual regime, each household and its community take his stake from demarcated stocks of the forest. Meanwhile, local communities are authorized to use all non timber forests products (grazing, nutrition, etc.). Although the commercial use of such resources is not legitimate by law, local populations continue commercially harvest these resources. This is, in some cases, the main cause of forest biological resources loss in the country. The lack of valid information pertaining to local harvests complicates any expected quantitative and qualitative evaluations in this regard.

Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources

Target 10.1: All access to genetic resources is in line with the Convention on Biological Diversity and its relevant provisions.

Legislation regulating the availability and distribution of genetic resources in Iran currently cover only limited parts of these resources, which mainly include crop plants. Legislating access to other resources are under review by related organizations.

Target 10.2: Benefits arising from the commercial and other utilization of genetic resources shared in a fair and equitable way with the countries providing such resources in line with the Convention on Biological Diversity and its relevant provisions.

This subject has been, strongly, taken up by agriculture sector, particularly, on crop plants. The Standard Material Transfer Agreement (SMTA) is used routinely in the transaction of genetic resources of Annex 1 crops, by the Parties to the International Treaty on Plant Genetic Resources for Food and Agriculture, including Iran. Other genetic resources are exchanged based on mutually agreed terms. However, there are still many users who access and collect genetic resources from developing countries such as Iran, without any prior informed consent of the provider country. Iranian national legislation on access and benefit sharing of genetic resources is underway, but still is pending approval and ratification to be materialized.

Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention

Target 11.1: New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.

In recent years, Iran has allocated good funds for national and international biodiversity conservation programs and projects. Although these funds have not been enough to address all the critical needs of biodiversity conservation but it has attracted the required attention of high level decision makers and other groups of the public to the issue of biodiversity conservation.

Financial and Technical international supports have and can help Iran in better implementation of biodiversity projects.

Target 11.2: Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4.

Due to financial limitation and the need for international support transfer of technology to developing countries, including Iran is very limited and almost not happening.

4.2 Progress Toward the Goals and Objectives of the Strategic Plans of the Convention

In 2002, the CBD COP adopted the Strategic Plan for the Convention on Biological Diversity as Decision VI/26. The intent of the Strategic Plan was to focus efforts to effectively halt the loss of biodiversity, in order to secure the continuity of its beneficial uses through the conservation and sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources.

Table 7 summarizes how Iran has addressed relevant targets of the Strategic Plan.

Table 8. National contribution of Iran to the CBD strategic goals and objectives

Strategic Goals and Objectives	National Contribution
GOAL 1. AT THE INTERNATIONAL LEVEL THE CONVENTION PLAYS LEADING ROLE IN SOLUTION OF PROBLEMS RELATED TO BIODIVERSITY	
1.1. Convention defines global agenda in the field of biodiversity preservation and sustainable use	
1.2. Convention encourages cooperation between all related international documents and processes with the purpose to provide more clear policy harmonization	The national committee on sustainable development in Iran plays this role at the national level.
1.3. The other international processes actively support implementation of the Convention in accordance with their corresponding structures	Iran is active in different international programs and conventions (ECO, CEP, to support the CBD)
1.4. Large-scale implementation of Cartagena Protocol on bio-security	Iran has developed the national committee on biosafety
1.5. Biodiversity interests are included in the related sectoral or inter-sector plans, programs and policy at regional and global levels	Any destruction to biodiversity components in the country prohibited and all projects and activities should consider this issue in their activities. All different sectors and should include "Biodiversity protection" in their programs and plans. In national and international agreements, also protection of biodiversity is an important component for relevant cooperation.
1.6. Coordination of the countries at regional and sub-regional levels for implementation of Convention	Iran actively participates in the SBSTTA bureau
GOAL 2. THE PARTIES INCREASED FINANCIAL, HUMAN, SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL CAPACITY IN ORDER TO IMPLEMENT CBD	
2.1. All countries possess adequate capacity for implementation of priority actions within the frames of National strategies and action plans on biodiversity preservation	Iran has appropriate institutional framework but lack of human resources for implementation of NBSAP, and insufficient financial resources have been allocated for this purpose. NBSAP was approved as a national priority within the Parliament and funded by the government. Also some international funds have been supported in implementation of NBSAP objectives.
2.2. The parties which are the developing countries (in particular, the least developed countries and small island developing countries among them) and countries with transit economy possess sufficient resources	As mentioned above the government of Iran, has allocated financial resources for implementation of the 2010 targets.

for implementation of three Convention targets.	
<p>2.3. The parties which are the developing countries (in particular, the least developed countries and small island developing countries among them) and countries with transit economy increased resources volume and expanded transfer of technologies, accessible for implementation of Cartagena protocol on bio-security</p>	<p>Iran is currently in the process of completing its legal and administrative framework to fully implement its obligations under the Cartagena Protocol on Biosafety.</p> <p>The main reason for Iran to develop its National Biosafety Framework is to put in place an enabling mechanism for making decisions on the safe transfer, handling and use of Living Modified Organisms (LMOs).</p> <p>Iran developed its National Biosafety Framework under the UNEP-GEF capacity building project. This project was performed by DoE from November 2002 to September 2004. The main Objective of this National Project is the preparation of a National Biosafety Framework in accordance with the relevant provisions of the Cartagena Protocol on Biosafety. The main elements of this framework would be:</p> <ul style="list-style-type: none"> • a regulatory system, • an administrative system, • a decision making system that includes risk assessment and management, • Mechanisms for public participation and information. <p>The National project for biosafety framework assisted Iran to strengthen national capacity in order to implement biosafety procedures and take competent around one table and will allow all stakeholders to work together.</p>
<p>2.4. All Parties possess adequate capacity for implementation of Cartagena protocol on biosafety</p>	<p>The increase awareness of the importance of biotechnology is worldwide is now beginning to be also felt in Iran. However, amongst the 28 provinces in Iran a few of the universities have programs in biotechnology. The most active centres involved in biotechnology are in development cities like Tehran. Their research and development activities focus on the following areas:</p> <ul style="list-style-type: none"> • Agriculture and Food Biotechnology • Medical Biotechnology • Environmental Biotechnology • Bioprocess Engineering • Basic Science <p>A number of research institutes focused on GMOs. However, these research & development activities are still in an early stage but we need to think about the potential hazards & risks to the environment when releasing GMOs as well as the potential benefits from the use of GMOs.</p>
<p>2.5. Scientific and technical cooperation provides considerable promotion of capacity building</p>	<p>The government has allocated only minimal funds for research and development in biotechnology. The private sectors have not shown much interested in biotechnology or in its commercial application. This is due to a lack of awareness of potential benefits and risk of biotechnology. However, there is likely to be an increasing interest in biotechnology in universities and research institutions in the country. A number of M.S. and Ph.D. biotech-specialists are working in different institutes and</p>

	<p>universities in Iran. Iran has more than 1400 biotech-experts.</p> <p>In Iran there are about 43 research centres dealing with biotechnology. 2250 articles have been published in national and international journals. But using biotechnology for conservation of biodiversity and genetic resources is still weak.</p> <p>Iran has developed a National Biotechnology Document which includes the national biotechnology strategy-planning national short, mid and long-term action plans in this field.</p> <p>Iran has a national council for and under this council National committees and working groups have been established for biotechnology in different sectors.</p> <p>The number of biotech-companies increase every year and now more than 80 different private biotech companies are active in this field. Iran has achieved very important results in the area of modern biotechnology, especially plant biotechnology and production of Genetically Modified Plants. Although most of these activities are in research stage but in near future they reach to field trial and commercialization stage.</p> <p>While modern Biotechnology play an important role in development and progress of human life, potential risks, which may arise as a result of neglecting biosafety regulations should not be ignored. Therefore, within the National Biotechnology Strategy, Iran has considered national policies that are in line with International biosafety indicators and standards.</p>
<p>GOAL 3. NATIONAL STRATEGIES AND ACTION PLANS ON BIODIVERSITY PRESERVATION, AND ALSO INCLUDING OF INTERESTS OF BIODIVERSITY PRESERVATION AND SUSTAINABLE USE IN ACTIVITIES OF THE RELATED SECTORS, PROVIDE EFFECTIVE STRUCTURE FOR IMPLEMENTATION OF THE CONVENTION TARGETS</p>	
<p>3.1. Each Party has introduced effective national strategies, plans and programs for establishing of national mechanism of implementation of three CBD targets and elaborating clear national priorities</p>	<p>Iran's NBSAP was approved in 2001. Some action plans of NBSAP related to the 2010 targets are as below:</p> <ul style="list-style-type: none"> - Development and implementation of the comprehensive plan for agro-biodiversity, - Supporting in-situ and ex-situ biodiversity, emphasizing on endangered plant and animal species, - Strengthening the Protected Areas Network, - Strengthening Conservation of endangered species, - Strengthening Conservation of aquatic biomes. - utilization plan of social institutions in conservation of biodiversity, emphasizing promotion of awareness and strengthening of public participation, especially local stakeholders and communities, - Strengthening of national legal and jurisdictional procedures for the conservation of biological diversity. - Comprehensive program for protection of traditional knowledge, innovations and practices related to conservation of biological diversity.
<p>3.2. Each Party of Cartagena protocol on bio-security has introduced the regulation base</p>	<p>Iran is currently in the process of completing its legal and administrative framework to fully implement its</p>

