

TURKISH NATIONAL REPORT

October, 2000

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ACRONYMS

MOE	Ministry of Environment
MOF	Ministry of Forestry
MARA	Ministry of Agriculture and Rural Affairs
SPO	State Planning Organization
TBMM	Turkish Grand National Assembly
GDSHW	General Directorate of State Hydraulics Works
GDSMS	General Directorate of State Meteorological Service
GDRS	General Directorate of Rural Services
ESA	Electricity Survey Administration
MPWS	Ministry of Public Works and Settlements
NAP	National Action Program
RAP	Regional Action Program
NDF	National Desertification Fund
NGO	Non-Governmental Organization
GIS	Geographical Information Systems
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
RIANMC	Regional Implementation Annex for the North Mediterranean Countries
SC	Steering Committee
UNDP	United Nations Development Program
FAO	Food and Agricultural Organization
NEAP	National Environmental Action Program
SFYDP	Seventh Five-Year Development Plan
SIS	State Institute of Statistics
OECD	Organization of Economic Cooperation and Development
HABITAT II	Second United Nations Conference on Human Settlements
IULA-EMME	International Union of Local Authorities, Section for the Eastern Mediterranean and Middle East Region
ICLEI	International Council for Local Environmental Initiatives
GAP	Southeast Anatolia Project
HCP	Higher Council for Planning
dBase	Database
ENC	Environment Council
HCE	Higher Council for the Environment
LEC	Local Environment Committees
EIA	Environmental Impact Assessment
GMZ	General Management Zone
CBO	Community Based Organization

SUMMARY

The United Nations Convention to Combat Desertification was adopted in Paris on 17 June 1994 and opened for signature on 14-15 October 1994. The Convention was signed in 1994 in Paris by Minister of Environment on behalf of Turkish Government and approved in November 1996 by Environment Commission in Turkish Parliament. The Convention was included in the agenda of General Assemble for ratification and assented with law number 4340 on 11 February 1998 at Turkish Parliament.

Turkey puts great importance for the implementation of UNCCD at all levels. Many initiatives are underway for the implementation of the Convention at practical manner at government and institutional levels. Immediately after becoming party to the Convention, "National Awareness Seminar" was held in Izmir on 20th-22th of May 1998 with participations from governmental and non-governmental organizations and scientists from universities and research institutions. A meeting was held in Bolu-Gölköy from 8 to 9th of July 1999 in order to draft a National Action Programme. The participants from relevant ministries, institutions, universities and NGOs attended the meeting and discussed specific problems relevant to desertification in view of the affected areas and communities, and a need to develop an effective and integrated soil-water management approach to combat desertification at the local and national levels was clearly addressed. As a result of the two-day meeting, an outline for National Action Program to Combat Desertification and Drought in Turkey was formulated.

In accordance with the context of the Convention, National Coordination Body (NCB) has been established in May 2000, composed of technical and administrative staff of key institutions that are involved directly in fields of drought and desertification. Turkey has been participating in Regional Action Programme (RAP) studies undertaken in the Regional Implementation Annex of the North Mediterranean Countries (RIANMC- Spain, Greece, Portugal, Italy).

In the meantime, National Action Programme is about to be completed. NAP will be overiewing the past practices, a sanction in enforcing the realization of the principles of UNCCD and will work towards the integration of new principles into the policy, with special regard to drought and desertification to enable coordination and harmonization.

Besides the contributions from various government, agencies and organizations, another input for the preparation and the implementation of the NAP is UNDP umbrella project. The project aims to provide institutional framework and coordination with the Government of Turkey for the integration of environmental concerns in development policies/programmes/plans in two cross-sectoral areas: sustainable energy & atmospheric protection and combating desertification which are the two of the priority action areas identified in Turkey's National Environmental Action Plan. The project has already been approved by relevant Ministries, Institutions, State Planning Organization, and Ministry of Foreign Affairs, and now is in approval stage by UNDP. After the appraisal of the project by UNDP, it will supply support for the preparation of the NAP and pilot projects for the application of the NAP.

1. OVERVIEW

Turkey is at the crossroads linking Asia, Europe and Africa, with 97% of its total area (777,971 km²) situated in Asia. The Dardanelles and Bosphorus straits extend from Europe to Asia and create a natural connection between the basins of the Mediterranean and Black Sea. The country has a coastline of 8,333 km. The Aegean and Mediterranean shorelines together exceed 4,500 km. while the Black Sea coast stretches 1,700 km. and is shared with Bulgaria, Romania, Georgia, Ukraine, and Russia. The Sea of Marmara constitutes the remainder of Turkey's coastal area.

