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ABBREVIATIONS

NBSAP	: National Biodiversity Strategy and Action Plan
MOE	: Ministry of Environment
MOP	: Ministry of Forestry
MARA	: Ministry of Agriculture and Rural Affairs
MOC	: Ministry of Culture
NEAP	: National Environment Action Plan
NGO	: Non-Governmental Organisation
GDNPGW	: General Directorate of National Parks, Game and Wildlife
GDSHW	: General Directorate of State Hydraulic Works
ASPA	: Agency for Specially Protected Areas
CBD	: Convention on Biological Diversity
GEF	: Global Environmental Facility
CITES	: Convention on International Trade of Endangered Species
EIA	: Environmental Impact Assessment
GDOF	: General Directorate of Forestry

FOREWORD

The Republic of Turkey signed the Convention on Biological Diversity in 1992 and ratified it in 1996. The Convention had entered into force on 15th May 1997 for Turkey. The Draft National Biodiversity Strategy and Action Plan (NBSAP) has been prepared as a co-operative work of all related governmental institutions, universities and non-governmental organisations by the financial and consultative support of GEF and by the co-ordinational aid of the Ministry of Environment(MOE). Turkish government will devote efforts to prepare the final version of NBSAP and approve it until 1999. By the co-ordinative aid of MOE, the first national report of Turkey had been prepared by the workshop combined of representatives of MARA and MOF which are the main responsible agencies from agriculture and forestry sectors in Turkey. In this first report, comments of the workshop had written in italic form and the remaining parts had taken from the draft NBSAP.

A. EXECUTIVE SUMMARY

Turkey has a fragile biotic wealth. National Biodiversity Strategy and Action Plan (NBSAP) outlines its status, what generally needs to be done, and what specific actions are recommended to ensure its conservation and sustainable use. The Turkish people recognise the need to maintain a healthy environment and are concerned about the degradation of ecosystems and loss of species and genetic diversity that result from human activities. It represents a global and national instrument for guiding efforts to conserve biodiversity and use biological resources in a sustainable manner,

The Turkish Constitution, laws and regulations provide the necessary legal framework in order to seek possibilities and to prepare a sound sustainable strategy for the benefit and conservation of the biodiversity richness of Turkey. In order to achieve a sound and solid sustainable development, all the national objectives and policies in relation with environmental perspectives are needed to be integrated and harmonized with the plans and policies of the rest of the sectors of the country. An initiative began in early 1995 to prepare a "National Environmental Action Plan (NEAP)" under the co-ordination of the State Planning Organisation of Turkey and the Ankara Office of The World Bank. 12 Different study groups, each including experts from universities, ministries, research organisations, NGOs and the private sector were formed. One of these study groups work on the "Biodiversity Action Plan for Turkey". Due to the broad coverage of this subject, this particular study group was further divided into 3 subgroups *including representatives of more than 60 institutions and more than 20 workshop were held*, (on forests, wetlands and step ecosystems) and two additional studies were completed on the role of NGOs in biodiversity conservation, and the legal and institutional arrangements for biodiversity conservation. It is the results of this overall process which have combined to produce the strategy and action plan for the conservation and sustainable use of biodiversity of Turkey. Because of the interdisciplinary nature of the issue, the government formed a Biodiversity Steering committee which is responsible for developing, updating, and co-ordinating the implementation of NBSAP. The committee includes representatives from the Ministries of Agriculture and Rural Affairs (MARA), Culture (MOC), Environment (MOE), Forestry (MOF), the General Directorate of State Hydraulic Works (GDSHW), the Agency for Specially Protected Areas (ASPA) and NGOs. The Committee has reached an agreement on what should be done in order to conserve the richness of the biodiversity in Turkey.

The strategy recognises that Turkey has an important role to play incorporating with other countries to implement requirements of the Convention. The responsibility for the conservation of the biodiversity and ensuring the sustainable use of the biological resources shared among of the various levels of the Governmental bodies, and across various sectors. The strategy provides a framework for action at all levels that will be enhanced the ability for ensure the productivity, diversity and integrity of our natural systems and, our ability to develop in a sustainable manner.

Summary of action plan :

The Turkish Biodiversity Strategy is a response to the obligation for the countries that have ratified the convention in order to prepare a national strategy as a guide for the implementation of biodiversity convention. It recognises existing constitutional and

Successful implementation of strategy will be largely determined by the degree to which all parts of Turkish society adopts its vision and principles, and contributes to achieve its goals.

Priority Action Plan:

The strategy prescribes actions proposed to build on existing infrastructure and activities which will contribute to the achievement of the conservation of biodiversity and sustainable use of biological resources as required by the Biodiversity Convention.

Priority Action plan calls for a range of projects which aims to start the integrated implementation of the strategy for Turkey. Actions outlined for immediate pursuit are as follows:

1. Establishment of protected areas and preparation of management plans,
2. Establishment of new wild life sanctuaries, refugee centres, captive breeding areas and arboretums,
3. Provide training on conservation concepts and principles for government staff and stakeholders,
4. Develop environmental public awareness and participation (including stakeholders),and
5. Providing education for local communities on sustainable use of natural resources.

B. INTRODUCTION

It is very hard to say that the local people are always aware of the importance of biodiversity, as everybody can not always realize the direct cause-effect relationship between their life and biodiversity. But there are some points that simply this biological difference reflects to their life and yield with concrete cultural differences. With very simple examples, the colours that they use at their traditional clothes change with biodiversity as the dye they use come from plants. The traditional cooking in Turkey differs from city level sometimes to villages. This is simply due to differing of the surrounding flora and, fauna characteristics even within few kilometres.

*Also there are some species which are very specific to certain regions that effects economical structure of the region. For example; Kastamonu-Devrek is famous for its walking stick as it is made-from Cornelian cherry (*Cornus mas*) that have different genetic structure specific to individuals found at this region; Saffron (*Crocus sativus*) which maintains economic income to Kastamonu-Safran; also there are so many native people who collect geophytes from the mountains and maintain economic income, Snow-drop is one of the most famous of these, others are *Eranthis hyemalis*, *Anemone blanda*, *Lecojum aestivum*, *Cyclamen hederifolium*, *C. cilica*, *C. Coum*, *Fritillaria imperialis*, *F. persica*, *Strenbergia lutea*, *Lilium candidum*, *A rum spp.*, *Dracunculus spp.**

Turkey is at the cross roads of two important Vavilovian gene centers - The Mediterranean and the Near East - each important for the origin of field crops as well as horticultural plants, Some of the cultivated plant species originated from Turkey are: *Linum*, *A llium*, *Hordeum*, *Secale*, *Triticum*, *Avena*, *Cicer*, *Lens*, *Pisum*, *Vitis*, *Amygladus*, *Prunus*, *Beta*, etc.

Turkey's Commitment:

Signing the Biodiversity Convention provided a new starting point for recognising the importance of biodiversity and addressing the issues related in Turkey. It is not something new for the country whereas there's a long history of biodiversity conservation in Turkey. *For example; the first national park of Turkey, Yozgat Çamlığı, is declared in 1956 by the GDNPGW-MOF. Also there are protection forests, which first of them declared in 1953 in Alacadağ (Antalya).* Turkey already has become a party to all relevant international conventions with one or more of their objectives aiming to conserve biodiversity. However the CBD seeks to highlight, consolidate and harmonise the efforts in the directions which were agreed in Rio to guide us away from the three "D"s (Deterioration, Decrease, and Disappearance). Turkey has become a contractor by the terms of CBD, including the obligation to develop a NBSAP

NBSAP has been developed and presented here as a guide to implement the CBD in concert with other obligations and addressing the difficult issues posed by the loss of biodiversity. The implementation of the strategy will be in co-operation with the members of the public and stakeholders and will pursue the strategic directions according to its policies, plans, priorities and fiscal capabilities.

Aim of the Strategy:

The aim of the strategy is; to describe in brief and assess the status of biodiversity in Turkey, to describe a conservation strategy the agreement of the related public and private institutions, and to prescribe relevant actions that need to be taken in order to achieve the objectives of the CBD in Turkey. NBSAP is a “dynamic document” that can be updated and adjusted as goals are achieved and conditions change. It is prepared and presented with the assistance of the related public and private institutions for the benefit of all the citizens of the country and it is expected that the related stakeholders will also be involved in the implementation of this action plan This plan is also a kind of assurance for the international community that there is an environmental action in Turkey which will well contribute to the global efforts due to conserve the biodiversity.

C. BACKGROUND

Legal Status of Biological Diversity

The legal status of biological diversity in Turkey is reflected in the legal documents such as the constitution, laws, international conventions, protocols and related regulations. There are 35 laws, 3 decrees of law status, 23 regulations, and 10 circulars related to the environmental issues, including the Environmental and National Parks Laws published in the official gazette in 1983. Many are directly or indirectly related to biological diversity, including the law published in the official gazette in 1937 that bring the concept of protection of endangered species for the first time to legislation. In fact, this law is still enforced regarding the protection of mammals, reptiles and birds. Additionally for example, the present National Parks Law and Hunting Law makes very specific references to endangered, vulnerable, and rare species of flora and fauna, and rare and unique ecosystems, and internationally accepted protected area categories, *Environment Law coded 443 which includes new arrangements on conservation activities of biodiversity, is also in the process of approval in the Parliament.*

Constitution

The article 63 of the Constitution which was adopted by the Parliament on 18.10.1982, states that the government should protect the historical, cultural and natural values and resources of the country and, support and promote the conservation efforts made by the people. There are items on environment protection in article 56, items on public benefits priorities in use of private properties in the article 35, items on optimum utilisation of the land in the article 44, items on preventing the misuse of pasture and forages in the article 45, and items on conservation and development of forest resources in the article 169.