<p>aimed at achievement of the Protocol targets.</p>	<p>obligations under the Cartagena Protocol on Biosafety. As society cannot ignore the potential environmental and economical impacts of the proliferation of the GMOs or the products thereof, there is urgent need for enforcing biosafety guideline and / or rules and regulations in order to manage any risk from the deliberate or accidental release of GMOs into the environment. It is indicated in Iran's national policy that production and commercialization of GMOs should be in accordance with the observation of biosafety regulations.</p> <p>Iran ratified the Cartagena Protocol on November 2003. In July 2009, the Islamic Consultative Assembly of Iran ratified the Biosafety Act. It was approved by the Guardian Council in August 2009. Iran Biosafety Act came into force on 27th August 2009 following the order of President.</p> <p>For this reason different relevant organization in Iran such as DoE, MAJ, Ministry of Health (Food & Drug Control Laboratories) and Ministry of Science, Research and Technology have become active in the field of biosafety.</p>
<p>3.3. The interests of biodiversity preservation and sustainable use are included in the related national sector and inter-sector plans, programs and policy.</p>	<p>The National Committee for Sustainable Development (NCSD) affiliated to the Supreme Council of the Environment, to ensure national coordination amongst all stakeholders. National Committee includes the representatives from DoE, the Ministries of Energy, Industries and Mining, Foreign Affairs, Jihad-e-Agriculture, Housing and Urban Development, Science, Research and Technology, Oil, Interior, IT and Communications, and Health and Medical Education; and those from the Management and Planning Organization, Meteorology Organization, Department of the Environment, NGOs' Network, Academy of Science. Some representatives of other governmental or non-governmental organizations are also invited to attend the meetings as observers.</p> <p>Several sub-committees have been established under the NCSD. Each of these sub-committees are in charge of different international environmental conventions and are chaired by relevant ministry or organization or the Department of the Environment. These subcommittees, in addition to the technical, legal and political aspects of the conventions, should also address preparation of national reports to the conventions, and propose, approve and monitor implementation of the relevant national and regional environmental projects. In addition, national steering committees are in place to coordinate, monitor and evaluate implementation of such activities. These steering committees should keep NCSD, informed on a periodical basis.</p>
<p>3.4. Dynamic activity efforts are applied on implementation of priorities in national strategies and action plans on biodiversity preservation as one of the means providing realization of the Convention in national scale, and significant contribution to implementation of global agenda in the field of preservation and sustainable use of biodiversity.</p>	<p>The following measures and actions have been implemented towards the ten priorities defined by NBSAP:</p> <ul style="list-style-type: none"> development of the protected areas system; regulation of hunting and fishing; raising of public awareness; species and habitat protection; biodiversity monitoring and the improvement of legislation <p>Detailed information on this issue is presented in Chapter Two</p>

GOAL 4. MORE PROFOUND UNDERSTANDING OF BIODIVERSITY IMPORTANCE AND CONVENTION TARGETS CAME INTO EXISTENCE THAT RESULTED IN BROADER INVOLVEMENT OF VARIOUS LEVELS OF PEOPLE IN THE PROCESS OF CONVENTION IMPLEMENTATION	
4.1. All Parties implement strategy in the field of relations establishment, education and public awareness, encouraging its participation and securing its support to implementation of the Convention.	Biodiversity sub-committee is one of the committees which work under national sustainable development committee. This committee is consists of fully authorized representatives from related ministries and organization and usually meeting held once in month. For ensuring that biodiversity policies are fully integrated into and harmonized with other strategic or planning processes and documents, all decisions are made in consultation with a national committee. Every issue will then be reviewed by NCS D before going to the Environmental High Council for final approval.
4.2. Each Party of Cartagena protocol on bio-security promotes and enhances awareness increase, education and public participation in activities supporting the protocol.	One of the important articles of Cartagena Protocol on Biosafety is article 20, which is about the establishment of Biosafety Clearing House. By allowing easy and open access to key information, the BCH provide greater transparency in the implementation of the protocol and this facilitates effective participation of the public and civil society in the decision making process. National Institute of Genetic Engineering and Biotechnology (Ministry of Science, Research and Education) has been active as BCH focal point since April 2003. NIGEB was succeeded to establish a National Biosafety Clearing House as a result of "UNEP-GEF capacity Building Project for Effective Participation in BCH" in year 2009. Three National workshops with IT and Cartagena Protocol Regional Experts were performed and our scientists got familiar with the importance of biosafety and creating suitable regulatory system for development of GMOs. In addition, a seasonal Biosafety Bulletin is published by NIGEB. 30 issues have been published so far. Moreover a number of workshops (national and international) have been held by different organizations involved in biosafety.
4.3. Indigenous and local communities are effectively involved in the processes aimed at implementation of the Convention targets at national, regional and international levels.	The rights of local communities in biodiversity conservation and management are defined in protected areas management plans. Several projects for strengthening the involvement of local communities in biological resource management have been implemented. These projects have been very effective in transferring new approaches for involvement of local community in implementation of biodiversity conservation activities.
4.4. Main participants and subjects of activity, including private sector, establish partnership relations for the purpose of CBD implementation and include the interests of preservation and sustainable use of biodiversity in their sector and inter-sector plans, programs and policy.	There has been significant effort by DoE to put into place structures and procedures for mainstreaming environmental issues, in sector and inter-sector plans, programs and policies. In the private sector especially in food and automobile industries; companies and factories have been using biodiversity conservation themes to promote their products. In particular, in the Mobil sector (including companies such as Saipa and Iran Khodro) have been directly involved in environment protection activities, as a result of their recognition of both potential corporate impacts and social responsibility. In addition, many young national and local NGOs are active in environmental education relating to biodiversity, and have an important role in raising public awareness and

	implementing biodiversity related projects.
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4.3 Conclusions

Iran is committed to the objectives of the Convention by implementing its National Biodiversity Strategy and Action Plan. Some of these objectives have been achieved but most of are still actively underway. Conservation measures on biodiversity and ecosystems in some sectors have made progress but there are still many challenges ahead. In general, it appears that the rate of decline in many species and ecosystems has increased during the past few years. The reasons for the current major challenges on biodiversity conservation are as follows:

First, ecosystems are disturbed by the dramatic increase in human activities and naturally occurring events. As a result of the rapid population growth and more pressure on utilization of natural resources, the area and biodiversity of different ecosystems including forest, rangeland, wetland, mountain, and marine and coastal ecosystems are decreasing.

Second integrating biodiversity conservation into other sectors and integrated management of biodiversity in Iran is a new concept. Because of being new and challenging, it is very important to consider the time and the process of integrated management. It should not be expected to see the final results and achievements very soon but it is very important to plan the right process and move forward gradually.

Third, a great deal of progress has to be made in the areas of education and public awareness in order to achieve an integrated biodiversity management at the national, provincial and local levels. Iran is a huge country with very diverse people and different cultures, livelihood and behaviours. With this socio-economic complexity, community participation and stakeholders' involvement may be very welcome in some areas but there may be resistance to it at other sites.

Fourth administrative and technical capacity at different levels as well as funding policies of government to conservation activities need to be improved. To date the government has provided funding to support biodiversity conservation of the nation; however, this is not enough to address all the challenges on the way.

Considering the progress already achieved towards biodiversity protection and sustainable use, priority actions for the future include:

9. Revise and update the first NBSAP of Iran for incorporating biodiversity indicators, targets and specific strategies for implementing priority elements of the CBD;
10. Complete national biodiversity indicators and develop a systematic approach for their measurement
11. Improve public awareness on conservation and sustainable use of biodiversity resources

12. Field studies on selected species and ecosystems for better understand biodiversity status and trends, and implementation of conservation and rehabilitation measures for threatened endemic species;
13. Implement and support further conservation projects encouraging a community-based approach to natural resource management, sustainable use and biodiversity conservation;
14. Further increase in the protected areas, including the establishment of new protected areas, the extension of existing ones, completion of all the management plans for protected areas, the improvement of management effectiveness and the facilitation of financial sustainability;
15. Establishment of a national bio-safety system; and completion and implementation of the national biosafety regulation
16. Improvement in law enforcement including the strengthening of controls on illegal resources use;

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Appendices

Appendix 1- Information Concerning Party and Process of Report Preparation

Reporting Party

Contracting Party	Islamic Republic of Iran
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Signature of officer responsible for submitting national report	

Date of submission	
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Process of Preparation

The preparation process of the Fourth National Report of the Islamic Republic of Iran to the Convention on Biological Diversity, was initiated and supported by the Natural Environment Division, Department of Environment. A National Expert Working Group (NEWG), including representatives of Department of Environment (DoE), Ministry of Jihad-e-Agricultural Ministry of Energy, Ministry of Foreign Affairs (MFA), , UNDP, Ministry of Science, Research and Technologies, academic centres and NGOs provided technical inputs for developing the report. Technical backstopping was also provided by the College of Environment (CoE) and Environment and Sustainable Development Research Centre (ESDRC).

The preparation of the report was partially supported by the Global Environmental Facility (GEF) and the United Nations Development Programme (UNDP), within the framework of the project "Preparation of Iran's 4th National Report to CBD (Support to CBD 2010 Targets)". This report was developed in a drafting team practice with several inputs from individuals and institutes, as part of Iran's commitments to the Convention on Biological Diversity and has not been edited either by the GEF or by UNDP. Views expressed herein are not necessarily reflect those of the Government of Islamic Republic of Iran.

A series of meetings and workshops of experts and stakeholders were held to discuss drafts of the national report among experts and to incorporate the views of wide range of national stakeholders. The NEWG also provided input in the review process. The text of the report was compiled and prepared by a drafting team.

The drafting team was comprised of the following experts:

1. Dr. Asghar Mohammadi Fazel (input to chapter 4 and the drafting team leader)
2. Ms. Azin Fazeli (input to chapter 3 and compilation of the report)
3. Ms. Mahboobeh Tohidi (input to chapter 2)
4. Dr. Mostafa Panahi (input to chapter 1)
5. Ms. Mehrasa Mehrdadi (input to annex 4)
6. Dr. Javad Mozaffari (input to annex 5 and scientific editing)

During the drafting phase, data and information were gathered on the basis of reviewing several reports, sectoral plans and programmes and scientific literature as well as through communication with relevant experts from different sectors. At the later stage, the NEWG was invited to review the report and provide written comments for improvement of the report. The report was enhanced based on the comments received.