Turkey contains 75% of the plant species found in Europe. Cherries, apricots, almonds, figs, and tulips all originated in Turkey, as did domestication of plants. Flora include many wild relatives of important commercial crops such as wheat, chickpea, lentil, apple, pear, and pistachio. Among continental countries, Turkey ranks ninth

in terms of richness of biodiversity; over 33% of its flora are endemic species (Anonymous, 1997). Studies indicate that there are 163 plant families covering 1,225 types, which in turn cover about 9,000 species. These grow naturally and about one third are endemic. Of the total of 2,748, 46 may become extinct, 183 are prone to be harmed, 1,701 are scarce, 5 are safe, 798 are scarce and safe, 49 are vague as to their status, and on the remaining 282 species there is insufficient information. Turkey has about 120,000 invertebrate, 410 fish (192 of which in inner waters), 414 bird, 8 turtle, 49 lizard, 36 snake, about 20 frog and 155 mammal species. The Biodiversity Strategy prepared in collaboration with the World Bank (1997) classified four of the mammal species and 13 bird species as threatened by extinction; in 1996, the OECD classified 10% of the known species of mammals, 9% of the birds and 4% of the fish as threatened. There are relatively few major protected areas covering only 2,700 km.² (1990), with another 2,000 km² classified as scientific reserves and national parks. Protected areas totaled 0.3% of the national territory, compared to an OECD average of 7.8%. The geological structure, topography, climate, wildlife, and plant cover are diverse, and the country is divided into four coastal units (the Black, Marmara, Aegean, and Mediterranean Seas) and three mountainous areas. Nearly 63% of the land has slopes steeper than 15% in average, even in the coastal areas. Average altitude is 1,132 m and only 10% of the country is less than 250 m above sea level. High mountains are concentrated in central and eastern Anatolia. Earthquakes, some quite powerful, occur mostly along the north Anatolian fault that runs from the Dardanelles Strait through the Eastern Black Sea Mountains, paralleling the Black Sea coast.

The climate is both temperate, with rain year-round, and subtropical, where summers are dry. Average annual precipitation is 770 mm., and may rise to 2,300 mm in Rize and drop to 326 mm in Kirsehir. The highly varied climate can be harsh (dry or cold), as in central, east and southeast Anatolia. Average annual temperatures can vary from 4-18^oC in the central region to 18-20^oC on the southern coast.

The mountainous terrain restricts agricultural development; only 24% of the land area is suitable, and nearly three-quarters of it is prone to erosion.

Nearly 63% of the land has slopes steeper than 15% in average, even in the coastal areas. Average altitude is 1,132 m and only 10% of the country is less than 250 m above sea level. High mountains are concentrated in central and eastern Anatolia. The physical landscape is closely linked to environmental conditions:

- Turkey's location translated into rich biodiversity, sensitive ecological habitats and a wealth of cultural and historical resources;
- The extensive shoreline and access to four seas that creates difficulties for managing coastal zones and marine resources;
- Earthquakes that are important natural hazards;
- The mountainous and steeply sloped topography that causes soil erosion and require special agricultural techniques;
- Region-specific, heavy rainfall that enhances the risk of landslides and floods while aridity combined with human activity, leads to desertification;
- Uncontrolled exploitation of mineral resources that causes landslides, contaminates groundwater, and threatens the safety of miners; and
- Significant hydrological resources that offer opportunities for water management, but create environmental concerns.

According to the projections of State Institute of Statistics (SIS) and State Planning Agency (SPO), the population estimate is 63.7 million for 1997, with an annual rate 1.6 %, the highest of all OECD countries (OECD, 1996). SIS projects that the population will rise to 66.8 million in 2000, and annual growth rate will drop to 1.5% (SIS, 1995). The population is also urbanizing rapidly. It is expected that by 2000, 70% of the population will live in urban areas, with over a third located in settlements of more than one million people (SPO, 1995).

Erosion is one of the most severe rural environmental problems affecting 81% of the total land surface in varying levels of severity. About 73% of the cultivated land and 68% of the prime agricultural land (Classes I-IV) are prone to erosion. Stream bank erosion affects 57.1 million ha while wind erosion degrades another 466,000 ha. As a result, about one billion tons of soil is carried away each year. Proportion of areas prone to erosion is at a "critical" level in some provinces of the country where forested land is also relatively high. This indicates that agricultural land in these provinces mostly consists of difficult-to-hold soils of steep slopes where agricultural plots have been created through deforestation. The share of severe erosion is also relatively larger in areas where agriculture is practiced without any soil conservation measures. Erosion has other negative impacts, such as reducing the life of dams through siltation. Although abatement programs were initiated 25 years ago by the Ministry of Forestry, DSI and GDRS, they have only been applied to 2.2 million ha area.

2 . SUSTAINABLE DEVELOPMENT PLANS AND POLICIES

Five-year Development Plans are prepared under the responsibilities of SPO, which operates under the Prime Ministry. SPO aims to bring up development targets and assist to the all related government units in process of decision making for economic, social, and natural resources development.. Sub-commissions are formed with very extensive participation from the all sectors of society. Reports prepared in these sub-commissions are put into a compatible format and then are submitted for approval of the Turkish Parliament.

The Turkish Development Plans, which have their legal foundations in the Constitution, have the characteristics of providing guidelines to the public sector and new initiatives to the private sector. Turkey has accepted the mechanism of participatory planning approach. The designation of the main targets and strategies is the concern of the government and parliament. The State Planning Organisation is responsible for carrying out technical studies concerned with these subjects. By the means of temporary and permanent special commissions of experts, formed during the preparation of plans, the opinion and wishes of the representatives of the related parties can be reflected in the development plans.

Taking into consideration the global conventions on sustainable use of natural resources and protection of environment, National Action Programmes which are needed to reach the targets determined in five-year Development Plans are put into practice considering opinions and proposals of the relevant sectors.