Legislation

In addition to the articles present in the Constitution, The Law for Protection of Cultural and Natural Values (Code No: 2863, 1983), Environmental Law (Code No: 2872, 1983), National Parks Laws (Code No: 2873, 1993), Bosphorus Law (Code No: 2960, 1983), Law for Specially Protect Environmental Regions (Code No: 88/13019, 1988), and Forestry Law (Codes: 6896, 1956; 2896, 1983; 3302, 1986), Hunting Law (Code: 3167) provide the opportunity for the protection of nature and biological diversity, and facilitate activities related to the conservation of plant genetic diversity.

However, the Laws and related Regulations should be reviewed as looking for new management policies concerning the implementation of provisions of the Convention. Turkish legislation has not been harmonised from a consistent environmental point of view which presents frequent problems of overlap, lack of legal mandate for institutions and is not quite adapted to environment related subjects. Clear definition and distinction of responsibility for implementing agencies do not exist. The general approach in Turkish legislation is to protect natural resources, without specific reference to sustainability. Complex relationship between the laws, their implementing agencies, and inadequate sanctions that may be imposed for damage to the environment, make enforcement difficult.

Existing forestry laws and regulations provide rules for production, harvesting and utilisation, including usage and maintains support for the rural forest area populations. Significant provisions are also provided for all aspects of forest conservation through establishment of various types of parks and reserves. New arrangements especially in Forestry Law should provide possibility for the restoration of forest ecosystems including the destroyed genetic diversity of many target plant species. The second item of The National Afforestation and Erosion Combating Law adopted in July 1995 (Code No: 4122) is a good step toward the restoration of forest ecosystems. Although laws produced for land tenure and usage, rangelands and regulation of grazing have not been passed, severely undermining efforts for conservation,

Laws in Turkey mostly have been prepared at different times to meet the requirements of their day. Concept of “biodiversity” and “ecosystems” are not new concerns but previously they are not adequately considered. For example, the Law Concerning Drainage of Swamps and Land Thus Acquired was published in official gazette in the 1950s as a measure for eradicating malaria and regulating the allocation and use of lands claimed. The Law requires updating and modification; although it is still in force in its previous form and remains an important cause of destruction of wetlands which are rich in biodiversity and substantial progress has been made in deleting this law.

Global awareness to environmental approach include legislative mechanisms which has prompted rapid introduction of complex concepts, without supporting legal implementation mechanisms, institutronal mandates, and intellectual support facilities. Inadequate harmonisation of national legislation with international laws and conventions causes contradictions in implementation due to lack of supporting implementation regulations.

THE MAIN ECOSYSTEMS THROUGHOUT TURKEY:

Being on a North Hemisphere Temperate Zone, Turkey has an unusual biological structure, which we can observe the situation simply by observing its ecological diversity and high endemism ratio that forms the biological diversity. First of all Turkey is situated where three main phytosociological region meets.

Euro-Siberian: Around Black-Sea Coast and surrounding mountains

Irano-Turanian: Seen in Central, East and Southeast Anatolia

Mediterranean: Mediterranean coast and mountains.

In addition to this, topographic diversity of the country (altitude varies from 0-5000 m), geological and geomorphologic structure, climatic differences between the regions maintain further ecological diversity. If one goes through the ecosystems of Turkey by seeking their vegetation characteristics; the following characteristics can be observed:

Forest Ecosystems :

It is not so easy to classify the very diverse forest ecosystems of Turkey because of its high woody species number, but very simply it can be said that there are two main forest types, one is Temperate Coniferous Forests and the other one is Temperate Deciduous Forests. Subgrouping of these forests can be done according to; a) woody species (i.e. Pine forest, Cedar forest, Fir Forest, beech forest or mixed beech and oak

forest), b) ecosystem characteristics (i.e. forests in transition zone into steppe and forests in humid, semi-arid and arid zones) and, c) regions (Mediterranean forests, Eastern-Black Sea Forests or Western Black Sea Forests, Caucasian Forests)

It will be proper to mention some of the forest types with their special features; deciduous forests of the Western Black Sea region have very high number of woody species, and sometimes the number of species reach up to 15 within a very small area. Caucasian forests have quite high endemism ratio especially above the tree zone, at the Alpine Meadows, and also it is worthy to mention about some of the virgin old-growth forests especially in Artvin. Moreover, the Cedar forest which survive in Tauros mountains, is one of the natural Cedar (Cedrus iihani) forests of the world.

In regard of the importance of the existing fauna in the country, two of the globally threatened species the Black Vulture and the Imperial Eagle breed in Turkish forests.

Steppe Ecosystem :

This is one of the biologically richest ecosystems of Turkey with its high number of species. Steppe vegetation can be divided into two distinct parts that change according to the altitude; the mountain steppe and the plain steppe. Anatolian plains have faced intense human use throughout the m-e-historic and historic times so they can be called as anthropogenic steppes. The previous one, the mountain steppe is mainly observed at the eastern parts of the country; especially beyond Anatolian Diagonal (Annex I). The high mountains of this region keeps so many wild species; especially endemic ones with its, extraordinary topography and climatic conditions, Many of those species are threatened with extinction at differing levels. As an example the two bird species, the Lesser Kestrel and the Great Bustard which are both globally endangered species live and breed in our steppe ecosystems.

The steppe ecosystems is perhaps one of the most important ecosystems from the economic point of view due to large number of food crops which have been derived from the wild species are harvested from these ecosystems and these crops are endemic for Turkey. These have evolved in the region over the ages from wild varieties, many of which are now feeding much of human kind.

Most of the steppe ecosystems (all rangelands are agricultural areas and have been taken into consideration) had anthropogenic formation in Turkey and cover the majority of the country. Total steppe area is about 21 million ha of which approximately 80% is arid, with a dry matter production level of 450-1000kg/ha. These are classified as "arid" grazinglands and "coastal" grazinglands, with the latter being the more productive of the two, since it is situated in the region of higher rainfall. Occasionally, productive lowland ranges are formed within the "arid" grazinglands, especially those having an even topography, deep soil profile and high water table. There are also patches of alpine and high mountain rangelands throughout the country.

Cultivated areas (27.7 million hectares) cover 36% of the total area of Turkey, the majority being in the steppe ecosystem. Grazinglands cover 28% of which 90% is degraded and unproductive mostly due to uncontrolled grazing. Of the total agricultural area, the field crops account for 68%, fruits 8%; vegetables 2.5%; and vineyards 2%. The remaining 19.5% of the cultivated area is annually left for fallow within the cereal growing system.

Aquatic Ecosystems

With its rivers and lakes covering approximately 10,000 square kilometers, Turkey has significant inland water resources which is quite important for sustaining its biodiversity. There are seven drainage basins including 26 river basins in Turkey and the groundwater storage is estimated to be around 94 billion cubic meters. The annual average rainfall is **652.5** mm. and one-third of it reaches the water table and contributes to the wetland environment.

In this report, aquatic ecosystems in Turkey are described as follows:

1. Wetland ecosystems
 - a. Lake ecosystems
 - b. River ecosystems
 - c. Estuarine ecosystems
2. Marine ecosystems
3. Hot and mineral-water resources (excluded from aquatic ecosystems)
4. Cave ecosystems
5. Alluvial ecosystems

Wetlands (broadly defined for the purposes of NBSAP as lakes, marshes, reedbeds, running water ecosystems including estuaries and lagoons with depths up to 6 meters.) of Turkey display a wide variation of characteristics reflecting the diversity of climate, topography, limnology and soil conditions. Surrounded on three sides by seas and with approximately 1.35 million hectares of wetlands, the country provides habitats for a large number of birds together with, aquatic and amphibian species. There are 250 wetlands and 81 of which have international significance. Two of the important Aves migration routes in western palearctic region passes through Turkey. For example, flamingoes nest in the salty lakes of Central Anatolia and Aegean region (Izmir Birdparadise) and in winter in deltas and lagoons of the Mediterranean and Aegean Regions. The geological structure which produced many wetlands, also produced a large number of caves. There are also dunes in the coastal areas which are important for their unique biodiversity. There are a total of 110 coastal dunes in the Mediterranean, Aegean, Marmara and Black Sea regions. The ones in the East Mediterranean region are very rich ecosystems with their dense diversity of flora and fauna.

Turkey is a peninsula surrounded by four different seas -- the Mediterranean Sea, the Aegean Sea, the Marmara Sea and the Black Sea, all having very different ecological features. It boasts the highest biological diversity in the Mediterranean system. The southern coast of Turkey has the highest salinity and temperature. It is also here that many Indo-Pacific species settled after the opening of the Suez Canal through migration from the Red Sea to the Mediterranean. Twenty-six species have been found in this area as a result of migration. Approximately 3,000 species have been identified in Turkey's seas.

Several internationally endangered and protected birds such as the Dalmatian Pelican, Marbled teal, Corn craig, Audoin's gull, the White headed duck, and Ferruginous duck nest in Turkey. In fact, over 60% of the world's Whitetail duck population winters in Turkey. 14 of the endangered bird species through the total 23 European species are found in Turkey. Invertebrates living in the running water ecosystems are largely endemic because the geographical structure of Turkey is very complex and separation of rivers by the mountain ranges restricts their spreading. Fish are represented by 368 species, 50 of which are threatened in Turkey. Five sub-species of salmon (*salmo trutta*) live in the inland waterways of Turkey.

There are thousands of marine caves with very different geological structures along the Turkish coasts, home to many fish and other aquatic life. 35 to 40% of Turkey is composed of carbonate rocks suitable for cave formation so that it is estimated that there are 30,000 to 35,000 marine caves in Turkey which harbour many fish.

Turkish Flora and Fauna

The table below lists the numbers of described, endemic, rare and extinct plant and animal species in Turkey:

Plants and Animal Groups	Described Species	Endemic Species	Rare and endangered Species	Extinct Species
PLANTS				
Non-vascular Plants				
Algae	4500			
Mosses	234			
Lichens				
Vascular plants	8950	3072	3011	12
Ferns	78	1		
Seed plants	8869			
Gymnosperm	22	3		
Angiosperm	8850	3068		
Monocotyledons	692			
Dicotyledons	8155			
ANIMALS				
Invertebrates	160000			
Unicellular	65			
Nematodes	1			
Molluscae	190			
Crustaceae	556			
Vertebrates				
Pisces(incl.marine)	508	2	17	
Amphibians	106	4	5	
Reptilians	450		39	1
Aves	132	1	25	7
Mammalian				

There are several “micro-gene centres” in Turkey:

Thiase-Aegean Region: bread wheat, durum wheat, Poland wheat, club wheat, monococcum, spelt wheat, lentil chickpea, melon, vetch, lupine, and clover.