Following individuals took part in the review of the report (in alphabetic order):

1. Ms. Shirin Abolghasemi (UNDP/GEF Zagros Project & Department of Environment, Natural Environment Division)

2. Ms. Jaleh Amini (Department of Environment, Habitat and Protected Areas Bureau)
3. Ms. Mehri Asnaashari , (UNDP/GEF CIWP)
4. Mr. Shahab Cheraghi (Boom Pajouhan NGO)
5. Dr. Nasrin Esmaeelzadeh (National Institute of Genetic Engineering and Biotechnology)
6. Mr. Morteza Farid (Department of Environment, Habitat and Protected Areas Bureau)
7. Mr. Mohammad Sadegh Farhadinia (UNDP/GEF Cheetah Project)
8. Dr. Saeed Ferdowsi (UNDP Tehran)
9. Ms. Zeinab Fatollah Zadeh (Department of Environment, Genetic Resources Bureau)
10. Ms. Hayede Ghorban Beigi (Department of Environment, International Affairs and Conventions Bureau)
11. Dr. Mostafa Jafari (Ministry of Jihad-e-Agriculture, Research Institute of Forests and Rangelands)
12. Dr. Mohammad Hassan Jafari Sayadi (Department of Environment, Genetic Resources Bureau)
13. Mr. Alireza Jourabchian (UNDP/GEF Cheetah Project)
14. Mr. Mehdi Kamyab (UNDP Tehran)
15. Mr. Tooraj Khadivi (Department of Environment, Laws and Regulations Bureau)
16. Dr. Shahabeddin Montazami (Department of Environment, Natural History Museum and Genetic Resources Bureau)
17. Dr. Ali Nazaridoost (UNDP/GEF CIWP)
18. Ms. Laya Shajii (UNDP Tehran)
19. Mr. Shahram Noorbakhsh (Department of Environment, Marine Ecobiology Bureau)
20. Dr. Mohammad Reza Rahmani (College of Environment)
21. Ms. Mojgan Razavi (Ministry of Jihad-e-Agriculture)
22. Mr. Masoud Rezvanian (Ministry of Foreign Affairs)
23. Mr. Sadegh Sadeghizadegan (Department of Environment, Wildlife and Biodiversity Bureau)
24. Mr. Tofigh Sedigh Mostahkam (Ministry of Foreign Affairs)
25. Ms. Bahare Shahriari (Department of Environment, Wildlife and Biodiversity Bureau)
26. Mr. Mohsen Soleimani (UNDP/GEF CIWP)

Appendix 2- GEF Portfolio in Iran
(as of January 2010)

GEF PORTFOLIO IN IRAN							
GEF ID	Agency ID	NATIONAL PROJECTS	Focal Area	Agency	Modality	GEF Allocation (US\$ M)	Status
207	618	National Biodiversity Strategy and Action Plan and Country Report to the CBD	BD	UNDP	EA	\$0.35	Completed
1492	618	Assessment of Capacity Building Needs and Country Specific Priorities in Biodiversity (add on)	BD	UNDP	EA	\$0.10	Completed
312	602	Enabling Iran to Prepare its First National Communication in Response to its Commitments to UNFCCC	CC	UNDP	EA	\$0.35	Completed
1601	602	Climate Change Enabling Activity (Additional Financing for Capacity Building in Priority Areas)	CC	UNDP	EA	\$0.10	Completed
2217	3022	National Capacity Self-Assessment (NCSA) for Global Environment Management	MF	UNDP	EA	\$0.20	Completed
1596	2323	Preparation of the POPs National Implementation Plan under the Stockholm Convention	POP	UNDP	EA	\$0.50	Under Implem
1145	980	Conservation of Iranian Wetlands	BD	UNDP	FSP	\$3.29	Under Implem
1322	2278	Conservation of Biodiversity in the Central Zagros Landscape Conservation Zone	BD	UNDP	FSP	\$4.00	Under Implem
572	5174	Teheran Transport Emissions Reduction	CC	WB	FSP	\$2.00	Completed
1146	747	Removing Barriers to Large Scale Commercial Wind Energy Development	CC	UNDP	FSP	\$5.73	Council App
3177	2390	Facilitating Sustainable Mobility in Tehran	CC	UNDP	FSP	\$5.48	Council App
3450		SFM Rehabilitation of Forest Landscapes and Degraded Land with Particular Attention to Saline Soils and Areas	MF	FAO	FSP	\$2.67	Council App
2732	3232	MENARID Institutional Strengthening and Coherence for Integrated Natural Resources Management	MF	UNDP	FSP	\$4.45	Council App
865	1027	Conservation of the Asiatic Cheetah, its Natural Habitat and Associated Biota	BD	UNDP	MSP	\$0.75	Under Implem
673	899	Carbon Sequestration in the Desertified Rangelands of Hossien Abad, South Khorasan, through Community-based Mgm.	CC	UNDP	MSP	\$0.75	Under Implem
						\$30.69	
		REGIONAL PROJECTS					

1097		Development of a Wetland Site and Flyway Network for Conservation of the Siberian Crane and Other Migratory Waterbirds in Asia	BD	UNEP	FSP	\$10.35	Under Implem
596	832	Addressing Transboundary Environmental Issues in the Caspian Environment Programme (Phase I)	IW	UNDP	FSP	\$8.34	Completion
1618	2622	Towards a Convention and Action Programme for the Protection of the Caspian Sea Environment	IW	UNDP	FSP	\$6.45	Under Implem
3620	4058	The Caspian Sea: Restoring Depleted Fisheries and Consolidation of a Permanent Regional Environmental Governance Framework	IW	UNDP	FSP	\$5.00	Council App
3423		MENARID Integrated Nature Resources Management the Middle East and North Africa Region (PROGRAM)	MF	IFAD	FSP	\$0.00	Under preparation.
2546		Demonstration of Sustainable Alternatives to DDT and Strengthening of National Vector Control Capabilities in Middle East and North Africa	POP	UNEP	FSP	\$5.56	CEO Endorsed
2746	3505	Promoting Replication of Good Practices for Nutrient Reduction and Joint Collaboration in Central and Eastern Europe	IW	UNDP	MSP	\$1.00	CEO Approved
3628		MENARID Cross Cutting M & E Functions and Knowledge Management for INRM within the MENARID Programme Framework	LD	IFAD	MSP	\$0.73	Under preparation.
-						\$37.43	
GLOBAL PROJECTS							
884		Reduction of Environmental Impact from Tropical Shrimp Trawling through Introduction of By-catch Technologies and Change of Management	IW	UNEP	FSP	\$4.78	Under Implem
2261	3050	Building Partnerships to Assist Developing Countries to Reduce the Transfer of Harmful Aquatic Organisms in Ships' Ballast Water (GloBallast Partnerships)	IW	UNDP	FSP	\$6.39	CEO Endorsed
1599		Development of a Strategic Market Intervention Approach for Grid-Connected Solar Energy Technologies (EMPower)	CC	UNEP	MSP	\$1.00	Completion
2193	2857	Enabling Sustainable Dryland Management Through Mobile Pastoral Custodianship	LD	UNDP	MSP	\$1.00	Under Implem
3660	2857	Enabling Sustainable Dryland Management Through Mobile Pastoral Custodianship: World Initiative on Sustainable Pastor	LD	UNDP	MSP	\$0.30	CEO Approved
-						\$13.47	
-							

Source: GEF/OPS4 draft report 2009

Appendix 3- Iran's species listed as being at threat by the global IUCN Red List (1996- 2009)

Species / Global Threat	English Name	Annex in CITES
<u>Critically Endangered(CR) animal species</u>		
Acipenser gueldenstaedtii Status: Critically Endangered A2bcde ver 3.1 Pop. trend: decreasing	Russian Sturgeon	
Acipenser nudiventris Status: Critically Endangered A2cde ver 3.1 Pop. trend: decreasing	(Ship Sturgeon)	
Acipenser persicus (Status: Critically Endangered A2cde ver 3.1 Pop. trend: decreasing	Persian Sturgeon)	
Acipenser stellatus Status: Critically Endangered A2cde ver 3.1 Pop. trend: decreasing	(Stellate Sturgeon)	
Eremias pleskei Status: Critically Endangered A2c ver 3.1 Pop. trend: decreasing	(Transcaucasian Racerunner)	
Eretmochelys imbricata Status: Critically Endangered A2bd ver 3.1 Pop. trend: decreasing	(Hawksbill Turtle)	
Grus leucogeranus Status: Critically Endangered A3bcd+4bcd ver 3.1 Pop. trend: decreasing	(Siberian Crane)	I
Gyps bengalensis Status: Critically Endangered A2bce+4bce ver 3.1 Pop. trend: decreasing	(White-rumped Vulture)	
Huso huso Status: Critically Endangered A2bcd ver 3.1 Pop. trend: decreasing	(Beluga)	
Neurergus kaiseri Status: Critically Endangered A2d; B2ab(iii,v) ver 3.1 Pop. trend: decreasing		I
Neurergus microspilotus Status: Critically Endangered A3cde+4cde;B2ab(iii,iv,v) ver 3.1 Pop. trend: decreasing		
Numenius tenuirostris Status: Critically Endangered C2a(ii); D ver 3.1 Pop. trend: decreasing	(Slender-billed Curlew)	I
Paradactylodon gorganensis Status: Critically Endangered B1ab(iii)+2ab(iii) ver 3.1 Pop. trend: decreasing		
Vanellus gregarius Status: Critically Endangered A3bc+4bc ver 3.1 Pop. trend: decreasing	(Sociable Lapwing)	
<u>Endangered (EN) animal species</u>		
Acrocephalus griseldis Status: Endangered A2c+3c+4c ver 3.1 Pop. trend: decreasing	(Basra Reed-warbler)	
Alosa volgensis Status: Endangered B2ab(iii,v) ver 3.1 Pop. trend: unknown	(Volga Shad)	
Balaenoptera musculus Status: Endangered A1abd ver 3.1 Pop. trend: increasing	(Blue Whale)	I
Branta ruficollis Status: Endangered A2bcd+3bcd+4bcd ver 3.1	(Red-breasted	II