2.1 FIVE-YEAR DEVELOPMENT PLANS

Integration of environmental issues (*including desertification*) into development of the country is sustained through Five-Year Development Plans and Annual Programs, which are prepared by State Planning Organisation. The Seventh Five Year Development Plan for the period of 1996-2000, has 20 structural reform projects, one of which is " Preservation and Improvement of Environment ". In this context, administrative and institutional problems as well as deficiencies of legal framework and environmental management are defined in a detailed manner.

In line with the principle of sustainable development, with a due attention to human health care and natural balances, to ensure a management of natural resources that promises a better natural, physical and social environment is defined as a fundamental objective of the current plan. It is aimed that conservation of the environment will be handled as a whole in modern sense with coherent components of economic, commercial, social and political nature.

The use of economic instruments for the integration of environmental policies with economic and social policies is stressed in the Plan, while encouraging the use of an appropriate combination of instructive and incentive measures in the management of environment.

The importance of development of a mechanism in regard to undertaking work distribution and cooperation between the parties who are directly or indirectly concerned with environmental matters is

emphasized. This is considered as one of the principles of securing a balanced interface between development and environmental policies.

In the Development Plans, the amendment of all kinds of legislation, that distort the compatibility between economic development and environmental protection, and that detain and reduce the impacts of measures are claimed. The removal of controversies between legislative arrangements directly or indirectly related with the environmental issues is also stated as one of the crucial issues in terms of legal arrangements.

Long-term strategy and VIII. Five-year Development Plan was approved by General Assembly of Turkish Grand National Council on its 19th session that took place in 27 June 2000 in accordance with legislation dated 30 October 1984 and numbered 3067.

In the preparation term of Eighth-five-year Development Plan; in order to execute the country commitments and implement application measures of UNCCD; speciality commissions had been proposed for the agenda and needed measures had been included in plan. These commissions are as follows;

- Population, demography structure, migration,
- Participation of women in society,
- Agricultural politics, planning product and structural arrangements,
- Crop production
- Animal breeding
- Forestry
- Planning of state investments and efficiency in their implementation
- Water basins, usage and management (investigation of of soil and water resources policies, and Investigation of soil erosion).
- Rural development, planning needs on the rural areas and the services transported to the villages,
- Environment
- Climate change

For this purpose, 98 Special Commissions of Experts were established during the preparation of Eighth Five-Year Development Plan. More than 5000 experts participated in the process and completed their studies on various subjects. There is one main commission dealing with environmental issues in general. Concerning Turkey's national and international responsibilities, two additional Expert Commissions were established, namely Climate Change and Biotechnology and Bio-Safety. Other commissions related with environment, such as water supply, waste water, solid waste management, urban planning, and natural resources such as water and soil resources, forests, industry, are also dealt with environmental issues.

Environment

Making National Environment Action Plan up-to-date and more compatible, legal framework of UNCCD is targeted in environment sector which aims to provide economic and social improvement for human health, ecologic balance and protecting cultural, historical and esthetical values. To provide long-term solution to environmental problems, policies and strategies will be reviewed, in order to be parallel with EU norms and international standards, as well as considering the facts of the country.

Economic instruments will be used for the integration of environmental policies to economical and social policies. Sustainable use of natural resources will be encouraged; environmental risks will be minimized. The National Biodiversity Strategy and Action Plan, which was prepared for the conservation and sustainable use of biodiversity will be put into force.

There will be action plans prepared towards management and implementation of protected areas.

In order to achieve efficient combatting with desertification and land erosion, National Combatting Desertification Action Plan which will integrate forestry, agriculture, animal husbandry, settlements, industry, alternative income opportunities and the development of rural infrastructure.

Necessary legal and institutional re-arrangements are underway in order to provide sustainable use of natural resources.

Forestry

Forests are managed, protected and developed in the context of ecosystem approach that also complies with criteria of sustainable forest management, multipurpose planning and participatory approach. In this context protection of biological diversity, wildlife, water resources and social conditions; ecosystem conditions, productivity, eco-tourism, pollution, forest protection, floods, frost events, landslides, avalanches, drought, and ergonomic factors are taken into account.

It is foreseen that a number of activities for combating desertification, including reforestation in an area of 300 000 hectares, soil conservation in an area of 175 000 hectares and pasture improvement in an area of 30 000 will be carried out during NAP period; The main objective is to improve global carbon cycle; meet wood demands and; support livelihood of the rural communities.

In combating forest fires more efficiently, employment of new fire fighting teams with necessary equipment, use of water tanker, helicopter and aircraft, development of early warning systems and easy access systems, promotion of public awareness will be encouraged as well as construction of preventive roads and strips and prescription fire techniques, silviculture interventions.

Most importantly, Forest Act will be amended through taking into consideration environmental concerns, public benefit, ecosystem integrity and wildlife.

Agricultural Policies

In the framework of efficient source utilisation principle, establishment of a sustainable agricultural sector comprising economic, social and environmental aspects as well as international developments is the basic objective besides ensuring well organisation and high competition power. The major aim in this respect includes provision of sufficient and balanced nutrition for the increasing population under food security. The principles of agricultural policies shall be set up according to developments in international trade and EC Common Agricultural Policy in the transition period to full membership under obligations foreseen by the World Trade Organisation Agricultural Treaty. Participatory project planning and management shall be taken as basis in every subject related to Agricultural Sector. In natural resource utilisation, participatory project planning and management shall be adopted. Land utilisation plan shall be prepared following establishment of a soil data base, completion of cadastre studies, and establishment of a Law on land use and protection, besides provision of detailed soil surveys and land maps.