Anatolia-South-eastern emmer wheat, *Ae. speltoides*, squash, water melon, cucumber, bean, lentil, broad bean, grapevine, and forage plants.

Samsun, Tokat, Amasya: numerous genera and species of fruits, broad bean, bean, lentil, and forage legumes.

Kayseri and environs: almond, apple, pea, fruit species, grapevine, lentil, chickpea, alfalfa, and sainfoin.

Ağrı and environs: apple, apricot, cherry, sour cherry, forage legumes and water melon.

Endemism in Flora of Turkey

Turkey is one of the leading countries for known plant endemism with about 33%. The richest family in endemism in Turkey is Compositae having a total of 431 species, 40% of which are endemic. Of the 400 species of Leguminosae, 41% are endemic, and of the 306 Labiate species 57% are endemic. It is this exceptional amount of endemism, that requires Turkey to ensure that these species are adequately protected so as not to become endangered or extinct, particularly of those which provide crops of which, much of the world depends

Extinct and Endangered Species

It has been confirmed that 6 endemic plant species which were collected in the 19th century are now extinct. Of these, two were made extinct as a result of flooding behind the Keban High Dam water reservoir and four are known to be extinct because of overgrazing and habitat destruction.

There are 104 endangered plant species of which 46 are endemic. Beautiful ornamental plant species such as *Stembergia*, *Candida*, *Saponaria halophilla*, *Glycyrrhiza iconica*, *Thermopsis turcica*, *Helichysum pershmeni-anum* are also endangered. There are 388 vulnerable plant species of which 183 are endemic.

FACTORS THREATENING MAIN ECOSYSTEMS IN TURKEY:

Reasons for steppe flora degradation are considered to be the followings:

1. Excessive increase of human and animal population;
2. Lack of pasture management,
3. Ploughing grazinglands for cultivation;
4. Misuse of agricultural lands;
5. Diminution of farm lands;
6. Misuse of grazinglands;
7. Acceleration of erosion;
8. Destructive effects of road and dam construction;
9. Collecting plants of economic importance.
10. Mining, and
11. Deficiency of nature protection areas.

Habitat destruction or modification has resulted in alterations to the distribution and presence of Turkish fauna. Some of the causes for these changes are as follows:

1. Excessive gathering and hunting;
2. Chemicals and fertilisers;
3. Burning the post-harvest mulches;
4. Habitat loss and degradation;

5. Degeneration of biotopes;
6. Insemination of native animals by alien races;
7. Improper dwellings in coastal areas.

Other factors for the degeneration of steppes are:

1. Inadequate education;
2. Scientific inadequacy;
3. Judicial inadequacy;
4. Inadequacy of deeds and land surveys;
5. Political exploitation;
6. Scarcity of funds;
7. Environmental pollution.

Main Reasons for the loss of biodiversity in aquatic ecosystems:

1. Neozoism;
2. Overfishing;
3. Pollution;
4. Destruction of habitats;
5. Tourism,

These reasons are detailed as follows:

- * over-using inland water resources
- * construction of some dams in critical areas
- * decrease of water quality through pollution due to agricultural activities and domestic and industrial disposals
- * accumulation of sand and mud
- * the drainage of wetlands to create agricultural areas and to provide residential constructions (until recent changes in GDSHW attitude toward protection of wetlands)
- * illegal and over-fishing
- * illegal hunting and collecting eggs of birds and other reptiles and their young
- * over-grazing
- * removal of aquatic plants and uncontrolled reed harvesting
- * eutrofication
- * the use of lagoons for unmanaged fisheries
- * introduction of exotic species

Threats to dune ecosystems:

- * people and vehicles, especially during high tourist season
- * sand removal for transportation elsewhere
- * ongoing agricultural activities such as grazing
- * cutting and uprooting plants
- * construction of dwellings around the dunes
- * fires
- * afforestation (cause changes in dune ecosystems)

Threats to forest biodiversity :

1. Habitat alteration, fragmentation, and loss mainly due to agricultural and human population pressure;
2. Over-exploitation of plant species;
3. Air Pollution;
4. Forest fires;
5. Illegal logging;

6. Overgrazing;
7. Change of land use patterns especially conversion of forests.
- 8) Forest fires caused by biotic and abiotic factors

Programmes for the protection of biological diversity:

National Programmes:

Both governmental and non-governmental organisations have been carrying out programmes for conservation of biodiversity by various means for a long time. This has been done by both in-situ conservation programmes and ex-situ conservation programmes.

Environmental policies that reveal concern for biodiversity are reflected in the “five-year development plans” to varying degrees. It is only in the Sixth five-year development plan that environmental policies were first integrated in other sectorial strategies in spite of the direct environmental strategy. It is stated that the general objective of the strategy is “to protect and develop natural environment” and that the main principle of the strategy is “to implement policies of industrialisation, urbanisation and agricultural modernisation in a manner that will protect social, cultural and ecological structure, prevent environmental pollution, and maintain an economic balance between sectors”. In this strategy, the subject of environment is frequently mentioned in economy, industry and energy sectors. Still the sixth five-year development plan lags behind with inadequacies and no specific mention of the conservation and sustainable utilisation of biodiversity. Today policies for the goal of sustainable development are mainly focused on environment management”. Environment is seen to be a part of all economic and social considerations related to utilisation, development, or protection of natural resources.

Ex-situ conservation:

Ex-situ conservation is achieved through establishing genebanks, seed banks, sperm banks, zoos, botanical gardens, etc. and related measures to ensure their long term viability. Ex-situ conservation activities have been undertaken since 1964, and is continuing within the ongoing national plant genetic resources research project. The national seed bank was established in 1972 in izmir to preserve the genetic resource material of which collection began in **1964, having** been kept in cold storage until 1972. The present facilities of Izmir Gene Bank for seed collection have been designated for the needs of long and medium term storage. All conditions in the gene bank comply with internationally recommended standards. For the safe duplication of the base collection there is an other storage facility in Ankara at the Central Reattach Institute for field crops.

The Agricultural Faculty of Ankara University plants seeds for renewing seed vitality to provide germ plasma for plant breeding and there are about 1 1,000 seed samples including bread and durum wheat, club wheat, barley, oats, triticale, pigeon peas, lentil, and broad beans.

The Ministry of Agriculture as well as Ankara University has contributed to the ex-situ conservation of fruit genetic resources by establishing their own collection orchards and vineyards for species which are important for their ecology, and for further improvements of new cultivates. Subsequently, Atatürk and Çukurova Universities have launched similar activities.

The vegetatively propagated material, mainly fruit genetic resources are kept in field gene banks at **13 institutes**. At the Aegean Agricultural Research Institute the vegetative garlic collection, some medicinal and aromatic plants and vegetatively propagated ornamentals are al& kept as a field collection.

In-situ conservation:

Ministry of Forestry has laws and regulations to provide for in-situ conservation. In-situ conservation activities consist of the national parks, nature parks, nature reserves, natural monuments, wildlife reserves, game breeding stations, observation nurseries, botanical gardens, gene conservation forests, wildlife introduction areas. Numbers of those protection areas are increasing since 1958. The preparation of national in-situ conservation plan continues under the co-ordination of Ministry of Environment. The Ministries of Environment, Forestry, Agriculture and Rural Affairs have been jointly executing the GEF funded "In-situ Conservation of Genetic resources Project" in Turkey.

Type, number and size of conservation areas in Turkey and their shares in total country area.

<i>Conservation Types</i>	<i>Numbers</i>	<i>Total Area (ha)</i>	<i>% of Country Area</i>
<i>National Parks</i>	<i>32</i>	<i>649.486</i>	<i>0.8</i>
<i>Nature Conservation Areas</i>	<i>32</i>	<i>82.023</i>	<i>0.1</i>
<i>Nature Parks</i>	<i>11</i>	<i>46.872</i>	<i>0.06</i>
<i>Natural Monuments</i>	<i>54</i>	<i>74</i>	<i>0.0001</i>
<i>Seed Stands</i>	<i>322</i>	<i>32.914</i>	<i>0.04</i>
<i>Gene Conservation Forests</i>	<i>16</i>	<i>2.816</i>	<i>0.0036</i>
<i>Wildlife Conservation Areas</i>	<i>119</i>	<i>1.818.000</i>	<i>2.32</i>
<i>Specially Protected Regions</i>	<i>12</i>	<i>418.800</i>	<i>0.54</i>
<i>Protection Forests</i>	<i>48</i>	<i>360.130</i>	<i>0.46</i>
<i>Rest and Camp Areas</i>	<i>428</i>	<i>15.946</i>	<i>0.016</i>
<i>State Farms</i>	<i>38</i>	<i>381.162</i>	<i>0.49</i>
<i>Game Breeding Stations</i>	<i>40</i>	<i>868</i>	<i>0.0011</i>
<i>Total :</i>		<i>3. x09.09 1</i>	<i>4.89</i>

Protection programmes of marine ecosystems and marine species:

National programmes:

In addition to conservation activities in the scope of national parks, natural protected areas and specially protected areas, following activities are ongoing:

The project researching biological and ecological properties of wetlands having international importance in Turkey.

Belek coastal Administration plan: aims at protecting Belek's natural resources (including ~~established~~ enhancing touristic and domestic investments.

Protection of the Mediterranean Monk Seal in Turkey: Foça and Yahkavak pilot projects. Areas suggested for protection: There are 13 turtle breeding sites with seven under protection and those that are not vulnerable.

International programmes:

Mediterranean Action Plan: Three action plans were signed between 1987 and 1991 in order to protect the endangered Mediterranean seal, turtle, and whale species.