Pop. trend: decreasing	Goose)	
Chelonia mydas Status: Endangered A2bd ver 3.1 Pop. trend: decreasing	(Green Turtle)	
Dama mesopotamica Status: Endangered D ver 3.1 Pop. trend: increasing	(Persian Fallow Deer)	I
Equus hemionus Status: Endangered A2abc+3bd ver 3.1 Pop. trend: decreasing	(Asiatic Wild Ass)	II
Falco cherrug Status: Endangered A2bcd+3cd+4bcd ver 3.1 Pop. trend: decreasing	(Saker Falcon)	
Huso huso Status: Endangered A1acde+2d ver 2.3 (needs updating)	(Beluga)	
Megaptera novaeangliae Status: Endangered D ver 3.1 Pop. trend: unknown	(Humpback Whale)	
Neophron percnopterus Status: Endangered A2bcde+3bcde+4bcde ver 3.1 Pop. trend: decreasing	(Egyptian Vulture)	
Oxyura leucocephala Status: Endangered A2bcde+4bcde ver 3.1 Pop. trend: decreasing	(White-headed Duck)	II
Panthera tigris Status: Endangered A2bcd+4bcd; C1+2a(i) ver 3.1 Pop. trend: decreasing	(Tiger)	I
Parasimplastrea sheppardi Status: Endangered A4c ver 3.1 Pop. trend: decreasing		
Pusa caspica Status: Endangered A2abd+3bd+4abd ver 3.1 Pop. trend: decreasing	(Caspian Seal)	I
Rafetus euphraticus Status: Endangered A1ac+2c ver 2.3 (needs updating)	(Euphrates Softshell Turtle)	
Sphyrna lewini Status: Endangered A2bd+4bd ver 3.1 Pop. trend: unknown	(Scalloped Hammerhead)	
Sphyrna lewini Status: Endangered A4bd ver 3.1 Pop. trend: decreasing	(Western Indian Ocean subpopulation)	
Sphyrna mokarran Status: Endangered A2bd+4bd ver 3.1 Pop. trend: decreasing	(Squat-headed Hammerhead Shark)	
Vipera latifii Status: Endangered B2ab(v); C2a(ii) ver 3.1 Pop. trend: decreasing	(Latifi's Viper)	
<u>Extinct in the Wild(EW) animal species</u>		
Stenodus leucichthys Status: Extinct in the Wild ver 3.1	(Beloribitsa)	
<u>Vulnerable(VU) animal species</u>		
Acinonyx jubatus Status: Vulnerable A2acd;C1 ver 3.1 Pop. trend: decreasing	(Cheetah)	I
Acipenser persicus (Caspian Sea stock))	(Persian Sturgeon)	

Status: Vulnerable A1acde ver 2.3 (needs updating)		
Acipenser stellatus (Caspian Sea stock) Status: Vulnerable A1acde+2d ver 2.3 (needs updating)	(Stellate Sturgeon)	
Acropora horrida Status: Vulnerable A4cde ver 3.1 Pop. trend: decreasing		
Acropora pharaonis Status: Vulnerable A4ce ver 3.1 Pop. trend: decreasing		
Alopias pelagicus Status: Vulnerable A2d+4d ver 3.1 Pop. trend: decreasing	(Pelagic Thresher)	
Anomastraea irregularis Status: Vulnerable A4ce ver 3.1 Pop. trend: decreasing		
Anser erythropus Status: Vulnerable A2bcd+3bcd+4bcd ver 3.1 Pop. trend: decreasing	(Lesser White-fronted Goose)	
Aquila clanga Status: Vulnerable C2a(ii) ver 3.1 Pop. trend: decreasing	(Greater Spotted Eagle)	
Aquila heliaca Status: Vulnerable C2a(ii) ver 3.1 Pop. trend: decreasing	(Eastern Imperial Eagle)	
Brachythemis fuscopalliat Status: Vulnerable A2ac+3c ver 3.1 Pop. trend: decreasing		
Capra aegagrus Status: Vulnerable A2cd ver 3.1 Pop. trend: decreasing	(Wild Goat)	
Carcharhinus plumbeus Status: Vulnerable A2bd+4bd ver 3.1 Pop. trend: decreasing	(Sandbar Shark)	
Cerambyx cerdo Status: Vulnerable A1c+2c ver 2.3 (needs updating)	(Greater Capricorn Beetle)	
Chaenogaleus macrostoma Status: Vulnerable A2bd+3bd ver 3.1 Pop. trend: unknown	(Hooktooth Shark)	
Chlamydotis undulata Status: Vulnerable A2bcd+3bcd+4bcd ver 3.1 Pop. trend: decreasing	(Houbara Bustard)	
Columba eversmanni Status: Vulnerable A2bcd+3bcd+4bcd ver 3.1 Pop. trend: decreasing	(Pale-backed Pigeon)	
Crocodylus palustris Status: Vulnerable A1a, C2a ver 2.3 (needs updating)	(Broad-snouted Crocodile)	
Cyprinus carpio Status: Vulnerable A2ce ver 3.1 Pop. trend: unknown	(Wild Common Carp)	
Epinephelus lanceolatus Status: Vulnerable A2d ver 3.1 Pop. trend: decreasing	(Queensland Groper)	
Falco naumanni Status: Vulnerable A2bce+3bce+4bce ver 3.1 Pop. trend: decreasing	(Lesser Kestrel)	
Fungia curvata		

Status: Vulnerable A4c ver 3.1 Pop. trend: unknown		
Gadus morhua Status: Vulnerable A1bd ver 2.3 (needs updating)	(Atlantic Cod)	
Gazella subgutturosa Status: Vulnerable A2ad ver 3.1 Pop. trend: decreasing	(Goitered Gazelle)	
Haliaeetus leucoryphus Status: Vulnerable C2a(ii) ver 3.1 Pop. trend: decreasing	(Pallas's Fish-eagle)	
Heliopora coerulea Status: Vulnerable A4cde ver 3.1 Pop. trend: decreasing	(Blue Coral)	
Hemipristis elongatus Status: Vulnerable A2bd+3bd+4bd ver 3.1 Pop. trend: decreasing	(Snaggletooth Shark)	
Iranocypris typhlops Status: Vulnerable D2 ver 2.3 (needs updating)		
Isurus oxyrinchus Status: Vulnerable A2abd+3bd+4abd ver 3.1 Pop. trend: decreasing	(Shortfin Mako)	
Isurus oxyrinchus (Indo-west Pacific subpopulation) Status: Vulnerable A2bd+4d ver 3.1 Pop. trend: decreasing	(Shortfin Mako)	
Lepidochelys olivacea Status: Vulnerable A2bd ver 3.1 Pop. trend: decreasing	(Olive Ridley)	
Luciobarbus brachycephalus Status: Vulnerable A2cd ver 3.1 Pop. trend: decreasing	(Shorthead Barbel)	
Luciobarbus capito Status: Vulnerable A2cd ver 3.1 Pop. trend: decreasing	(Bulatmai Barbel)	
Marmaronetta angustirostris Status: Vulnerable A2cd+3cd+4cd ver 3.1 Pop. trend: decreasing	(Marbled Teal)	
Montivipera albicornuta Status: Vulnerable A4d ver 3.1 Pop. trend: decreasing		
Myotis capaccinii Status: Vulnerable A4bce ver 3.1 Pop. trend: decreasing	(Long-fingered Bat)	
Nebrius ferrugineus Status: Vulnerable A2abcd+3cd+4abcd ver 3.1 Pop. trend: decreasing	(Tawny Nurse Shark)	
Neophocaena phocaenoides Status: Vulnerable A2cde ver 3.1 Pop. trend: decreasing	(Finless Porpoise)	
Neurergus crocatus Status: Vulnerable B2ab(iii) ver 3.1 Pop. trend: decreasing		
Onychogomphus assimilis Status: Vulnerable A2ac+3c ver 3.1 Pop. trend: decreasing		
Otis tarda Status: Vulnerable A2c+3c+4c ver 3.1 Pop. trend: decreasing	(Great Bustard)	
Ovis orientalis Status: Vulnerable A2cde ver 3.1 Pop. trend: decreasing	(Urial)	

Panthera leo Status: Vulnerable A2abcd ver 3.1 Pop. trend: decreasing	(Lion)	I
Paracobitis smithi Status: Vulnerable D2 ver 2.3 (needs updating)	(Blind Loach)	
Parnassius apollo) Status: Vulnerable A1cde ver 2.3 (needs updating)	(Apollo Butterfly)	
Pavona cactus Status: Vulnerable A4cd ver 3.1 Pop. trend: unknown		
Pavona decussata Status: Vulnerable A4c ver 3.1 Pop. trend: unknown	(Cactus Coral)	
Pavona diffluens Status: Vulnerable A4c ver 3.1 Pop. trend: unknown		
Pavona venosa Status: Vulnerable A4c ver 3.1 Pop. trend: unknown		
Pelecanus crispus Status: Vulnerable A2ce+3ce+4ce ver 3.1 Pop. trend: decreasing	(Dalmatian Pelican)	I
Phalacrocorax nigrogularis Status: Vulnerable A2ce+3ce+4ce; B2ab(i,ii,iii,iv,v) ver 3.1 Pop. trend: decreasing	(Socotra Cormorant)	
Phrynocephalus persicus Status: Vulnerable A2c ver 3.1 Pop. trend: stable	(Persian Toad Agame)	
Physeter macrocephalus Status: Vulnerable A1d ver 3.1 Pop. trend: unknown	(Sperm Whale)	
Physogyra lichtensteini Status: Vulnerable A4cd ver 3.1 Pop. trend: unknown		
Rhina ancylostoma Status: Vulnerable A2bd+3bd+4bd ver 3.1 Pop. trend: decreasing	(Bowmouth Guitarfish)	
Rhincodon typus Status: Vulnerable A2bd+3d ver 3.1 Pop. trend: decreasing	(Whale Shark)	
Rhinobatos thouin Status: Vulnerable A2abd+3bd+4abd ver 3.1 Pop. trend: unknown	(Clubnose Guitarfish)	
Rhinolophus mehelyi Status: Vulnerable A4c ver 3.1 Pop. trend: decreasing	(Mehely's Horseshoe Bat)	
Rosalia alpina Status: Vulnerable A1c ver 2.3 (needs updating)	(Rosalia Longicorn)	
Sphyrna zygaena Status: Vulnerable A2bd+3bd+4bd ver 3.1 Pop. trend: decreasing	(Smooth Hammerhead)	
Stegostoma fasciatum Status: Vulnerable A2abcd+3cd+4abcd ver 3.1 Pop. trend: decreasing	(Leopard Shark)	
Taeniura meyeri Status: Vulnerable A2ad+3d+4ad ver 3.1 Pop. trend: unknown	(Black-blotched Stingray)	
Testudo graeca	(Spur-thighed	II