Afforestation, erosion control, pasture rehabilitation and social forest activities will be improved in order to combat the harm caused by desertification, soil erosion, flood and other natural phenomena as well as providing support to real and legal authorities for their forest maintenance activities.

Urban and Rural Infrastructure

In contrary to the developed countries, urbanisation in Turkey created urban poverty against rural poverty in the result of significant migration. It is expected that 44% of the urban population will be settled in provinces with population over one million, having 23% to be settled in Istanbul province.

Rapid migration to urban areas is expected to continue in near term. In the context of NAP, social differentiation studies shall be conducted in order to examine degradation in moral values and urban culture in the framework of national culture.

Furthermore, urban infrastructure will be improved and cultural/ touristic features of the provinces are preserved.

In construction of houses emphasis will be placed on quality for both house and the environment, and construction/environment conditions shall be ensured for healthy, secure, high quality and economic house and environments with protection of historical, natural, social and cultural values. In additions a database shall be established for housing and settlement based on Geographical Information Systems (GIS).

The Law of reconstruction shall be rearranged so as to include measures to prevent illegal housing attempts.

Rural Development

The improvement of employment, development of human sources, provision support to income generating activities for rural populations, provision support to economic activities, living standards, efficient organisation and participatory approach in every field is of great importance. Therefore;

Arrangements shall be made in order to increase the participation of non-governmental organisations in the development process.

Packaging, preservation and marketing methods will be supported with technical assistance through development of the industry based on agriculture.

The enterprising attempts in fields such as tourism, handicrafts, and livestock breeding and weaving with local potential, shall be supported in order to improve income sources of rural populations considering the decreasing unemployment.

Women

In order to reinforce the status of women, to expand their field of activity and to ensure equity in respect of opportunities; studies shall be conducted so as to increase their training level, and their participation on development process, work and decision making. In line with these objectives, rearrangements will be made on the Turkish Civil Code according to current economic and social conditions.

Combat with Poverty

Improvement in income distribution, decreasing poverty and ensuring economic equity in sharing prosperity is a fundamental underpinning of NAP. On the other hand, application of economic and social policies in harmony so as to eliminate poverty and decrease the rate of relative poverty is a major principle. Emphasis shall be placed on increasing the productivity in rural populations besides enhancement of agricultural production through professional orientation programmes and projects, and participation in this regard will be ensured in the rural areas.

Provision of social services and aids to the poor will be provided efficiently, and participation of non-governmental organisations and the private sector as well as local administrations will be encouraged so as to be active on programmes that would combat poverty.

Crop Production

Increasing production, yield, quality and exports of the crops is a fundamental principle. Wider scale adoption of certified seeds in crop production shall be ensured so as to provide yield and quality increase.

Decreasing negative impacts of agricultural production on the environment will be taken as basis. Further to precautions in this regard, wide use of inputs without threatening effects to environment will be adopted, (fertiliser, chemicals and irrigation inputs), and fertiliser/chemical subsidies will be removed in time. The production of ecological products shall be encouraged in this respect.

Animal Breeding

The major objective on animal breeding is to ensure production increase in order to provide well protein balanced and sufficient meat products for the nutritional requirement of the Turkish population. In this regard, local animal gender sources will be protected, and an animal gender bank will be established.

On the other hand, forage plantations (about 3-3.5% of the cropped land) shall be increased for high quality forage production.

In addition to development plans, environmental issues are reflected in annual programs and investment programs. In order to ensure the environmental sensitivity in all public investment projects, the preparation of Environmental Impact Assessment studies are set as a prerequisite, which sustain the compatibility between development and environmental protection.

2.2 NATIONAL AGENDA 21

Agenda 21, endorsed by the United Nations Conference on Environment and Development (known as the "Earth Summit") held in Rio de Janeiro in 1992, constitutes an unprecedented commitment by international community to an integrated framework of shared values, objectives, priorities and actions. Recognized as the most important output of the Rio Conference, Agenda 21 reflects the emerging global consensus over two decades on the concept of sustainability introduced by the 1972 Stockholm Conference, interlocking environment and development, as well as introducing a new understanding of human-centered sustainable development.

Agenda 21 also signifies "the beginning of a new global partnership for sustainable development". This approach constitutes a milestone in separating Rio from its predecessors to acknowledge that the fundamental prerequisite for achieving global sustainable development is to involve all "major groups" and ensure broad public participation, with a view towards establishing effective partnerships at all levels, and moving towards sustainable local communities.

Environmental concern is not an abstract or independent matter. It must be considered together with economic, social activities and development politics. National Agenda 21 discloses these issues and it emphasizes that all social strategy must be built on this observation. Because of these National Agenda 21 is very important.

National Agenda 21 points out important problematic areas in Turkey and it endeavours to determine the principles and approaches.

Agenda 21 emphasizes that the basic duties and the responsibilities of central government in environmental issues.

Central government will bring up appropriate strategies and if it is necessary it will bring up new plans. It will establish necessary legal and administrative framework. Agenda 21 will be accessible to the public cooperation and participation. Rio Declaration states that, "Environment issues can be considered and managed by participation of all people". Especially, participation of women and young people are more important components of Agenda 21.