GEF-The Black Sea Environment Project (GEF-BSEP)

NATO TU- Black Sea models.

INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

Various institutions, ministries and organisations have undertaken duties and responsibilities for maintaining biological diversity. There is no overall co-ordinating agency responsible for conservation activities in Turkey. Due to various overlaps of mandates there is also **no** dedicated agency for conservation of biodiversity in specific ecosystems. Conservation activities, not specifically defined as “biodiversity” are carried out by the MOF (forest, steppes, some wetlands); MOC (cultural, natural, and historical); and MOE (unique areas within various ecosystems).

Current responsibilities on biodiversity and related institutions;

Responsibilities	Sub-items	Institutions
1) creates policies, planning, co-ordination and public awareness on Biodiversity	coordination of environmental protection, management activities carried out by some other institutions and ministries	MOE
2)Management and conservation of natural resources such as soil, steppe, forests and land and marine water resources, lakes and running water handled by different institutions.	2a) co-ordination and utilisation of all resources related to agriculture 2b) management of all surface and ground are water reserves of Turkey, including dam reservoirs and rivers 2c) Sustainable forest management 2d) Establishment and management of protected areas. 2e) Management of high ranges 2f)Hunting licenses and control 2g)Fishing licenses and control	MARA GDSHW MOF MOF, MOF MARA
3) protection and co-ordination for determining areas of national and international historical and cultural significance, classified individually as “historically”, “archaeological”, “culturally” and “natural” significant sites		MOC
4) Management of rangelands		MARA
5)Environmental Impact Asscssment(EIA)		MOE

A “framework law” adopted in 1992 which established the MOE, includes some articles concerning conservation/protection of natural fauna and flora. MOE has overlapping responsibilities with MOF, MARA and MOC. The agency for specially protected areas, under the MOE, is presently responsible for protection of 12 specially protected areas in various parts of Turkey with different unique natural and historical attributes. Environmental Impact Assessment is required for most of the development investments in Turkey and is processed by MOE in co-ordination with concerned ministries. However staffing constraints of MOE make enforcement of regulations very difficult.

MOF is responsible for the sustainable use and conservation of areas that are decided to be under the forest regime. Also it has two general directorates which first, General Directorate of Afforestation and Combating with Soil Erosion deals with conservation of soil. Second, GDNPGW, is one of the institutions that is responsible for the conservation of natural values of Turkey by declaring areas as the protected ones.

Responsibility for gazetted rangeland rests with both MARA and MOF, although MARA has overall responsibility for agriculture. Livestock grazing is the single largest threat to biodiversity in steppe ecosystems, Although both MOE and MARA claim to have authority over the use of pesticides and chemicals, neither has been successful in preventing over-use. GDSHW and MOE are both responsible for monitoring ground water and its pollution.

In the NBSAP, capacity requirements could not be delineated yet, but it is proposed that priority must be given to determine and develop existing institutional capabilities; and, develop training programmes for operational government staff and NGOs.

Strategies on public awareness

It is addressed in NBSAP that “ education is the most cost-effective means of producing long-term social change. Education allows individuals to make lifestyle and consumption decision that are sensitive to biodiversity conservation and sustainable use objectives. Biodiversity education and community awareness should be Strengthened in a variety of ways to reach people across the country. ”

Education and public awareness is the third goal of the strategy, that is “to promote an understanding of the need to conserve biodiversity and use biological resources in a sustainable manner”.

The strategic actions are;

1. To develop and deliver effective biodiversity education and awareness programs,
2. To provide opportunities for professional development of those involved in teaching environmental education.
3. To create educational material that emphasis measures that can be taken to prevent or to reduce impacts on ecosystems and biological resources.
4. To promote public awareness about the biodiversity issues, conservation and sustainable use requirements and chances in the state of biodiversity and improvements in resource management practices through periodic reports, fact sheets, electronic information systems and other communication material and methods.

D. OBJECTIVES AND GOALS

The objectives and goals are based on the following assumptions:

1. Biodiversity is the biological foundation for sustainable development
2. Biodiversity is in jeopardy
3. Conserving biodiversity is a shared responsibility
4. Biodiversity links to future prosperity
5. Turkey contributes to global biodiversity conservation

Seven priority actions have been identified in the NBSAP;

1. To develop environmental public awareness through cooperation with all stakeholders (agencies, NGOS, media)
2. To determine and develop existing institutional capabilities to meet biodiversity conservation requirements
3. To develop a training programme for operational government staff and NGOs including a data-base
4. To encourage and ensure information exchange and collaboration between national and international parties
5. To ensure participation of local communities and NGOS in preparing and implementing management plans
6. To promote natural resource management awareness as a means of biodiversity conservation.
7. To establish a data bank for wetland/marine ecosystems (status, utilization, economic significance, etc.)

Concepts of the protection of biodiversity should be integrated into the National Environmental Action Plan, the national development plans of the State Planning Organization, as well as other internationally-driven strategic initiatives such as Agenda 21 and the Biodiversity Convention.

** Planning for protected area management should be “area “ and “species” based and allow for establishment of buffer zones, compulsory protection areas, and marginal utilization zones.*

** A comprehensive inventory of Turkish flora and fauna including threatened, relict and extinct species should be completed.*

** Use of “basin” as area unit in determining biodiversity and endemic richness in preparing protected area plans, cadastral planning, and land use planning and their implementation.*

** New areas should be identified for inclusion into the protected area network.*

The new management planning approach that seeks environmentally sound forest management covering all ecological and managerial aspects of planning and considers forests as an ecosystem, has already been put into practice. As a result of this approach, a new model plan has been started to be implemented in Northern Turkey and it will be extended through the regions which have the same ecological conditions.

Intensive efforts are being made in regeneration of forests to account for the objectives of new model plan. Regeneration works are applied in small size areas in order to prevent biodiversity loss and forest degradation, The areas are approximately 10

hectare at this moment and it is only applicable if ecological characteristics of tree species make it possible. Besides, one of the regeneration method, namely clear cutting in large areas is no longer applied. In this respect, a draft guideline including the issue is under process.

A study named "Global Environmental Overlay" has already been started. The objective of this is to estimate cost and benefit, and identify and articulate practical options for capturing global national environmental benefit including biodiversity and control of land degradation and climate change, within the overall strategy for management of the forest sector in Turkey.

A vision for Turkey to guide the strategy:

A society that lives and develops as part of nature, attaches values to the diversity of life, takes no more than can be replenished and leaves future generations a world rich in biodiversity.

Goals and objectives of the strategy:

1. Conservation and sustainable use: to conserve biodiversity and use biological resources in a sustainable manner. Implementation of ecological planning and management approach must be implemented based on:

- A. the maintenance of viable populations of native wild flora and fauna;
- B. the completion of networks of protected areas;
- C. the restoration and rehabilitation of degraded ecosystems; and recovery of endangered species;
- D. the development and implementation of integrated resource use policies, plans, legislation and programmes for steppe, forest and aquatic areas that support the conservation of biodiversity and sustainable use of biological resources;
- E. the development and implementation of measures to prevent alien and living modified organisms from the hazardous effects of the adversely affected biodiversity;
- F. the development and implementation of measures to reduce the adverse impacts of human population growth and settlements on ecosystems, species and genetic resources.

2. Ecological management to improve our understanding of ecosystems and increase our resource management capability: Strategic action outlined under the topics:

- A. Improving our ecological management capability by research, traditional knowledge, inventories at landscape, species and genetic levels;
- B. Increasing resource management capability by data and information management, integrated planning and ecological management, environmental assessment and emergency planning and training;
- C. monitoring

3. Education and awareness to promote an understanding of the need to conserve biodiversity and use biological resources in a sustainable manner.

4. Incentives and legislation to maintain or develop incentives and legislation that support the conservation of biodiversity and the sustainable use of biological resources.

5. International co-operation to work with other countries to conserve biodiversity, use biological resources in a sustainable manner and share equitably the benefits that arise from the utilisation of genetic resources.

Sustainable use of the components of biodiversity

The sustainable use of components of biodiversity is stated as the fourth element of the ecological management approach in first goal of the strategy. Strategic actions applicable to all renewable resource sectors are as follows.

1. Modify, develop and implement government policies and programmes to ensure that they support the sustainable use of biological resources, the conservation of soil, water, air and other essential resources, and the long term integrity of supporting ecosystems.

2. Improve methods and technologies that support the sustainable use of biological resources and eliminate or minimise adverse impacts on biodiversity resulting from resource use.

3. Develop and implement education and training programs for policy makers, properly owners, lease operators, resource managers and others involved in the management, development and use of biological resources, to ensure that they have access to the best available information, methods and technologies.

4. Develop and improve methods to monitor ecosystems and biological resources to support the sustainable use of biological resources.

5. As possible, provide information to assist consumers in understanding the impacts and implications of their decisions and to promote the sustainable use of biological resources and ecosystems.

6. Improve the effectiveness of public participation in developing policies for the use of biological resources using a variety of measures, such as integrated decision making processes and conflict resolution mechanisms.

7. Develop linkages and ensure co-ordination between the implementation processes for the Turkish Biodiversity Strategy and other related national initiatives such as agricultural strategies or national development plans,

These actions followed by sections addressing strategic action for agricultural, aquatic and forest areas to promote the sustainable use of biological resources.