Status: Vulnerable A1cd ver 2.3 (needs updating)	Tortoise)	
Testudo horsfieldii Status: Vulnerable A2d ver 2.3 (needs updating)	(Central Asian Tortoise)	II
Turbinaria mesenterina Status: Vulnerable A4cd ver 3.1 Pop. trend: unknown		
Turbinaria peltata Status: Vulnerable A4cd ver 3.1 Pop. trend: unknown		
Turbinaria reniformis Status: Vulnerable A4c ver 3.1 Pop. trend: unknown		
Urogymnus asperrimus Status: Vulnerable A2bd ver 3.1 Pop. trend: unknown	(Porcupine Ray)	
Ursus thibetanus Status: Vulnerable A2cd+3d+4d ver 3.1 Pop. trend: decreasing	(Himalayan Black Bear)	
Vipera ebneri Status: Vulnerable B2ab(iii) ver 3.1 Pop. trend: decreasing	(Iranian Mountain Steppe Viper)	
Vormela peregusna Status: Vulnerable A2c ver 3.1 Pop. trend: decreasing	(European Marbled Polecat)	
<u>Vulnerable(VU) plant species</u>		
Aquilaria malaccensis Status: Vulnerable A1cd ver 2.3 (needs updating)	(Lign-aloes)	

Appendix 4- Implementation of the Program of Work on Protected Areas

The Conference of the Parties to the CBD at its seventh meeting in 2004, with decision VII/28 (<http://www.cbd.int/decisions/?m=COP-07&id=7765&lg=0>) had confirmed that the protected areas were essential for achieving the three objectives of the CBD. Accordingly, a Programme of Work for Protected Areas (PoWPA) was adopted during COP VII. The overall purpose of the PoWPA is to support the establishment and maintenance by 2010 for terrestrial and by 2012 for marine areas of comprehensive, effectively managed, and ecologically representative national and regional systems of protected areas that collectively, inter alia, through a global network contribute to achieving the three objectives of the Convention and the 2010 target to significantly reduce the current rate of biodiversity loss at the global, regional, national and sub-national levels and contribute to poverty reduction and the pursuit of sustainable development, thereby supporting the objectives of the Strategic Plan of the Convention, the World Summit on Sustainable Development Plan of Implementation and the Millennium Development Goals.

The PoWPA consists of four interlinked programme elements:

- 1) Direct actions for planning, selecting, establishing, strengthening, and managing, protected area system and sites;
- 2) Governance, participation, equity and benefit sharing;
- 3) Enabling activities;
- 4) Standards, assessment and monitoring.

In conformity with the CBD guidelines and keeping in view the national policies and mechanisms in place, following is a short explanation of Iran's activities and progress in achieving these targets:

Goal 1.1. To establish and strengthen national and regional systems of PAs integrated into a global network as a contribution to globally agreed goals.

Target: Establish a global network of comprehensive, representative and effectively managed national and regional PA system.

1.1.1 By 2006, establish suitable time-bound and measurable national and regional level protected area targets and indicators.

The main legal instrument for conservation in Iran is The Environmental Protection Act (1974), which defines the major categories of protected areas. In this legal framework, the establishment of suitable time-bound and measurable national and regional level protected area targets and indicators was necessary. Iranian protected areas were classified into four groups of national parks, national natural monuments, wildlife refuges and protected areas, according to the official definitions and criteria of the system of the classification of areas. In addition to these classes, other areas known as no-hunt areas, wetlands, international wetlands and biosphere reserves are also monitored and managed. While international wetlands and biosphere reserves are among the defined classes of international environmental protection societies, the no-hunt area is considered a national innovation.

Also in accordance to the national management plan guidelines, since 2002, each protected area, depending on the management level and natural conditions, has minimum of four and maximum of eight zones out of 11 following zones:

- Restricted Nature Zone,
- Protected Area Zone (Primitive, ecological),
- Extensive Tourism Zone (Recreation zone outdoor),
- Intensive Tourism Zone (access, development),
- Cultural Zone,
- Recovery Zone (restoration, reclamation),
- Special Zone (administrative zone),
- Buffer Zone,
- Transition Zone,
- Primitive Scientific Zone,
- Multiple use Zone (Special use, Scio-economic, stable cultural).

Detailed study on fixing the site borders, increasing the number of signboards and ranger stations, constructing of visit centres are in the processes. For example in 2009, Tange Sayyad protected area Visitor Centre was built. This Centre is a multi-purpose building, for introducing the fauna and flora of the site, conference room, and communication office for the Zagros project. Main purpose of such centres inside the PAs is awareness raising with a focus on university students and tourists.

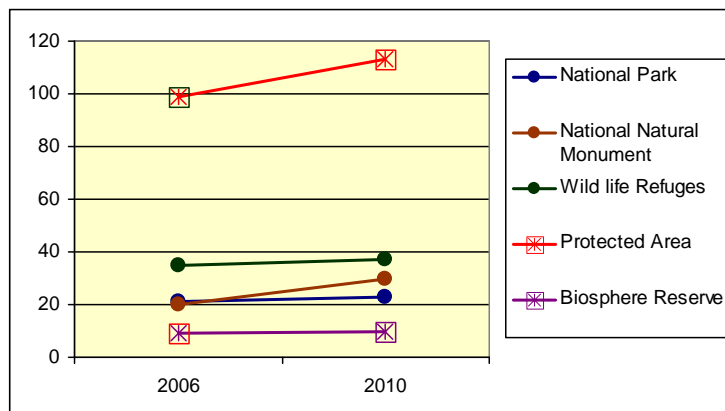
In addition, DoE has a plan for developing new indicators and targets through its PAs Comprehensive Management Plan for 2011-2020 period.

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 [69]/, and taking into consideration the conservation needs of migratory species.

Department of Environment has a policy for establishment of new and expanding current Protected Areas. During 2006-2010 the area of PAs in Iran rose from 7.3% to 7.8%, amounting to more than 12.8 million hectares.

As reported by the Habitat and Protected Areas Bureau of DoE (February 2010), following number of areas have been added to the national PAs network:

- National Parks : 2 areas, 139,103 ha
- National Natural Monuments: 10 areas, 5,362 ha
- Wildlife Refuge: 2 areas, 1,779 ha
- Protected Area; 14 areas, 602,769 ha
- Man and Biosphere Reserve: 1 area, 93,660 ha



Protected Areas of Iran (2006-2010)

The current number and size of the protected areas are shown in Table 2.

For example Dena Biosphere Reserve which was added to the UNESCO World Network of Biosphere Reserves (WNBR) in May 2010, stretches across the Central Zagros Mountains and consists primarily of semi-arid steppe forest. Oak species predominate in the highlands, with pistachio and almond at lower elevations. Large rivers, including the Karun, Dez, and Kharkeh, originate from the Central Zagros, draining into the Persian Gulf and the Sea of Oman. Waterfalls, pools and lakes add to the beauty of the mountain landscape. One of the main importance of Dena is because of being the home to a large rural population, including a nomadic community of about 20,000 people practicing traditional livelihoods. This area also contributes to the conservation of several threatened plant and animal species.

DoE also has conducted considerable actions for expanding Protected Areas in areas securing the most threatened species and taking into consideration the conservation needs of migratory species through several related national, regional and international projects.

One of these projects is the joint DoE and UNDP/GEF project on the Conservation of Asiatic Cheetah. This project hopes to secure the conservation of Asiatic Cheetah in Iran and the related complex of rare and endangered wild species and their natural habitat with the support and collaboration of local communities. The endangered species of Asiatic cheetah that generally occurs in the east and central range of the country is faced by many threats, such as habitat disturbance and degradation, decline in prey and illegal hunting. For this reason, DoE has designated some parts of cheetah habitat as protected area or wildlife refuges. DoE has also managed some of the biological corridors of cheetah during past years.

It should be noted that there are considerable overlaps between the various PAs categories. It is therefore misleading or incorrect simply to add together the areas shown for the individual types of PAs. For example the Iranian Environmental legal system, recognizes National parks, Wildlife Refuges, natural national monument, but not Biosphere Reserves as legal entities. It means, one site can be a Protected Area and a Biosphere Reserves at the same time. Therefore, Biosphere Reserves may frequently overlap with such protected areas and consequently governed by the relevant national laws, which sometimes may not be compatible with the objectives of Biosphere Reserve

program. In deed in some cases, this leads to prohibition of economic activities like grazing or fishing in Biosphere Reserve. which is depriving the local community of its livelihood and development needs.

In other hand, since one of the management level categories has been named as "Protected Area", which is the same as general definition of Protected Area, in many cases this will lead to confusion of the people for recognizing these two classifications.

1.1.3 As a matter of urgency, by 2006 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.

Department of Environment manages marine ecosystems with high ecological values at coastal areas of Persian Gulf and the Sea of Oman. Khark and Kharko National Natural Monuments/wildlife refuges with valuable coral reefs: coastal areas of the Farour Protected Area that is breeding place of turtles; and Shidvar Wildlife Refuge are some examples of these marine ecosystems.

In Iran 81 important wetlands are under management of DoE of which 22 are considered as Ramsar sites. Urmia Lake Biosphere Reserve and National Park, Anzali Wetland and Hamoun Protected Area are some of these wetlands.

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.

Conservation of biodiversity by focus on involving all stakeholders, public awareness raising and education is one of the main concern of policy makers in the country. But reviewing the current system has not done yet.

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.

One target of Comprehensive management plan of DoE is based on gap analyses objective, to answer of its two main questions for management of Protected Areas: "Where are we?" and "Where do we want to be?"

This plan which is in almost 50% of the protected areas of Iran is in the progress (Faze I, II or III), almost 13 basic studies such as: physiography, geology, land use, erosion and sediment, underground water hydrology, limnology, plants cover, wildlife and aquatic species, natural environment features and socio-economic studies for each site has done. in this regard all values and threats of the sites are studied such as species migration requirements, integrity, ecological processes and ecosystem services. By the result of the first faze, in faze II, General and specific manuals in the framework of short, midterm and long term action plan for management of each site is prepared.

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.

Iranian Protected areas are designating in accordance to the environmental national laws and all of them has a measurable boundaries and precise maps and through management plan all detailed study will be complete in 2012.