Turkish National Environment Strategy and Action Plan propose concrete attempts connected with integrated environment issues with development. Turkish National Environment Strategy and Action Plan is important for National Agenda 21.

One of the major problematic areas for National Agenda 21 is the investigation of agricultural and industrial sectors for sustainable development. Moreover, problems arising from population, urbanization, and

poverty are major concern. Last, but not the least important; problems on environmental and natural resources usage, for example; soil, fresh water intrusion into coastal areas, and solid waste and hazardous wastes, are major challenges to be dealt with in near term.

National Agenda 21 acknowledges importance of interaction and solidarity. In other words, it is not a plan, but it is part of the planning system formed by NEAP. In order to complete the system, national and local/regional studies and cooperation are needed.

National Agenda 21's approach is that it aims to bring economic and social development, protect historical environment processes, together and for this, facilitates the processes of planning, management, inspection with cooperation and active participation of local authorities, society organizations and non-governmental organizations, and avoid limitations against this cooperation.

United Nations Convention on Combatting Desertification envisages a participatory approach, and in that sense; one important issue of National Agenda 21 is to examine the participation of women, children and the youth, non-governmental organizations, local authorities, unions, science and technology world and farmers, in the process of sustainable development.

It is important to consider participation of local authorities, civilian society organizations in stages of formation and application of environmental policies both for NEAP and National Agenda 21.

2.2.1 LOCAL AGENDA 21

The Local Agenda 21 process entails the building of, and reaches a consensus on, a "sustainable community" vision, encompassing long-term, mid-term and short-term goals, and the subsequent preparation of local action plans.

Local Agenda 21, pursuant to its global fountainhead, sets out to pave the way for achieving sustainable development at the local level, without being modest to pursue the target of improving the quality of life for all people. Basic commitments to respect carrying capacity of ecosystems and preservation of opportunities for future generations, coupled with the endorsed mechanism of consensus-building via broad-based participation manifest that Local Agenda 21 is not only far-reaching and comprehensive, but also and essentially is a collective project.

Local Agenda 21 cannot be regarded as a local program or project, which, albeit important, is one amongst the elongated list of other ongoing activities. On the contrary, Local Agenda 21 should be conceived as the mainstream process, perforating and embracing all aspects of local governance, and all activities of the local government and local stakeholders.

In this context, taking into consideration the global and local implications of Local Agenda 21 and its comprehensive mandate, would there still be enough room for manoeuvre for the Habitat Agenda, with its arguably "narrower" focus on human settlements, yet equally strong emphasis on local-level action?

Subsequent to the launching of the Local Agenda 21 mandate in 1992, local authorities from all over the world have taken concrete steps toward the development of their own local action plans. In Turkey, on the other hand, despite the growing interest and concern on this issues, Local Agenda 21 remained restricted with selected components of the process rather than its totality, and as importantly, suffered from bottlenecks in terms of the crucial process of community participation and decentralized local decision-making practices.

IULA-EMME- International Union of Local Authorities, Section for the Eastern Mediterranean and Middle East Region, in collaboration with the Metropolitan Municipality of Bursa and with the assistance of the International Council for Local Environmental Initiatives (ICLEI), has launched a project entitled "Promotion and Development of Local Agenda (s) 21 in Turkey", encompassing a significant number of pilot cities of varying sizes from all over the country to conduct their respective Local Agenda 21 processes.

In this context, the project seeks to pave the way, particularly for NGOs, including voluntary associations, foundations, grass-roots organizations, professional chambers, trade unions, businesses, academic institutions and other local actors to develop partnerships with local authorities.

Particular emphasis is being placed in the project on policies and practices geared toward promoting the active involvement of women in urban life and incorporating gender issues in the local planning and decision-making processes, as well as providing augmented opportunities for the youth, the elderly, the children, and the disabled.

2.3 TURKEY NATIONAL ENVIRONMENTAL ACTION PLAN

In 1982, the amended Turkish Constitution stated that each (citizen) has a right to live in a healthy and balanced environment and it is the duty of both the State and citizens to upgrade the environment, protect environmental health and prevent pollution.

Since then, much has been done to achieve these goals. An Environment Act was passed in 1983, regulations were created, and special funds were introduced for environmental protection. Also, a Ministry of Environment and an Environment Commission in the Turkish Grand National Assembly (TBMM) were created, environmental responsibilities were delegated to central agencies and local governments, and environmental concerns were incorporated in development plans. Three Environment Council meetings were held, National Agenda 21 activities were carried out. Programs were launched to build public awareness about environmental issues, an approach to create sustainable development was adopted in the Sixth Five-Year Plan, and active environmental organizations emerged.

Thus, a different approach was needed to prevent pollution and solve environmental problems, such as is embodied in the National Environmental Action Plan (NEAP), which was created after extensive deliberations among experts and stakeholders.

The document was prepared by separate groups of experts and stakeholders, meeting in two stages. The process was guided by an Executive Committee of representatives from the State Planning Organization (SPO), the Ministry of Environment and the World Bank (WB). A Steering Committee plus stakeholder representatives handled organizational issues and logistics.

Between the June and November conferences, a smaller group of stakeholders grouped the 1,290 recommendations presented in the working groups' reports to 150 actions. Another group of stakeholders subsequently ranked these actions according to whether they contributed to: (a) human health; (b) ecological balance; (c) cultural, historical and aesthetic value; or (d) economic productivity.