E. STRATEGIES

IMPLEMENTATION

NBSAP is a key building block in our efforts to achieve sustainable development. Ultimately, the degree to which the Strategy is able to enhance our national capacity to conserve biodiversity and achieve sustainable development will be the measure of its success. Specifically, we will know that the Strategy is making a difference if:

- * The value and importance of biodiversity is reflected in the actions and decisions of all sectors of society, from corporations to individual consumers, private property owners, and various institutions of government;

- * we are capturing existing information, improving and conveying that knowledge in a useful, timely and efficient way;

- * we are no longer planning and making decisions based exclusively on a species by species or sector by sector basis, but are practising ecological management;

- * opportunities are being created through technological innovation, application of traditional knowledge, scientific discoveries and new applications of sustainable use; and

- * we are trying to maintain biodiversity for future generations and contributing to conservation and sustainable use efforts through world-wide financial assistance, knowledge, expertise and exchange of genetic resources,

Strategic actions:

To ensure effective and co-ordinated implementation of NBSAP in accordance with each jurisdiction's priorities and fiscal capabilities government will:

1. Strengthen the implementation and monitoring of the Turkish NBSAP.
2. Report to the Conference of the Parties on policies, programmes, strategies and actions that are underway or will be undertaken to implement the strategy.
3. Maintain or develop mechanisms to provide opportunities for meaningful participation of regional and urban administrations, local communities, interested individuals and groups, business interests and the scientific community in implementing the strategy.
4. Co-ordinate elements of the strategy that require national participation in order to help develop international positions on biodiversity matters and in-depth study the development of national and international process reports,
5. Ensure that there are mechanisms that permit and encourage non-governmental organisations and public to participate in the implementation of the strategy and the development of international biodiversity agreements.
6. Inform the national and international community on the status of Turkey's biodiversity.
7. Challenge and invite all nationals to contribute toward achieving the goals of the strategy and take actions to conserve biodiversity and to use biological resources in a sustainable manner.
8. Explore tools to provide opportunities for participation of local communities in implementing the strategy through a variety of methods such as resource management agreements, management boards, model forest programmes and other means.

GENERAL ACTIONS AND RECOMMENDATIONS

- * Concept of the protection of biodiversity should be integrated into the National Environment Action Plan, and the national development plans of the State Planning Organisation, as well as other internationally-driven strategic initiatives such as Agenda 21 and the Biodiversity Convention.
- * Capacity and capability of the MOE should be strengthened to allow it to take on adequate responsibility as the national agency for co-ordination of related environment oriented activities.
- * EIA must be mandatory for all newly planned physical investments in all sectors as well as for those investment which though planned, have not been started. GDSHW's ongoing investments should be re-evaluated from the environmental impact aspect.
- * Planning for protected area management should be "area" and "species" based, and allow for establishment of buffer zones, compulsory protection areas, and marginal utilisation zones.
- * Conservation plans for protected areas, including prioritisation criteria, should be developed jointly by MOE and GDNPGW.
- * Establishing strict guidelines, rules and regulations regarding opening of coastal areas for tourism (including marinas and fisherman's refuges) and recreation, and enforce them through a strengthened MOE.
- * Use of "basin" as area unit in determining biodiversity and endemic richness in preparing protected area plans, cadastral planning, and land use planning and their implementation.
- * A comprehensive inventory of Turkish flora and fauna including threatened, endangered, relic, and extinct species should be completed; database, monitoring evaluation system established, and made available to all public and private agencies,
- * Introduction of exotic species should be tightly controlled.
- * Ex-situ conservation of forest and steppe ecosystem elements should be reinforced through establishment of nurseries, wild life capture breeding areas, seed production facilities, and gene banks.
- * Regulation for marine and inland fishing must be reviewed by MARA and MOF.
- * New areas should be identified for inclusion into the protected area network.
- * In-situ protected area network should be developed.
- * Allocation of Treasury land to industrial, tourism, or urban development should take into account biodiversity of candidate lands.

LEGISLATION

- * Develop and a broad-based legislation in the form of a National Law for the protection of nature, mandating that ecological considerations must be incorporated in the economic considerations in all decision process in Turkey.
- * Finalise preparation and enact the Rangeland Law and Land Use Regulations.
- * National legislation to control the trade of rare and endangered species, in line with the Bern Convention and CITES, must be completed.
- * National legislation to support the soon-to-be ratified Convention to Combat Desertification must be developed.
- * Review and revised protected area classifications to meet international norms and classifications.

* Revise existing legislation to incorporate new concepts related to sustainable natural resource management including protection of biodiversity: ecosystem sustainable management, genetic resources, in-ex-situ , habitat, basin management, domestic/exotic species.

FOREST ECOSYSTEMS:

- * Incentives should be provided for Agro-forestry
- * Universities should support research, education and training in biodiversity and its conservation in their related and appropriate departments. Training and education programs and curriculum for forest engineers, forest guards, and afforestation technicians and the similar forestry related occupations should be revised.
- * The concept of forest ecosystem should be re-defined in legislation
- * The principles of preservation of biodiversity should be applied in such forestry activities as : silviculture, afforestation, physical constructions such as road and building in forest areas, harvesting activities and utilisation of lands classified as “forest” for non-forestry related activities.
- * Classification of protected forest areas and forest production areas should be reformulated to take conservation of biodiversity into account,
- * Forestry production and management plans should take into account biodiversity and conservation of natural resources,

WETLAND ECOSYSTEMS:

- * Relations should be developed with IUCN and Wetland International protection criteria must be used in classification of all fauna species
- * Turkey’s active participation in MEDWET should be enforced,
- * Exportation of endangered fauna and flora species must be banned,
- * To improve effectiveness, there is a need to revise national policy and revise legislation for conservation of wetlands to provide consistency with other existing legislation, and provide conformity to international agreements. Revisions must be made to the existing Environment Law to provide for protection of wetlands
- * Desiccation and filling-in of wetlands by the GDSHW must be banned. Methods of eradicating malaria must be rationahsed to prevent damage to wetlands.
- * Direct or potential consequential damage that may be caused by GDSHW investments in dams and irrigation schemes should be carefully considered in the investment planning as well as implementation phases, MOE should be responsible for EIA follow-up with GDNPGW-MOF.
- * Principle of “polluter pays” must be applied for the pollutant dischargers, the to those discharging pollutants
- * A national RAMSAR committee should be established for the formal relations with RAMSAR Bureau. 56 of 81 wetlands having more than one criteria for conservation in Turkey, should be classified as RAMSAR sites by 2000.,
- * Integrated management plans including river basins and coastal zones must be developed.
- * Research and development: gaps in data must be filled through completion of inventory of wetlands, their flora and fauna, and present conditions thereof. Populations of indicator species must be researched.

- * An inventory of pollution sources, their pollutant levels and the areas effected must be determined and possibilities for treatment and recycling must be sought, Recycled water use for purposes of irrigation should be considered on a large scale.
- * Artificial wetlands should be considered to be used for waste water treatment
- * Effective land use planning must be developed, including buffer zones between agricultural areas and neighbouring wetlands to prevent damage caused by agro-chemicals
- * Regulations must be developed for waste management in and around wetlands with MOE being responsible for enforcement of such legislation, including monitoring and evaluation.

STEPPE ECOSYSTEMS:

- * UN Convention to Combat Desertification should be ratified to provide intellectual support to much needed legislation for land use
- * Areas destroyed by mining should be reclaimed and rehabilitated
- * Agricultural practices should be reviewed for impact on land; public awareness, extension services and policy making, specifically for land use regulation and enforcement there of, should be directed to alleviate pressure of such practices. MARA through its provincial and country directorates should promote sustainable land use.
- * NGO involvement at the local and national level should be promoted and supported through their inclusion in public awareness campaigns
- * Co-operation between farmers, MARA local staff and representatives of fertihser, pesticide and herbicide producers should be promoted to achieve improved input utilisation in order to prevent or minimise damage to the environment
- * Rotational grazing should be introduced on a national scale. Carrying capacity, animal type to be supported, potential for rehabilitation, and farmer training in rotational grazing should be evaluated and applied, given the size and diversity of problems in Turkey, under site-specific conditions
- * Use of rangelands and mountain pastures for ecotourism and settlements should be carefully planned and implemented. Local monitoring capacity and authority should be in place before implementation begins,

While the Ministry of Environment creates policies, planning and coordination for environmental protection, management activities are carried out by some other institutions and Ministries. Therefore:

- * Capacity and capability of the related institutions and governmental agencies should be increased. Ministry of Forestry is one of these institutions, which involved with conservation and sustainable use of the biodiversity particularly the two general directorate of the Ministry, namely General Directorate of Forestry and, General Directorate of National Parks and Game-Wildlife, are directly engaged with the issue.

- * General Directorate of Forestry (GDOF) is one of the parties of Helsinki Ministerial Conference on the Protection of Forests in Europe, which first held in 1993. Therefore, the outputs of these conferences and other related preparatory conferences in relation to the protection of forest and its biodiversity have been followed and accepted by General Directorate of Forestry. Particularly, the draft Forest Management Unit Level Guidelines for sustainable forest management, which is the output of forests, are under close examination by Management Department.

Within this context, GDOF has started to implement a new management approach and it has carried out review works in terms of the impact of its plans and programs on the conservation and sustainable use of biodiversity by considering Convention on Biodiversity and the outputs of Helsinki Conferences that are called H1 (on Sustainable Forest Management) and H2 (on the protection of Biodiversity in Forests).

A working group on biodiversity was established in the body of GDOF. The task of working group is the examination of current legislative and technical aspects of the Directorate. At present, the technical guidelines of Forest Management Planning Department and Forest Law Code no:683!, are being studied, examined and prepared

F. PARTNERS

Non governmental Organisations(NGOs): Conservation education has been carried out but only indirectly and was primarily targeted to prevention of forest fires. In recent years, the private sector has become involved in fund-raising activities for environmental public awareness with the assistance of NGOs. Concepts of “environmental” and “biodiversity” were introduced to Turkey by Government but became very popular through activities of NGOs as is the case elsewhere. There are no clear provisions in Turkish legislation for NGOs and in their potential input to general environment, and specifically biodiversity conservation activities has been severely hampered. Legal impediment related to financing mechanisms available to NGOs, their ability to collect donations or raise funds, as well as regulatory constraints regarding co-operation with international NGOs are major problems.