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

In Iran, there is considerable concern that the combination of economic development, land use change and population growth poses major threats in Protected Areas of the country. It is noticed that Biosphere reserves are the best sites that specifically calls for conservation and sustainable development to proceed along mutually supportive paths. So rethinking of advantages of biosphere reserves as the best place for considering both conservation and benefit of indigenous and local communities are dominated most of the policy dialogue in DoE.

Goal 1.2. To integrate protected areas into broader land- and seascapes and sectors so as to maintain ecological structure and function.

Target: 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

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. **1.2.2.** Identify and implement, by 2008, practical steps for improving the integration of protected areas into broader land- and seascapes, including policy, legal, planning and other measures.

Considering ecological diversity of Iran, national protected areas are distributed across the country as a large network. In Iran areas are protected by DoE noting sustainable development policies and ecosystem approach principles.

In addition, some other ministries such as Forests and Rangelands Organization of the Ministry of Jihad-e Agriculture manage Natural Forest Parks, Forest Reserves and Natural Parks with the aim of support conservation of Biodiversity of the country.

1.2.2 Identify and implement, by 2008, practical steps for improving the integration of protected areas into broader land- and seascapes, including policy, legal, planning and other measures.

DoE observes integration approach to integrate national protected area system into broader land- and seascape *inter alia* by establishing and managing ecological buffer zones and corridors.

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.

In Iran 21 protected areas have neighbouring aquatic and terrestrial ecosystem which are managed as a single area at local and national levels. Also there is a widespread network of ecological corridors in several areas that are being conserved as Hunting Prohibited Areas.

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.

In order to materialize one of the legislations of the Bali Conference in 1982 recommending that 10% of the total area of the world's forests be allocated to protected areas, an agreement was reached between the Forests, Rangelands and Watershed Management Organization and the Department of the Environment in 1999 to designate parts of the forests of the country as protected areas. According to this agreement, 22 areas in different floristic zones with the total area of 674181 ha were added to the Iranian protected areas network. The work to achieve this target is undertaken by a range of government organisation throughout Iran.

Iran considers that establishment of the ecological network is an adoption strategy for mitigation of climate change impact and scientific studies for appropriate design of network or corridors must be determined by involving all stakeholders and related organization in the country.

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.

In accordance to the Environmental management plan of the country, in the new zoning system of the PA, the areas which need to be rehabilitate is addressed as a "restoration zone" and specific rehabilitation action plan(short, medium and long term) has suggested for this areas.

Also in many cases no hunting areas which are located close to the national protected areas are nominated for contributing to build ecological corridors, buffer zones or making linkage between protected areas.

Goal 1.3. To establish and strengthen regional networks, TBPAs and collaboration between neighbouring protected areas across national boundaries.

Target: Establish and strengthen by 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.

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 term management of such networks.

Though transboundary protected areas/Biosphere Reserves are under discussion at regional meetings, but no practical result has yet been achieved. It should be noted that some areas on the border limits of Iran with Azerbaijan, Armenia, Turkmenistan, Afghanistan and Iraq that have potential for common conservation and management as wildlife corridors or forest ecosystems.

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.

Not done

1.3.3 Establish, where appropriate, new TBPAs with adjacent Parties and countries and strengthen effective collaborative management of existing TBPAs.

For better conservation of biodiversity Hirkan Forests, Iran and Republic of Azerbaijan governments have agreed to jointly register this area on UNESCO's World Heritage List. The 40-million-year old Hirkan is a tertiary flora center stretching from southeastern part of Azerbaijan Republic through Gilan province in Iran which contains many protected areas in Iran part, represents a unique diversity of flora and fauna species. Hirkan Forests is the most important refuge for relict forest vegetation. The forest is also the main climatic barrier and watershed between Caspian Sea and the arid Iran-Turan plateau. Steep ridges of Talesh mountain system and Alborz range serve as an insuperable barrier of most air accumulated above the Caspian Sea. Of the two million hectares of forests, 18,000 hectares is located in Azerbaijan Republic.

1.3.4 Promote collaboration between protected areas across national boundaries.

Not done.

Goal 1.4: To substantially improve site-based protected area planning and management.

Target: All protected areas have effective management using participatory and science-based site planning processes that incorporate clear biodiversity objectives, targets, management strategies and monitoring programmes, drawing upon existing methodologies and a long-term management plan with active stakeholder involvement.

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.

Regarding to the comprehensive management plan in 50% of the protected areas, all biological and physical resources have been studied in these plan. Some other issues including social and economic situation, management of the areas by involving local communities and also sustainable use of nature have been discussed within the plan.

In the Management plan, processes for local communities participation, education of stakeholders, management of areas, devolution of DoE management to local communities, have been studied and explained precisely, but by considering national laws and regulations and also cultural, ecological and religious diversity across the areas, it takes long time to make these studies practical.

Also there are some projects in protected areas which are implemented by technical supports of international organizations such as UNDP/ UNEP. Because of these projects the awareness of the local community in these sites has increased and therefore it will be possible to create practical participatory process by involving local communities across them.

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.

Measurable targets for biodiversity conservation have been studied in comprehensive management plans. It's under peruse at other areas and a complete list of endemic or threatened species; migratory species and different types of ecosystems and habitats (drawing on criteria laid out in Annex I to the CBD) can be presented by the year 2012.

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. As appropriate, but no later than 2010, develop or update management plans for protected areas, built on the above process, to better achieve the three objectives of the Convention.

It has done in comprehensive management plan.

1.4.4 Develop or update management plans for protected areas, built on the above process, to better achieve the three objectives of the Convention.

In 2002 Department of Environment, approved a national project on developing a comprehensive management plan in protected Areas of Iran. This plan is in accordance with IUCN, UNEP and WWF framework of management planning for protected areas.

This plan has three main fazes:

Feasibility study (phase I): Basic information of the site, General information of natural environment and economical and social studies, Mapping of the site and GIS data, Integration and evaluation of the above information and Defining the zoning of the site;

Detailed study (Phase 2): Lay-out of infrastructures, Equipments for sort of activities, Livelihood and contribution of local people, detailed action plan for short, medium and long term.

Implementation phase (Phase 3): Executing the program by a qualified contractor, Supervision, control and evaluation of work by group of consultants, Updating of project during the execution as necessary

The result of these studies concluding in zoning the areas, identification and assessment of ecological capacity of these areas and planning for effective management of each of the zones and implementation of comprehensive management plans for all the protected areas in Iran.

1.4.5 Integrate climate change adaptation measures in protected area planning, management strategies, and in the design of protected area systems.

Not done

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.

Currently 2500 trained guards work in protected areas to ensure effective management and supervision of the areas.

Also comprehensive management plan study shows existing number of the staffs, guard stations, equipments, and also the needed numbers of them in Protected Areas of the country. Regarding the result of this plan, DoE can start appropriate activities in these areas.

Goal 1.5: To prevent and mitigate the negative impacts of key threats to protected areas.

Target: Effective mechanisms for identifying and preventing, and/or mitigating the negative impacts of key threats to protected areas are in place.

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.

In accordance to the Art. 105 of the Third Economic, Social and Cultural Development Plan law (1999) all major development projects are obliged to carry out an Environmental Impact Assessment (EIA) in parallel with planning and preparation of feasibility studies. DOE is obliged to present the necessary EIA guidelines and methodology to applicants as well as to monitor the implementation of the EIA. Projects should proceed based on periodic DOE inspections. The launch of construction activities for such projects could be undertaken only further to the approval of the EIA report by the DOE.

For example currently there are almost 48 large development projects such as path and dam construction, industrial abattoirs, refineries and large steel industries with potentials to have effects on protected areas. These projects are subjected to EIA based on national laws and regulations. If introduction of a project leads to any damage to the ecosystem, DoE will oppose with it.

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.

In accordance to the Art. 104 of the of the Third Economic, Social and Cultural Development Plan law, liability and redress which damages to protected areas measured and performed throughout the country carefully.

1.5.3 Establish and implement measures for the rehabilitation and restoration of the ecological integrity of protected areas.

Iran DoE rehabilitates and restores ecological integrity of protected areas by identification and rehabilitation of sensitive ecosystems and implementation of rehabilitation and restoration projects within protected areas.

1.5.4 Take measures to control risks associated with invasive alien species in protected areas.

In Iran introduction of invasive alien species (IAs) within protected areas is forbidden, and DoE controls risks associated with this carefully and continuously, so it's very unlikely to introduce IAs to the national protected areas, except in very limited areas neighboring to the residential places.

1.5.5 Assess key threats to protected areas and develop and implement strategies to prevent and/or mitigate such threats.

Assessment of key threats of protected areas is one of the main goals of DoE. The key threats have been identified throughout the country's protected area and are taken into consideration.

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.

Not done

Goal 2.1: To promote equity and benefit-sharing.

Target: Establish mechanisms for the equitable sharing of both costs and benefits arising from the establishment and management of PAs.

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.

In Iran, the idea of assess the economic and socio-cultural costs, benefits and impacts arising from the establishment and maintenance of protected areas is still very young.

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 of these areas should be by legal and/or policy, financial and community mechanisms.

In Iran, there is no area conserve by local communities or private sectors and all protected areas are managed by government, but interference and participation of local communities have been predicted in the comprehensive management plans.

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.

Not Done.

2.1.4. Use social and economic benefits generated by protected areas for poverty reduction, consistent with protected-area management objectives.

This issue has been predicted in comprehensive management plans of protected areas, however it's not been yet implemented.

2.1.5. Engage indigenous and local communities and relevant stakeholders in participatory planning and governance, recalling the principles of the ecosystem approach.

Engagement of local communities and relevant stakeholders in participatory planning and governance has been addressed in comprehensive management plan of protected areas.

Also some of the related international projects such as Conservation of Zagros Biodiversity and Conservation of Asian Cheetah are studying the mentioned issues in some protected areas such as Touran Wildlife Refuge, Bafgh and Dena Protected Areas.

In this regard managers of these protected areas have held several meetings with local stakeholders as well as local councils.

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.

Not Done

Goal 2.2: To enhance and secure involvement of indigenous and local communities and relevant stakeholders.

Target: Full and effective participation 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, PAs

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 individual sites.