The groups' papers and the synthesis document should be jointly considered as the National Environmental Action Plan (NEAP). The NEAP is reviewed by the Executive Committee and the final version will be used in a conference to mobilize local and international resources for its implementation. Because of the broad participation and lengthy discussions, the stakeholders developed a sense of ownership for the document, which is the first and most critical step for implementation.

3. INSTITUTIONAL MECHANISMS AND STRUCTURE TO IMPLEMENT THE CONVENTION

Responsibilities and functions of ministries and organizations involved with implementation of the UNCCD in Turkey are described below. This section also describes mission and aims of local authorities, private sector, and NGOs as regard to their role in implementation of the UNCCD in the country.

3.1 GOVERNMENT AGENCIES

3.1.1 The State Planning Organization (SPO)

SPO is responsible for developing economic, social and environmental policies for the 5-year development plans; and prepares annual programs and public investment programs. It approves all public investment projects as well as those proposed by municipalities for financing by either domestic or foreign resources. One of its units, the Local Authorities, Environment and Technological Research Department, formulates environmental policy recommendations for the 5-year plan, evaluates MOE's investment projects and programs, and prepares annual environment programs. However, the SPO does not evaluate sectoral investments for their compliance on environmental policy. Higher Council for Planning (HCP) chaired by the Prime Minister, is responsible for decision making on macroeconomic and social policies and evaluation and allocation of resources for large-scale investment projects.

The State Planning Organization (SPO) is also responsible for the preparation of 5- year development plans and yearly implementation programs for public sector investment.

3.1.2 The Ministry of Environment (MOE)

MOE was established by Government Decree no. 443 in 1991, which empowers it to conduct activities to protect and improve the environment. These activities involve ensuring appropriate land use, protecting natural resources, plants and animal species, and preventing pollution. Its duties include drafting laws, preparing rules and internal regulations, creating institutions (such as village environment associations and commissions to manage waste), supervising and planning environmental designs, interventions and actions as appropriate, managing watershed water quality and regional waste, creating environmental policies and strategies, coordinating environmental activities at international and national levels, conducting research, applying measurements, monitoring compliance, collecting data, managing finances, and carrying out extension and training. The MOE has special consultative organs at three levels to ensure the participation of people in line with the requirements of environmental protection and development activities: The Environment Council (ENC), the Higher Council for the Environment (HCE), and Local Environment Committees (LECs). At the provincial level, there are "Provincial Directorates of Environment" which, as of 1999, were organized in 35 provinces. The National Assembly is considering proposals to reorganize the MOE's structure to improve efficiency; the draft reorganization of MOE includes establishing a Sustainable Development Council, increasing public participation, allowing for more flexible hiring of experts, and improving salaries to attract more qualified personnel.

Some of the plans that were prepared in coordination with MOE and the related ministries as follows:

- Regional Master plans. Introduced in the 1960s, these Master plans are expected to guide land use and settlement decisions, especially with regard to housing, industry, agriculture, tourism, and transport. In general, they are developed and approved by the Ministry of Public Works and Settlements (MPWS).
- Urban development plans. Two types are required for all municipalities: (a) structure plans, which are 1/5,000 scale maps along with detailed reports indicating patterns of land use, types of zones, projected population densities, building densities, growth directions, magnitudes of settlement zones, and transport systems; and (b) implementation plans, which are 1/1,000 scale maps that indicate buildings in various zones, their densities and order, roads, and stages for providing urban services. The plans can be designed by municipalities or assigned to the Bank of Provinces or private firms; they become effective after city councils approve them;
- Other plans. Various other plans are produced by 22 agencies and organizations under various laws. These include: (a) regional development plans (prepared by the SPO or assigned to others); (b) forest management plans (prepared by the General Directorate of Forestry); (c) *Long-term Development* and *Local Development* plans prepared by the General Directorate of National Parks,

Game and Wildlife to manage national parks; (d) sectoral master plans, to direct sectoral activities such as tourism, transportation and energy; (e) master plans and management plans for specially protected areas; and (f) forest village development plans prepared and implemented scale by the General Directorate of Forest-Village Relations.

Given the magnitude of environmental problems, national institutions were created to identify, improve, coordinate, monitor and supervise activities, as well as procure resources. The first one of those, was a Permanent Board of Consultants for Environmental Problems, in the early 1970s. Then, in 1978, an Environment Organization was attached to the Prime Minister's office, as was a General Directorate of Environment in 1984, which was transformed into the Undersecretariat of Environment in 1989.

3.1.3 Ministry of Forestry (MOF),

No activities were carried out in Turkey regarding erosion control until 1952. A working group consisted of forest engineers and defined by FAO and Forestry Organization regarding rehabilitation of rivers and combating with erosion realized the importance of the subject. Today, these activities are carried out by Reforestation and Erosion Control Chief Engineering belonging to General Directorate of Reforestation and Erosion Control in Ministry of Forestry.

Ministry of Forestry (MOF) laws have been made by various institutions in order to bring solutions to erosion, flood and station and activities. Activities of Ministry of Forestry regarding erosion have been explained in 58th article of the Forest Law Numbered as 6831. It states that:

"All kinds of forestation and precautions that will prevent floods, landslides, soil corrosion and erosion and will rehabilitate rivers and their sources within the borders of national forests are to be done by Ministry of Forestry. But the railway or the roads that will be constructed or maintained within the borders of State Forests are done by related institutions after notifying to the Ministry of Forestry".