In spite of the existing problems facing NGOs, a number of internationally important flora and fauna habitats have been placed under protection through their efforts in collaboration with international organisations such as the World Wildlife Fund for nature. GTZ, UN agencies, as well as the European Commission and the World Bank. For example, as a national NGO, the Society for the Conservation of Nature in Turkey (DHKD), is an associate member of the WWF and is the Turkish partner of Birdlife International. It has carried out sea turtle nesting projects in seventeen areas including impact assessments of fisheries, important bird and plant areas projects and integrated wetland management project for the Göksu delta as well as biodiversity conservation projects in several Deltas and lakes, Bodrum Volunteer Association is associated with Greenpeace and A SEED, and has implemented the monk seal project on the Aegean sea. CV has relation with the Fish and Wildlife Service and GTZ. It has several publications on “wetlands” and has carried out biodiversity conservation projects on 5 internationally significant wetlands areas. Other national NGOs are involved to different degrees in biodiversity conservation in Turkey,

G. ACTIONS

IDENTIFICATION OF ISSUES WITH PRIORITIES:

Priority issues had been derived from the thematic papers (steppe, forest and wetlands) and the biodiversity workshop which proposed measures for conserving biodiversity. These are:

High rates of population increase in Turkey starting in the 1920s, sometimes as high as 2.7% per annum, has resulted in an almost 6-fold increase over sixty years, from 13 million to almost 70 million. This has put tremendous pressure on land, water resources and environment. The further combined effects of rapid urbanisation and industrialisation and associated economic activities has put immediate production to meet growing needs above sustainable utilisation of natural resources and pollution.

Economic pressure due to population increase in rural areas and lack of legislation preventing the fragmentation of farms into less than optimal units has resulted in decrease of the number of farmers which already have quite low income. This situation forces the small farmers to illegal forest clearing, heavy grazing, ploughing of rangelands, as well as large scale uncontrolled gathering of plants leading to destruction of biodiversity.

Natural habitat loss has occurred in approximately 40% of the steppe ecosystem in the past 50 years. The destruction of plant cover, accelerated on forest, grazing and cultivated lands through unsustainable farming and grazing practices, as well as forest fires have promoted erosion of different intensities affecting almost 80% of arable lands.

Culturally and ecologically significant areas have been disturbed by dam reservoirs and re-routing of surface water supplies, drainage of wetlands, pollution and excessive water use. Insufficient irrigation management has promoted salination of large tracks of land and prevented replenishment of some lakes. The water table has been dramatically lowered in some areas.

Traditional and unsustainable agriculture practices (more than 15 million hectares of grazinglands had been ploughed) and lack of government policies for land utilisation has adversely affected biodiversity (There has been an irreversible loss of about 460,000 hectares of fertile agriculture land due to a lack of "zoning" regulations or practices in and around urban and metropolitan areas.)

Land speculation on or near coastal regions, tourism and lack of effective institutional and legislative support mechanisms to prevent environmental degradation has led to reduction of animal and plant species in terrestrial and aquatic ecosystems.

Insufficient control and monitoring of hunting, fishing and gathering of wild animals and plants are a major threat to the survival of several species,

Incentives provided to the agriculture sector without regard to environmental issues have resulted in excessive use of chemicals and fertilisers leading to improper irrigation practices.

Introduced foreign varieties of crops, modern cultivars and other species of plants as well as foreign livestock breeds affect native varieties.

Ecotourism must be developed in ecologically sensitive areas in such a manner as to prevent activities that will decrease biological diversity, destroy the natural balance and cause pollution.

STRATEGIC ACTIONS:

1. Conservation and sustainable use:

A. The maintenance of viable populations of native wild flora and fauna;

- 1.1 Use ecological planning and management approaches with emphasis on landscape/waterscape-level planning to integrate economic and social objectives with biodiversity conservation objectives
- 1.2 Conserve ecosystems and critical habitats to support populations
- 1.3 Through research, increase our understanding of the status, genetic diversity and ecological relationship of species and populations to improve ecological planning and management.
- 1.4 Ensure that the harvest of wild species is sustainable and minimise the adverse impact of harvesting on non-target species
- 1.5 Re-connect fragmented ecosystems where practical and necessary, providing corridors and protecting habitats for isolated species or populations.
- 1.6 Modify or eliminate elements of government policies and programs that create unintentional adverse impacts on wild flora and fauna on private and public property.
- 1.7 Strengthen measures to reduce and eliminate the release of substances harmful to ecosystems, species and genetic resources.
- 1.8 Ensure that both economic and ecological factors are considered in designating pests and in implementing pest management strategies,
- 1.9 Develop indicators to monitor trends and support the management of wild populations, species, habitats and ecosystems.
- 1.10 Maintain and improve measures that prevent in-situ populations from becoming jeopardised by specimen collecting for ex situ conservation and other purposes.
- 1.11 Foster the participation of non-government ex situ conservation experts and institutions in in-situ conservation efforts, and improve the participation of government agencies in non-government ex-situ conservation efforts.
- 1.12 Implement mechanism for conservation and sustainable use of native wild populations, species, habitats and ecosystems in co-operation with other countries and organisations.

B. The completion of networks of protected areas;

- 1.13 Complete Turkey's network of protected areas representative of land-based and marine natural regions.
- 1.14 Use open and meaningful public and stakeholder participation of processes and sound scientific information and traditional knowledge to ensure that social, economic, cultural and ecological factors are considered in the establishment of protected areas.
- 1.15 Use interim protection measures to ensure that candidate protected areas are not compromised by development.
- 1.16 Develop comprehensive criteria for determining priority sites for designation as protected areas considering criteria such as: the habitat requirements for species at risk and endemic species and other critical wildlife habitats; areas supporting high diversity; migratory species or representative or unique species; and genetic resources that are of scientific or economic importance.
- 1.17 Prepare and implement, in consultation with interested stakeholders, legislation and policies, inventories, plans, guidelines, monitoring programs and other measures to support the establishment and management of protected areas.
- 1.18 Manage, in consultation with land owners, regional and urban governments, local communities, and interested stakeholders, human activities in and around protected areas to minimise adverse impact on protected area biodiversity and to maintain connectivity, using tools such as United Nations Educational, Scientific and Cultural Organisation Biosphere Reserve Program.
- 1.19 Support and promote the development of agreements between governments and local communities, property owners and private corporations for the voluntary allocation of land for conservation purposes.
- 1.20 Use a variety of mechanisms to secure relatively intact ecosystems within intensively developed areas, and restore or rehabilitate them if practical.

C. The restoration and rehabilitation of degraded ecosystems;

- 1.21 The government will review current legislation to determine if improvements are required in order to protect species-at-risk and their habitats, determine the benefits and costs a more harmonised legislative approach and pursue harmonisation where appropriate and practical

- 1.22 Government will work towards harmonising methodologies to designate species-at-risk.
- 1.23 Determine the ecological requirements of species-at-risk and develop, implement and evaluate the success of recovery plans for species that are defined as extirpated, endangered or threatened, where practical and necessary. Consider the recovery of vulnerable species on a case-by-case basis.
- 1.24 Consider multi-species/habitat recovery plans for areas that contain a number of species-at-risk.
- 1.25 Encourage the involvement of ex-situ facilities and expertise in the recovery of species at risk.
- 1.26 Continue to participate and support the process to designate endangered and threatened species in Turkey.
- 1.27 Enhance participation of governments, local communities and landowners in species recovery projects from early planning phases through implementation.
- 1.28 Support and promote international efforts to recover species-at-risk.
- 1.29 Using objective criteria to select sites for restoration and rehabilitation, including the habitat requirements of species-at-risk, develop and implement restoration or rehabilitation plans for degraded ecosystems, where practical and necessary.
- 1.30 Develop improved approaches and technologies for ecosystem restoration and rehabilitation, evaluating the potential impacts of programs on ecosystems and species to ensure that desired outcomes are achievable without causing negative impacts.

D. The development and implementation of integrated resource use policies, plans, legislation and programs for steppe, forested and aquatic areas that support the conservation of biodiversity and sustainable use of biological resources; (actions 1.31-1.37 are written in section D of the report)

Agricultural Areas

- 1.38 Assess current and proposed major government agricultural policies and programs to ensure that ecological, economic, social and cultural objectives are considered.
- 1.39 Maintain, adjust or develop economic incentive that promote the conservation of biodiversity and sustainable use of biological resources on agricultural lands.
- 1.40 Evaluate inventory of genes, populations, species and ecosystems to ensure the conservation of natural control systems and the identification of species for use as biocontrol agents.
- 1.41 Develop and use agriculture pest-control products and integrated pest management approaches.
- 1.42 Conserve biological resources that are essential to agriculture.
- 1.43 Develop and implement programs that promote and facilitate the coexistence of wild flora and fauna and other wild organisms and their habitats in agricultural landscapes.
- 1.44 Through research, training and technology transfer, facilitate the further adoption of environmentally sustainable farm practices, including those that:
 - a) reduce soil erosion, surface and ground water contamination and air pollution,
 - b) lead to the identification of productive soil types in relation to specific crop requirements.
- 1.45 Encourage agricultural producers to develop farm management plans.
- 1.46 Facilitate the sharing of experiences and expertise among farmers to promote management practices.
- 1.47 Maintain or develop policies or programs that conserve biodiversity by supporting the sustainable use of steppe grazinglands.
- 1.48 Identify and conserve areas that support the native species and communities or could contribute to systems of protected areas, especially in intensively developed areas in accordance to the directions provided in the sections on protected areas of the strategy.
- 1.49 Maintain or develop in-situ and ex-situ conservation mechanisms by:
 - a) determining and acting upon regional, national and international priorities for the conservation, research and training and the establishment of facilities;
 - b) continuing to support existing national, regional and international ex-situ institutions.
- 1.50 Develop programs that involve the participation of the private sectors in sustainable use of biological resources.

Aquatic Areas

- 1.38 Assess current and proposed major government aquatic resource policies and programs to ensure that ecological, economic, social and cultural objectives are considered.
- 1.51 Use objective criteria to select sites for restoration and rehabilitation and restore and rehabilitate degraded aquatic ecosystems where practical.
- 1.52 Implement biological and ecological inventory, monitoring programs and classification systems to determine appropriate biodiversity conservation measures and provide a framework for managing aquatic resources in a sustainable basis.