Not done

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.

Many studies have been carried out in the field of status and needs mechanisms for involving stakeholders in protected areas policies and management. This issue has been considered in some related projects such as "Conservation of Zagros Biodiversity" project, but the complete report was not published.

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.

Not done

2.2.4 Promote an enabling environment (legislation, policies, capacities, and resources) for the involvement of indigenous and local communities and relevant stakeholders [73]/ in decision making, and the development of their capacities and opportunities to establish and manage protected areas, including community-conserved and private protected areas.

Not done

Goal 3.1: To provide an enabling policy, institutional and socio-economic environment for PAs.

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 PAs and PA systems.

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.

In Iran there is not any legislative and institutional gaps and barriers that impede the effective establishment and management of protected areas, Although some necessary items such as local communities involvement, sustainable use of protected areas has not been mentioned carefully in article 16 of "conservation and improvement of environment" And Legal Bureau of DoE is studying an extension article in this cases.

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.

Not Done

3.1.3 Harmonize sectoral policies and laws to ensure that they support the conservation and effective management of the protected area system.

There are several provincial commissions at different management levels of the country with membership of representatives of related organization, which conduct all policy making on protected areas with the coordination of DoE to harmonize sectoral policies and laws and effective management of the protected area system.

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.

31 provinces of Iran have independent Environmental offices which has a good linkage with central DoE office and all other related administration in the province by leading of Governor.

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.

No data available

3.1.6 Identify and establish positive incentives that support the integrity and maintenance of protected areas and the involvement of indigenous and local communities and stakeholders in conservation.

The values of protected areas have served humanity well for longer than we have recorded history. Even the oldest protected areas are remarkably new, relative to the human history of the sites, and are often almost a surprise to people who struggle to make a living in places difficult to access, which also flood at inconvenient times and are far from markets. Protected areas have many benefits for the local community and indigenous people. The livelihood of local people are dependent on natural resources and therefore maintenance of these resources is of their interest. But sustainable utilization from protected areas should be managed through creation of different incentives.

As incomes have grown through many parts of Iran, the tasks of protection and how to address needs and concerns of PAs users have become more difficult and complex. Urban people have money to invest, and PAs can make attractive locations for creating fishponds, or tourist resorts. Thus the peoples relying upon wetlands for making their livelihoods have become highly diverse as well. Often interests of these diverse stakeholders individuals or groups who use the wetland's resources or whose actions impact the wetlands-are conflicting. Stakeholders who lack understanding of conservation, and who pursue their own interests, can undermine or completely negate the best intended efforts by managers of reserves.

In Iran there is not much experience in involving stakeholders or local communities as participants in nature reserve management. However there has been efforts at some sites aimed to strengthen management and introduced stakeholder involvement and co-management. It has been emphasized on community processes management planning and implementation.

3.1.7 Adopt legal frameworks to national, regional and sub-national protected areas systems of countries where appropriate.

It has been done through the national laws.

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.

Regarding to the national Environmental law, all existing protected areas of Iran are governmental and there is no private protected areas within the country.

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.

Currently livelihood of local people dependant on natural resources, such as utilization of plant resources to produce nutrients, medicinal materials, handicrafts and etc. are identified and in some part it is fostered as economic opportunities and markets at local

level for goods and services produced by protected areas. But there is not an integrated mechanism of equitable sharing of the benefits in the country.

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.

The DoE wants to provide economic benefits, but to realize some of the hopes of the local community, and of DOE, the ability of the local community to work together and take on new activities has to be enhanced. While DOE has legal authority to control the different types of protected areas, external control could easily lead to conflict and heightened risk to the PAs. Therefore, there is a need to involve the local community themselves in managing their sites. Thus at some PAs the DoE set out to establish "Associations" and "Trust Funds". These associations provided a mechanism especially for communication and for educating the local community about management and the conservation values of the sites. They are also a funding system supported by the ministry of cooperatives that can help develop alternative livelihood for the local community.

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.

Currently there are no transboundary protected areas in Iran. However there are negotiations under way with neighbouring countries to establish transboundary protected areas across national boundaries.

There are four transboundary wetlands in Iran including Hamoun (Iran- Afghanistan), Hour-al- Azim (Iran-Iraq), Aras-Kura River basin wetlands (Iran- Azerbaijan- Armenia) and Atrak (Iran-Turkmenistan).

Goal 3.2: To build capacity for the planning, establishment and management of PAs.

Target: comprehensive capacity-building programmes and initiatives are implemented to develop knowledge and skills at individual, community and institutional levels, and raise professional standards.

3.2.1 By 2006 complete national protected-area capacity needs assessments, and establish capacity building programmes on the basis of these assessments including the creation of curricula, resources and programs for the sustained delivery of protected areas management training.

In some protected areas, capacity needs assessment has been done through implementation of international GEF projects. Also assessment of enabling programs and resources management are conducted through education of local communities and guards by DoE. Developing these skills among local communities is planned through the comprehensive management plans of protected areas, but considering limitations of the allocated budget, it will not be completely implemented by 2010.

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.

There is not integrated mechanisms in the country for documenting existing knowledge and experiences on protected area management, but in the sites that international projects are being implemented in and some academic research is recorded in this regard.

3.2.3 Exchange lessons learnt, information and capacity-building experiences among countries and relevant organizations, through the Clearing-house Mechanisms and other means.

Exchange of lessons learned, information and experiences among Iran and the other countries have been done during the related international meetings, workshops and conferences.

Since 2009, DoE started the Clearing-House Mechanisms within 10 Biosphere Reserves of the country.

3.2.4 Strengthen the capacities of institutions to establish cross-sectoral collaboration for protected area management at the regional, national and local levels.

Through the GEF projects being implemented in DoE, the integrated approach (cross-sectoral collaboration) for management of sites is being promoted. For example in the Conservation of Biodiversity in the Central Zagros Landscape Conservation Zone Project, the project aims to conserve the biodiversity in the Central Zagros Landscape Conservation Zone. Over an area of 2,500,000 hectares, the project will work with the agriculture, forestry, rangelands, water and tourism sectors in order to mainstream biodiversity conservation and sustainable use into the sectors. It will also strengthen the ability of the protected area system to complement this mainstreaming. The project will also demonstrate biodiversity mainstreaming at the local level in a series of villages across the area, and establish mechanisms to facilitate the dissemination and replication of the successful village approaches.

3.2.5 Improve the capacity of protected areas institutions to develop sustainable financing through fiscal incentives, environmental services, and other instruments.

In Iran, efforts are being made to improve the structure and capacity of local community to develop sustainable financing systems for their livelihood. For example establishment of Biodiversity Enterprise Centres (BEC) as a key component of the strategy to improve livelihoods. This will be established with the dedicated function of generating small-scale, private sector led, improved livelihoods across some protected areas. The Enterprise Centre may be responsible for:

- Identifying suitable improved livelihoods at the village level;
- Identifying business opportunities;
- Provide advice to local entrepreneurs;
- Developing business development models, possibly through 'incubators';
- Identifying possible investors or credit facilities;
- Undertaking feasibility and pre-feasibility studies;

- Developing necessary contractual documents;
- Once the investment is underway: provide advice on business practices and marketing; provide information; and facilitate access to training.

Goal 3.3: To develop, apply and transfer appropriate technologies for protected areas.

Target: 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 COP on technology transfer and cooperation.

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.

Not Done

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.

Due to financial limitation and the need for international support transfer of technology to developing countries, including Iran is very limited and almost not happening.

3.3.3 Encourage development and use of appropriate technology, including 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.

Not Done

3.3.4 Increase technology transfer and cooperation to improve protected area management.

It is started in some protected areas by case, but not as an integrated management plan for all protected areas.

Goal 3.4: To ensure financial sustainability of protected areas and national and regional systems of PAs.

Target: 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.

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 .

There is not any study of the effectiveness in using existing financial resources and of financial needs related to the national system of protected areas.

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.

In Iran all financial needs for protected areas are met by government. These budgets are used for conservation and control of area, monitoring and research projects. Due to national laws of Protected Areas, it's not possible to have any investments by private sectors.

But the result shows that it is not a sustainable financing plans

3.4.3 Support and further develop international funding programmes 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. Some concepts are under development by DoE and UNDP.

3.4.4 Collaborate with other countries to develop and implement sustainable financing programmes for national and regional systems of protected areas.

Not done.

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.

The regular information on protected areas financing is provided through national biodiversity reports by DoE each year.

3.4.6 Encourage integration of protected areas needs into national and, where applicable, regional development and financing strategies and development cooperation programmes.

Role of national protected areas is considered at management and financial programs of the country considering ecosystem approach and designating national funds to implement an integrated management system. This issue is practiced through the Fourth and Fifth National Development Plans.

Goal 3.5: To strengthen communication, education and public awareness.

Target: Public awareness, understanding and appreciation of the importance and benefits of PAs is significantly increased.

3.5.1 Establish or strengthen strategies and programmes of education and public awareness on the importance of protected areas in terms of their role in biodiversity conservation and sustainable socio-economic development, in close collaboration with the Communication, Education and Public Awareness Initiative (CEPA) under the Convention on Biological Diversity and targeted towards all stakeholders.

One of the main goals of comprehensive management plan in phases II and III is participatory management of Protected Areas, by focus on local communities. In this case awareness raising (with emphasis on women and youth), improving communication skill of DoE staffs and education issues are noted very well.

In addition, conducting many training courses by local and central governments in different levels are one of the countries policy to improve public knowledge of importance of protected areas

In other hand publishing of Atlas of Protected Areas of Iran in Persian and English languages by Tehran University is one of the effective activities for public awareness raising.

This cartographical work contains maps and written material and starts with an introduction on the history of the Iranian protected areas, the distribution of protected areas in the country and their development trend. A distribution map of the Iranian protected areas is presented along with a number of tables and graphs and general information on them. Each page of the atlas is allocated to one protected area. A satellite map, a hillshade, a number of photographs of the area or its important animals as well as a descriptive text is presented to introduce each area. These texts include information on location in the country, area, foundation year; mean annual temperature and precipitation, climate, important plant and animal species and tourist attractions of the area. Satellite maps of the areas are presented at different scales proportionate to their area and only some important pieces of information are repeated in English. A list of photograph subjects, names of photographers, Scientific and English names of plant and animal species referred to in the atlas are also presented on last pages.