On the other hand, there are articles in the Law regarding MOF numbered as 3800 and issues in 1992 regarding to make necessary forestation in the places within the borders of forests and in the places that will be included in the forestry regime and to prevent erosion, which gives responsibility to MOF.

In 1995, National Forestation and Erosion Control Mobilization Law was issued which aims to speed up the forestation and erosion activities and defines where and how the finance needed for these activities can be found.

As it is understood from these laws, prevention of erosion in forests and in the areas that will be taken into forestry regime is under the responsibility of MOF.

The General Directorates of Forestry, General Directorate of National Parks, Game and Wild Life, General Directorate of Forests and Rural Relations, General Directorate of Afforestation and Erosion Control and research institutes under Ministry of Forestry are responsible for the conservation programs conducted in forest areas.

All the activities of Ministry of Forestry as the end of 1997 regarding erosion control, reforestation and rangeland rehabilitation are given in this table:

Activity	Unit	Quantity
Erosion Control	ha.	309776
Forestation	ha.	1669459
Artificial Regeneration	ha.	562662*
Range Rehabilitation	ha.	75141

* As at the end of 1996

Erosion Control: The soil conservation activities that have been carried out for prevention of soil within a river catchment to be carried by water, wind and other factors.

Forestation Activities: Industrial plantations carried out for meeting the demand for wood raw material.

Artificial Regeneration: Plantation activities in order to rehabilitate the degraded forest land.

Range rehabilitation: Activities carried out to strengthen the fodder potential, to get the maximum yield from the range land and also to prevent the erosion in the range lands.

3.1.4 Ministry of Agriculture and Rural Affairs (MARA)

The activities carried out by MARA to combat desertification are:

- Zero tillage, proper seed bed preparation and contour ploughing in sloped lands;
- preventing the burning the post-harvest mulches;
- using environment-protective models during the arrangement and rehabilitation of - grasslands and making seasonal arrangements, where possible;
- conserving biodiversity;
- minimizing chemical use, promoting new techniques that environment help sustainability while protecting and encouraging organic agriculture;
- forming wind-breaker structures;
- for the prevention of soil erosion at river basins, carrying out methods such as introduction of plants, mechanical protection and rehabilitation of the basins;
- rehabilitation and restoration of salinated lands;
- improving the drainage conditions, applying proper and efficient watering methods;
- monitoring of all agricultural activities by using Geographical Information Systems (GIS)
- directing the agricultural distribution activities to the local know-how;
- carrying out rural development projects

The 4342 numbered Grazeland Law were put in force in 28.02.98. Shortly after that, Grazeland Regulations, which explains the application of the related law, and Grazeland Fund Regulations, which explain the use of Grazeland Fund, were prepared in collaboration with other related institutions and ministries by the Ministry of Environment. These were put into force on 31.07.98 by being published in the Official Gazette. Currently, with the implementation of Grazeland Law, grazelands and grasslands, which have a great deal of importance from the prevention of soil erosion point of view, are protected and rehabilitated. As grazeland vegetation is very important in protecting the land, it is believed that it will be beneficial to inform the public about the Law and gain community support in its implementation, for the Turkish livestock trade and environment. Projects in this line are at planning stages.

Ministry of Agriculture and Rural Affairs also encourages Ecological Agriculture, which promotes none-use of chemicals in agricultural production and optimum biodiversity conservation. MARA has prepared a "Regulation for the Use of Ecological Production Methods for Plant and Animal Products" and this regulation has come to force at 18.12.94, the date of its publication in the Official Gazette. Ecological agriculture is encouraged as an alternative mean of agriculture that would help in combat desertification.

Even though it is necessary to carry out rangelands rehabilitation and erosion control activities in these areas, farmers always oppose these kind of activities. The main reason for this resistance is that; Government has right of managing these areas. Even the villagers who have no user rights they resist to these activities as they think that government will take over their land.

As a result of organized animal husbandry activities, there has been less resistance from the villagers. As a result, socio-economic problems are the main constraints in erosion control activities. Involving representatives from all the above stated institutions, the Steering Committee, does not constitute a new institution, it rather coordinates them.

Attempts are underway to provide the unit with a juridical personality according to the Turkish Law.

3.1.5 General Directorate of Rural Services (GDRS)

The General Directorate is an institution bringing roads and potable waters to the settlement units at the rural areas, reconstructing the rural settlement units, rendering the protection, development and effective utilisation of the soil and water resources, and realising and executing the necessary investigations, surveys, services and investments to be brought to the service of the farmers.

The duties directly relevant to combatting desertification of The General Directorate of Rural Services are as follows:

- In accordance with the principles and policies dictated within the development plans and programs, to render the effective usage, protection and the development of the soil and water resources,
- To realise arrangements for providing means of settlement for the refugees, migrants and for those whose lands have been expropriated, both within and outside the agricultural areas,
- To provide credits to the farmers for the purpose of developing the soil and water resources and to prepare technical aid projects,
- To provide the services related to the construction of facilities such as ponds, pumping stations, reservoirs and channels for the purpose of supplying water for irrigation and potable water for animals, and to provide soil protection services,
- To realise the collection of lands, to render in-field development services and to construct individual drainage systems,
- To realise the research activities regarding the development of the soil and water resources.