- 1.53 Increase our understanding of the structure, functions and composition of aquatic ecosystems to enhance conservation and management practices,
- 1.54 Enhance efforts to conserve aquatic biodiversity by **protecting** species and ecosystems at risk, endemic species, vulnerable spawning areas and unique and **representative** ecosystems.
- 1.55 Establish reserves to conserve aquatic biodiversity and contribute to network of national protected areas in accordance with the strategic directions provided in the section on protected areas of this strategy.
- 1.56 Develop training programs to promote the use of equipment and harvesting procedures that eliminate the adverse impacts on populations, species, habitats and ecosystems, including the capture of **undersized** fish, **incidental** catch and habitat destruction.
- 1.57. Reduce to acceptable level adverse impacts of species introduction on aquatic biodiversity resulting from aquaculture projects, fisheries enhancement programs and interbasin transfer of water and organisms.
- 1.58 Investigate the use of alternative aquatic resource management mechanisms to enhance the integration of social, cultural, **economic** development of the local people and **ecological** objectives.
- 1.59 Participate in international fisheries conservation efforts to develop and encourage the implementation of ecological management approaches, and to develop sustainable use agreements.
- 1.60 Conserve ocean-based fisheries resources by:
- a) taking effective action to **address** overfishing;
 - b) improving the enforcement of existing rules; and
 - c) enhancing international collaboration in the development of conservation/sustainable use policies.
- 1.61 Support the **development** of international agreements to encourage the **development** of biological reference points in fisheries management that provide a basis for the conservation and sustainable use of harvested species.
- 1.62 Enhance communication with those who possess traditional knowledge to improve information sharing, and to promote the conservation of aquatic biodiversity and the sustainable use of aquatic biological resources.
- 1.63 Maintain or develop in situ and ex situ mechanisms to support the conservation of biodiversity and the sustainable use of aquatic biological resources by:
- a) determining and acting upon priorities for the conservation of aquatic biological resources, research and training, and the establishment of new facilities; and
 - b) determining national and international priorities for ex situ aquatic biological resources, facilities, research and training

Forested Areas

Strategic Actions:

- 1.64 Assess current and proposed major government forest policies and programs to ensure that ecological, **economic**, social and cultural objectives have been considered.
- 1.65 Increase our understanding of forest biodiversity by enhancing ecological site classification systems and the **inventory** and monitoring of commercial and non-commercial species, soil, soil biota, climate and other biophysical characteristics.
- 1.66 **Improve** our understanding of forest ecological functions by **determining** the **benefits** of ecological services provided by forest ecosystems, monitoring the ecological **responses** of forests to resource management practices, and by carrying out other activities.
- 1.67 Eliminate or reduce to acceptable levels, the adverse impacts of forest management practices on watersheds, soils, adjacent ecosystems and species.
- 1.68 Continue to develop and **implement** improved forest management practices that provide for the sustainable use of forests while maintaining the regional forest mosaic. Use practices that are as consistent as is practical, with natural disturbance regimes, patterns and processes.
- 1.69 Provide improved training opportunities for forest scientists, managers and operators to increase their understanding of forest ecosystems.
- 1.70 Use integrated pest management approaches that **eliminate** or reduce to acceptable levels, adverse impacts on non-target species and ecosystems.
- 1.71 Take inventory and evaluate forest ecosystems and species to ensure the conservation of natural biological control systems, and to identify species for use as biocontrol agents.
- 1.72 Develop and implement programs to **conserve** the genetic diversity of tree species in situ conditions.
- 1.73 Establish and maintain forest seed and clonal gene banks to conserve the genetic diversity of tree species.
- 1.74 Allow fire, disease, succession and natural forest regeneration to maintain biodiversity, where they are compatible with forestry and other land use objectives. and where natural regeneration can be effective.

- 1.75 In consultation with national and regional governments, landowners and others, identify and correct policies that discourage the conservation of biodiversity and the sustainable use of forest biological resources on private lands and common lands.
- 1.76 Where practical, restore or rehabilitate degraded forest ecosystems that will make a significant contribution to conserving biodiversity.
- 1.77 Establish protected areas to conserve representative and critical forest ecosystems as part of an overall network of protected areas in accordance with the strategic directions provided in the section on protected areas in this Strategy.
- 1.78 Develop and implement forest management plans and codes of practice to promote the sustainable use of forest ecosystems and the conservation of biodiversity.
- 1.79 Support research, management and policies that assess and promote new uses of timber and non-timber products from forests to increase the economic return from forest ecosystems, while conserving biodiversity.

E. Biosafety: Harmful Alien Organisms and Living Modified Organisms

Harmful Alien Organisms

Strategic Actions:

- 1.80 Take all necessary steps to prevent the introduction of harmful alien organisms and eliminate or reduce their adverse effects to acceptable levels by:
 - a) developing and implementing effective means to identify and monitor alien organisms;
 - b) determining priorities for allocating resources for the control of harmful alien organisms based on their impact on native biodiversity and economic resources, and implementing effective control or, where possible, eradication measures;
 - c) identifying and eliminating common sources of unintentional introductions;
 - d) developing national and international databases that support the identification and anticipation of the introduction of potentially harmful alien organisms in order to develop control and prevention measures;
 - e) ensuring that there is adequate legislation and enforcement to control introductions or escapes of harmful alien organisms, and improving preventive mechanisms such as screening standards and risk assessment procedures; and
 - f) enhancing public education and awareness of the impacts of harmful alien organisms and the steps that can be taken to prevent their introduction.
- 1.81 Promote research into methods and approaches that improve our ability to assess whether or not alien organisms will have an adverse impact on biodiversity.

Living Modified Organisms

Strategic Actions:

- 1.82 Prevent the introduction of potentially harmful living modified organisms by:
 - a) ensuring that there is adequate legislation and enforcement to control introductions or escapes of harmful living modified organisms, and improving preventive mechanisms such as screening standards and risk assessment procedures; and
 - b) developing national and international database capacities that enable Turkey to identify and anticipate the introduction of potentially harmful living modified organisms.
- 1.83 Promote research into methods and approaches that improve our ability to assess whether or not living modified organisms will have an adverse impact on biodiversity.

F. Human Population and Settlement

Strategic Actions:

- 1.84 Use a variety of planning and approval mechanisms that provide for meaningful public and stakeholder participation to prevent or reduce negative impacts on biodiversity that may arise from human settlement activities.
- 1.85 Develop and implement educational and incentive programs to encourage biodiversity conservation on private and common lands.
- 1.86 Promote the acceptance of the requirements of the Convention within the urban development sector through the voluntary establishment of codes of environmental management and the provision of relevant biodiversity education material.
- 1.87 Determine and mitigate, where practical, incremental and cumulative impacts of human activities on ecosystems and biological resources.

- 1.88 Support research on ecological carrying capacities and the way that changes in biodiversity, human population density, land and resource development and resource consumption patterns and rates affect one another.
- 1.89 Reduce resource consumption by promoting initiatives based on the “three R s” reduce, reuse and recycle and by increasing awareness of the value of biodiversity and the lifestyle choices that cause its decline.
- 1.90 Work through appropriate national and international organisations to improve dialogue and communication and to encourage research on the linkages among population, social issues, consumption and production of resources and ecological carrying capacity in order to formulate sustainable development policies.

GOAL 2 Ecological Management

To improve our understanding of ecosystems and increase our resource management capability.

A. Improving Our Ecological Management Capability

Research

Strategic Actions:

- 2.1 Focus research to improve policy development and to integrate multiple land and resource-use objectives, with emphasis on:
 - a) increasing our understanding of the impacts of human use on ecosystems and biological resources;
 - b) providing support for multi-disciplinary or system-based research that improves the integration of social, economic and environmental policies;
 - c) developing methodologies that permit an improved valuation of biodiversity;
 - d) developing and implementing issue identification measures and adaptive management techniques to enhance management performance; and
 - e) developing and implementing conflict resolution models to resolve conflicts between various resource users.
- 2.2 Focus research to increase our understanding of ecosystems and our ability to manage human use of ecosystems and resources by:
 - a) examining the structure, function and composition of ecosystems, landscapes and waterscapes and the ecological services they provide;
 - b) developing cost-effective biodiversity inventory and monitoring methods and programs, including rapid assessment procedures and biodiversity indicators, to detect and monitor changes to ecosystems, species and genetic diversity;
 - c) evaluating and improving methodologies to determine sustainable resource use levels;
 - d) improving in situ and ex situ conservation methods, especially to enhance the recovery or rehabilitation of populations, species or ecosystems that are at risk; and
 - e) exploring new sustainable uses of biological resources for economic applications.

Traditional Knowledge

Strategic Action:

- 2.3 Identify mechanisms to use traditional knowledge, innovations and practices with the involvement of the holders of such knowledge and practices, and encourage the equitable sharing of benefits.

Inventories: Landscape, Species and Genetic Levels

Strategic Actions:

- 2.4 Improve biophysical inventories at ecosystem, species and genetic levels by:
 - a) developing and applying regionally integrated landscape-level classification systems for terrestrial, freshwater and marine areas to provide a framework for the collection of information and the management of resources;
 - b) linking biological inventories and soil, climate and other surveys;
 - c) conducting biological inventories, based upon jurisdictional priorities, that take into consideration vulnerable, threatened and endangered species and ecosystems, critical habitats, little-studied taxonomic groups, taxonomic groups of economic importance, areas of high diversity and areas where human development and disturbance are the most significant; and

- d) encouraging the use of innovative and traditional methods to increase knowledge about the diversity of micro-organisms, their functional roles in ecosystems, and their potential economic uses.
- 2.5 Enable agencies and individuals to conduct biological and biophysical inventories by:
- a) developing ways to collectively identify funding sources and determine priorities for inventories; and
 - b) ensuring that there is sufficient expertise available to conduct inventory work, including taxonomists, biosystematists, parataxonomists, museum professionals, ecologists, geneticists and other experts.
- 2.6 Support efforts to improve the reliability and cost-effectiveness of biological inventory methodologies and technologies.
- 2.7 Maintain the capacity of museums and other institutions to scientifically describe, classify and store collected specimens, as well as maintain their ability to effectively disseminate data and information.
- 2.8 Continue to establish networks to develop and harmonise data bases for the conservation of vulnerable, threatened and endangered species and ecosystems.
- 2.9 Improve inventories to determine the genetic diversity of domesticated and non-domesticated biological resources to maximise the conservation and economic use of genetic resources.
- 2.10 Collaborate with other countries to inventory populations and habitats of transboundary species, particularly those that are at risk.