3.5.2 Identify core themes for education, awareness and communication programmes 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 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.

Core themes for education awareness and communication programs relevant to protected areas; have not been identified throughout all national protected areas due to variety of climatic and cultural conditions of protected areas. This issue is under study in some areas with sensitive ecosystems through studying projects and so it takes long time to act.

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.

It has done in many individual cases but not in the organized methods

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.

DoE organize one seminar for Deputies of natural environment bureaus of all provinces (30) and two times a year for all directors of DoE's province offices to exchange their experience and share their lessons learned.

Recently by new initiative of DoE, wildlife census in one protected area is done by presence of some other protected areas staff with the aim of sharing the knowledge and experience.

3.5.5 Incorporate the subject of protected areas as an integral component of the school curricula as well as in informal education.

In Iran incorporating the subject of protected areas as an integral component of the school curricula began 2 years ago by formal insertion of a related lesson item by Ministry of Education and Culture and also it has been predicted in informal educations broadly by DoE, media and NGOs.

3.5.6 Establish mechanism and evaluate the impacts of communication, education and public awareness programmes on biodiversity conservation to ensure that they improve public awareness, change behavior and support the achievement of protected area objectives.

Iran is in the progress to improve communication, education and public awareness programmes on biodiversity conservation and impact evaluation has not done yet.

Goal 4.1: To develop and adopt minimum standards and best practices for national and regional PA systems.

Target: Standards, criteria, and best practices for planning, selecting, establishing, managing and governance of national and regional systems of PAs are developed and adopted.

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.

A comprehensive system of standards, criteria and best practices for site selection, management and governance has not been established yet. However some guidelines are made available by DoE. So more work is needed in this direction.

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 programme.

Monitoring plans are included in the management plans developed for different protected areas. These management plans include short-term and long-term goals and objectives to be reached within a specific timeframe. Indicators have been identified to monitor the progress.

4.1.3 Draw upon monitoring results to adapt and improve protected area management based on the ecosystem approach.

Currently management plans have been developed for many national protected areas, however they are not in the phase of implementation yet. After implementation of the management plans monitoring results will be adopted to improve the management of the PAs. Management plan based on the ecosystem approach has been developed for a pilot site which is Lake Urmia. If successful in implementation, this approach will be extended to other sites in Iran.

Goal 4.2: To evaluate and improve the effectiveness of PAs management.

Target: Frameworks for monitoring, evaluating and reporting PAs management effectiveness at sites, national and regional systems, and transboundary PA levels adopted and implemented by Parties.

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.

By support of IUCN global program office, Iran has developed a joined project with IUCN in terms of: "IUCN Support for Biodiversity Conservation in the Islamic Republic of Iran" in 2005. One of the main chapters of this project was effective management in protected Areas of Iran. Although this project did not run until now, DoE tries to find other financial resources to start the project in the country. The main goal of this chapter is:

- Developing a system for assessing the effectiveness of management of Iran's protected areas (PAs), based on the system developed by the World Commission on Protected Areas (WCPA), CBD and local activities.
- Using the management effectiveness assessment system to review the status of at least two national parks in Iran
- Assisting DoE to develop an overall management plan for the network of PAs in Iran;
- Advising DoE on reclassification of PAs in Iran on the basis of the IUCN PA categories;

4.2.2 Implement management effectiveness evaluations of at least 30 percent of each Party & apos;s protected areas by 2010 and of national protected area systems and, as appropriate, ecological networks.

Not done

4.2.3 Include information resulting from evaluation of protected areas management effectiveness in national reports under the Convention on Biological Diversity.

Not done

4.2.4 Implement key recommendations arising from site- and system-level management effectiveness evaluations, as an integral part of adaptive management strategies.

Not done

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.

4.3.1 Implement national and regional programmes to monitor and assess the status and trends of biodiversity within protected area systems and sites.

Iran such as many other countries does not have an integrated monitoring system for Protected Areas. But since many years ago census of wildlife and birds is a traditional way for monitoring the biodiversity status and trends within Protected Areas.

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.

One of the main targets of DoE is decreasing of the Biodiversity lost within protected areas. In this regard wildlife and birds census is done once or twice a year in all protected areas of Iran.

4.3.3 Improve and update national and regional databases 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.

Although national database was improved in 2007 and update by habitats and Protected areas bureau regularly, unfortunately there is not support mechanisms from regional and international organization.

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.

Last updated information of Iran's protected areas was in 2007. Iran is in the process to updating all information in these sites until end of 2010.

4.3.5 Encourage the establishment and establishment use of new technologies including geographic information system and remote sensing tools for monitoring protected areas.

In Iran digital layer of boundries, topography, roades, channels, rivers, springs, power lines, guard stations, zonation,... for all protected areas (203 sites) in GIS is prepared in 2010. These digital maps revise each 10 years.

Also Iran developed some national project for monitoring the PAs by new technologies. For example project on "The surveying of forest Canopy Density Change Trend in IRAN Hyrcanian Forest in the years 1988, 1998 and 2002, using Remote Sensing Technology. (Studing Areas:17 Protected Areas at Hyrcanian Forest)

Appendix 5- Global Strategy for Plant Conservation

Iranian program on the management of plant genetic resources is considered the largest in the Near East region and one of the largest among developing countries. National plant conservation activities started with the collection and conservation of Wheat landraces more than 70 years ago and now, include a wide range of crop plants and their wild relative as well as forest and rangeland species. These activities are concentrated under the Ministry of Agriculture and in line with the global strategies and frameworks advocated by Food and Agricultural Organization of the United Nation (FAO), such as Global Plan of Action for Conservation and Utilization of Plant Genetic Resources.

Global targets for 2010

Target task 1. Preparation of openly accessible list of known plants as a step on the way of making world flora complete inventory

Under the Global Plan of Action, Iran makes available the list of its collections of plant genetic resources for food and agriculture to the global database known as VIEW which is operated by FAO.

Target task 2. Preliminary assessment of the state of affairs in preservation of all known kinds of plants at national, regional and international levels

Iran's plant conservation program is one of the largest among the developing countries. Based on the Regional Strategy for Conservation of Plant Genetic Resources developed by Global Crop Diversity Trust (GCDT, 2006) Iran hosts the largest and the most diverse national plant gene-bank in Central and West Asia, and North Africa (CWANA) region.

Target task 3. Development of models and procedures of preservation and sustainable use of plants on the basis of scientific researches and practical experience

In addition to the comprehensive plant conservation program, Iran also conducts a well developed plant breeding or utilization program on cereal crops (e.g. wheat, barley, rice and maize), food legumes (e.g. chickpea, lentils and bean), forage crops, oilseeds and industrial crops, fruit trees (e.g. date palm, nut crops, apple, pear, small fruits, stone fruits, etc...) and vegetable crops.

Target task 4. Effective preservation of minimum 10 percent of each environmental region of the world

Iran encompasses two important mountain ranges of Zagros and Alborz with peaks of higher than 5000 m above the sea level as well as large deserts and fertile low lands with land depression below the sea level. Therefore, Iran represents vegetation of different climatic zones and various cropping systems existed in the region.

Target task 5. Protection securing of 50 percent of the most valuable regions from the point of view of plants diversity:

The Near East as the cradle of world agricultural civilization is considered the most important centre of diversity for plant genetic resources for food and agriculture. Iran, on the other hand, has one of the richest plant genetic diversity in the region as explained above.

Target task 6. Regulation of at least 30 percent of production lands in accordance with purposes of plants diversity preservation:

In addition to protected areas, Iran also governs some of the plant conservation activities with the participation of farmers under in situ conditions and at the farm level. Conservation of crop wild relatives and fruit landraces in Fars, East Azarbaigan and Northern Iran are good examples of using production lands for plant conservation.

Target task 8. Preservation in ex-situ accessible collections, preferably in the country of origin, of 60 percent of endangered plant species and including 10 percent of such plants in programs on species restoration and reproduction:

As stated above, Iran holds the largest collection of Plant genetic Resources in the CWANA region from which more than 90 percent are local landraces.

Target task 9. Preservation of 70 percent of genetic diversity of agricultural crops and other basic plant species of social and economic value, and also support of the related indigenous and local knowledge:

Due to the harsh and fragile environmental conditions in the Near East region, in general, and Iran, in particular, most of the plant diversity exists in the region are related to agriculture. Therefore, more than 90 percent of plant genetic resources conserved for their agricultural use and are originated from the country.

Target task 10. Introduction of plans to combat at least 100 main alien species, which threaten plants, plant communities and the related habitats and ecosystems:

Iran has established an independent organization for plant protection with the aim of securing crop plants from alien species. This program contains a rigorous external and internal quarantine regulations as well as a comprehensive seed production and control system.

Target task 11. Neither of the wild flora species shall run the danger of international trade business:

We do not have enough data available, to assess this target.

Target task 12. Getting 30 percent of vegetable origin products from the sources with sustainable management:

In Iran many crop plants are produced in a sustainable manner, such as pomegranate, pistachio, almond, olive, dates, etc...

Target task 13. Termination of plant resources exhaustion and loss of the related indigenous and local knowledge, innovations and practice, which support sustainable life activity, food supply at local level, and healthcare:

The loss of indigenous and local knowledge is very pronounced in so many aspects, specifically with vegetable crops and major food crops.

Target task 14. Covering in communicational, curriculums and educational programs of the issue of plant biodiversity importance and necessity of preservation:

Such a program yet to be seen in the educational curriculums.

Target task 15. Number increase, with regard of national demands, of professionally trained specialists for implementation of target task of this Convention, capable of working in the institutions dealing with the plant preservation issues:

The number of trained people for plant conservation has increased in the country; however, there is considerable shortage of funding for employing such technical capacities existed in the country.

Target task 16. Establishment and enhancement at national, regional and international levels of networks on implementation of activities on plants preservation:

Iran has played a vital role during the last 10 years for establishing international arrangements, frameworks and agreements such as International Treaty on Plant Genetic Resources for Food and Agriculture (IT-PGRFA) and Commission on Genetic Resources.

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