B. Increasing Resource Management Capability

Data and Information Management

Strategic Actions:

- 2.11 Investigate and implement means to enhance the collection, sharing, analysis, scope and distribution of data and information required to conserve biodiversity and sustainable manner use biological resources.
- 2.12 Promote the continuing development of information management systems such as Geographic Information Systems and other technologies that facilitate the rapid analysis and distribution of biological and biophysical data and information.
- 2.13 Work towards ensuring that data and information generated by publicly-funded studies are made available to potential users through appropriate sharing arrangements.
- 2.14 Participate in the development and maintenance of appropriate international data bases.

Integrated Planning and Ecological Management

Strategic Actions:

- 2.15 Design and implement improved ecological planning and management at the landscape/waterscape level to conserve biodiversity and use biological resources in a sustainable manner.
- 2.16 Improve ecological planning to assist in the conservation of biodiversity and the sustainable use of biological resources, especially in or near sensitive aquatic areas, in areas that support populations of endemic, threatened or endangered species, and in areas that are undergoing significant changes resulting from human activity and development.
- 2.17 Use ecological or land-use planning to help identify and establish protected areas and to ensure that the ecological integrity of established protected areas is maintained.
- 2.18 Strengthen planning processes to work toward the conservation of biodiversity and the sustainable use of biological resources of internationally-shared ecosystems and trans-boundary rivers and aquatic ecosystems, such as the Great Lakes and the St. Lawrence River.
- 2.19 Strengthen international planning efforts and other processes to eliminate or reduce adverse impacts on biodiversity and the sustainable use of biological resources, resulting from activities in other countries, with special consideration placed on migratory species, aquatic ecosystems and airborne pollutants.

Environmental Assessments and Emergency Planning

Strategic Actions:

- 2.20 Use environmental assessments to determine potential impacts of developments on ecosystem, species and genetic resources and to recommend appropriate ways to avoid or reduce them to acceptable levels.
- 2.21 Continue to examine and develop ways to harmonise environmental assessments nationally and internationally, where appropriate.
- 2.22 Enhance efforts to determine and eliminate or reduce to acceptable levels, cumulative environmental effects that result from human activities on ecosystems, species and genetic diversity. This includes developing early-warning indicators and working towards incorporating cumulative environmental effects into relevant national and international agreements.
- 2.23 In co-operation with other countries, maintain or develop environmental disaster prevention plans, procedures and other measures, and respond to events that pose grave and imminent risk to national, international and trans-boundary biodiversity.
- 2.24 Maintain or develop arrangements to notify and respond with appropriate action to events originating in Turkey that could significantly affect the biodiversity of other countries.

Training

Strategic Actions:

- 2.25 Improve co-ordination and efficiency of training and information programs by strengthening relationships among educational institutions, government agencies, local and indigenous communities, private property owners, non-government organisations, business and industry.
- 2.26 Strengthen training programs in: ecological management, sustainable use inventory methodologies, monitoring, data management, multi-disciplinary research, management of protected areas, environmental education, environmental assessment and emergency planning.

C. Monitoring

Strategic Actions:

- 2.27 Develop and implement monitoring programs to:
 - a) better understand the functional linkages in ecosystems;
 - b) evaluate the success or failure of conservation and sustainable use policies and programs; and
 - c) better integrate the monitoring of biological and non-biological parameters.
- 2.28 Develop and use biodiversity indicators that are meaningful, scientifically defensible, practical and compatible with regional, provincial, territorial, national and international programs.
- 2.29 Identify appropriate locations to establish base monitoring sites.
- 2.30 Target monitoring programs on ecosystems, species and populations that are currently under the most stress.
- 2.31 Develop and implement measures to monitor the ex situ collection of biological resources,
- 2.32 Use volunteers in monitoring programs where appropriate and practical.

GOAL 3 Education and Public Awareness

To promote an understanding of the need to conserve biodiversity and use biological resources in a sustainable manner.

Strategic Actions:

- 3.1 Develop and deliver effective biodiversity education and awareness programs by:
 - a) evaluating and monitoring the level of public understanding and knowledge regarding biodiversity conservation and the sustainable use of biological resources in order to design and target effective education and awareness programs;
 - b) integrating themes and messages about biodiversity conservation and the sustainable use of biological resources into the formal educational curriculum;

- c) increasing biodiversity conservation and the sustainable use of biological resources messages by building on existing interpretative programs in national and provincial parks and other protected areas, and at libraries, museums, zoos, aquariums and botanical gardens; and
 - d) strengthening co-ordination among educational institutions, government departments, museums, zoos, aquariums, botanical gardens, businesses, conservation groups and other organisations.
- 3.2 Provide opportunities for professional development for those involved in teaching environmental education.
- 3.3 Create educational material that emphasizes measures that can be taken to prevent or reduce impacts on ecosystems and biological resources.
- 3.4 Promote public awareness of biodiversity issues, conservation and sustainable use requirements and changes in the state of biodiversity and improvements in resource management practices through periodic reports, fact sheets, electronic information systems and other communication material and methods.

GOAL 4 Incentives and Legislation

To maintain or develop incentives and legislation that support the conservation of biodiversity and the sustainable use of biological resources.

Incentives

Strategic Actions:

- 4.1 Maintain or develop and use appropriate social/economic policies and incentives as a means of promoting the conservation of biodiversity, the sustainable use of biological resources and new sustainable uses of biological resources.
- 4.2 Enhance our capability to assign a value to biodiversity, and increase efforts to construct a natural resources account that considers ecosystem degradation, loss of species and genetic diversity and resource depletion, and complements standard national income accounts.
- 4.3 Investigate the impact of proposed biodiversity conservation policies and programs on economic activities in order to develop effective conservation measures that enhance positive impacts and minimise negative impacts on the economy.
- 4.4 Determine and make available to policy-makers the estimated costs associated with unsustainable use of biological resources, including the costs of ecosystem degradation and the depletion of species and populations.
- 4.5 Ensure that economic, trade, conservation and sustainable resource-use laws and policies are mutually supportive.
- 4.6 Encourage the participation of property owners and resource developers in biodiversity conservation programs.

Legislation

Strategic Actions:

- 4.7 Jurisdictions will examine their current legislative regimes with respect to the goals of this Strategy, and take the necessary and practical steps towards creating an improved legislative framework that supports the conservation of biodiversity and the sustainable use of biological resources.
- 4.8 Jurisdictions will determine whether harmonisation among Turkish jurisdictions and other countries of biodiversity-related legislation is necessary to reduce duplication and fill gaps and work towards harmonisation where appropriate and practical.

GOAL 5 International Co-operation

To work with other countries to conserve biodiversity, use biological resources in a sustainable manner and share equitably the benefits that arise from the utilisation of genetic resources.

Strategic Actions:

5. Participate in international efforts to co-ordinate and enhance activities related to the conservation of biodiversity and the sustainable use of biological resources by:
 - a) encouraging the implementation and integration of the objectives of the Convention;
 - b) participating in international bodies to consider the development of international agreements to complement the Convention; and
 - c) considering the objectives of the Convention in the context of, and in relation to, other international agreements.
- 5.2 Explore mechanisms to facilitate the transfer of environmentally sound technologies to promote the conservation and sustainable use of biodiversity by:
 - a) encouraging collaboration to develop new approaches to technology transfer among the private sector, government, non-governmental organisations and communities; and
 - b) facilitating access to samples of Turkey's genetic resources on mutually-agreed terms, and under the understanding that arrangements will differ for each sector using these resources.
- 5.3 Cooperate with the international community to explore mechanisms to encourage the private sector, government, local communities, non-government organisations and communities to share benefits derived from using genetic resources provided by other countries,
- 5.4 Encourage the participation of stakeholders, including non-government organisations, the private sector, and indigenous communities, in international efforts to implement the Convention.
- 5.5 Incorporate biodiversity conservation and the sustainable use of biological resources into the criteria for choosing, designing, and evaluating development projects undertaken using external development assistance funding.

Partnership in the implementation and measures

NBSAP draft of Turkey states that " The capacity to determine how biodiversity is managed is not limited to governments. Local and indigenous communities, businesses and industries, conservation groups, research and educational institutions, and individuals must be involved in the implementation of the strategy. Success will require a coordinated approach based on cross-sectoral cooperation and partnership among all orders of government, non-governmental organizations, private sector interests and individuals.

The Ministry of Environment is the responsible agency for coordination of related environmental activities and coordinating elements of the strategy, therefore this task requires national participation in order to help develop international and national positions on biodiversity subjects. Feedback of the implementation of the NBSAP will be served by reporting periodically in both national and the international level.

H. EVALUATION

Turkish NBSAP has been determined in accordance with three objectives of the convention and it contains strategic actions for implementation. However, as it is seen in the strategy and priority action plan, capacity requirements of Turkish government have not been determined yet, therefore NBSAP couldn't outline schedule, timetable, budget. After determination of institutional capacities, NBSAP will be completed and approved as soon as possible. Priorities had been stated as the promotion of public awareness and participation, strengthening of institutional capacities, preparation of management plans and databases for endangered species at the protected areas.

Two GEF projects (“In-situ conservation of genetic resources ” and “sustainable management of natural resources and protected areas ”) are also beneficial for evaluation and strengthening of institutional capacities , and their outcomes will guide future conservation activities in Turkey. However, because of the status of Turkey as a developing country, effort to improve economy of Turkey conflicts with conservation activities, Turkey devotes her efforts to conserve natural resources while trying to raise life standards of public. Consequently, Turkey still search for alternative financial sources both national and international level to conserve biodiversity.