Within the scope of the Law No. 3202, the Rural Services General Directorate, which has carried out the above mentioned duties within the framework of combating with desertification, has provided for the conservation of agricultural areas by means of a directive (Directive on Utilisation of Agricultural Lands for Non-Agricultural Purposes), published in the Official Journal No. 23445, dated 26 August 1998. Allocation of all types of land except those within the scope of urban development master plans, local development master plans and their annexes, and within the scope of special codes to activities pertaining non-agricultural purposes, is subject to the permission of the Rural Services General Directorate. In deciding whether a land is non-agricultural or not, its class and utilisation manner are taken as basis. The class and utilisation manners are determined as a result of the assessment of soil studies carried out by the Rural Services General Directorate.

The Rural Services General Directorate, finalising 1500 research projects carried out at different localities in Turkey until today, is continuing its research and activities covering its duties and responsibilities according to the Master Plan put into effect in 1995. According to the Land and Water Resources Investigation Master Plan, the job description of which has been specified as *"to support and work for economical and sustainable agricultural usage of the land and water resources of Turkey by carrying out researches, which are of international standards and the scopes of which are well defined"*, the targets – which are also within the scope of Combat with Desertification – of the current researches and the researches planned to be conducted in the future are as follows:

- To reducing the risks of land and water investments by defining the factors that may be effective in achieving the expected benefit and that have an impact upon the characteristics of a region;

- To ensure a long term agricultural activity with high yield by conserving the land and water resources of a region;
- To reduce ageing and saltiness risks in the lands newly opened to irrigation and to provide for the improvement of the existing damaged lands, by taking appropriate measures;
- To support the realisation of yield potential of agriculture by optimising plant nutrients status of our agricultural lands;
- To determine the long term effects of land management practices and to reduce the risks that such effects may create in environmental and land quality and agricultural production;
- To ensure good quality of our land and water resources in the long term by implementing the requirements of sustainable land management in agricultural development;
- In preparation, implementation, operation and management of land and water research and development stages of projects, to support the adoption of such projects by identifying the methods that will ensure the participation of the users.

In the 7th 5-Year Development Plan, the Rural Services General Directorate has been assigned the task of preparing a "Land Code" that will act as a framework, in order to eliminate the existing institutional and legislative inaccuracies in allocation, conservation, classification and planning for production of land and to encourage rational land usage and conservation. The prepared "Draft Law on Land Usage and Conservation" by the Rural Services General Directorate, formed in compliance with the opinions of 27 official and non-governmental institutions, has been submitted to the Office of The Prime Minister in order to be put into force.

3.1.6 General Directorate of State Hydraulic Works (DSI)

General Directorate of State Hydraulic Works having a supplementary budget and juridical personality is established in 1953 with the law number of 6200 under the Ministry of Public Works for the purposes of multiple utilization of ground and surface waters and prevention of damages caused by them. DSI conducts its duties and responsibilities under The Ministry of Natural Resources and Energy today.

Some duties and authorities of the General Directorate of State Hydraulic Works directly relevant to desertification and drought are as follows:

- a) to control erosion and sediment in river beds and the upstream of dam reservoirs
- b) to build protective works against floods and torrents
- c) to build irrigation systems; to make or have made maps and plans showing the whole or parts of the existing plots and, to have the cadastre prepared
- d) to examine, approve and supervise the water supply and sewage designs for cities and towns. To provide the technical organization and supervision for water supply projects of villages, and to train personal by giving them the necessary knowledge for working on these projects under the Directors of Public Works
- e) to improve streams and make navigable those which are deemed necessary
- f) to provide for the management of the projects stated in the above paragraphs (including operation, maintenance and repair)

In the projects stated in the above paragraphs, the main goal here is to make observations, conduct experiments, compile statistics, conduct research, make various kinds of surveys, establish the type and character of soils,

determine kinds of crops to be raised, and evaluate the agricultural and economic benefits to be derived and the degree of productivity to be obtained.

As understood from the above mentioned responsibilities, although combating with erosion is not a main duty of DSI given by its foundation law, it became necessary to take measures against erosion in the upstream of the river basins as a result of sedimentation problems occurred in the reservoirs and DSI started necessary investigation and implementation works related to erosion control in 1958, after completing the essential organizational arrangements. Within the frameworks of those works, it is aimed to protect residents, buildings of DSI and other governmental organizations, and agricultural land. Additionally, DSI works in cooperation with the Ministry of Forest and The General Directorate of Rural Services, the institutions that make detailed studies on erosion control. In addition to these, with the enactment of the "National Afforestation and Erosion Control Law" in July 27, 1995 and its related regulation in September 27, 1996; in government-owned forests and lands, near lake and river banks, in privately-owned lands, principles of afforestation and erosion control works, to be done by governmental and private organizations, related to improvement of forest areas, to reform the deteriorated balance between earth, water and plant, and to conserve environmental values, were arranged. With this law and its related regulation, DSI has been given the responsibility to do or to make done the afforestation and erosion control studies within the territory of dam drainage basins, and in the areas owned by DSI or given permission to be used by DSI. For this purpose, in accordance with the above mention law and regulation, %2 of dam budget is spent for erosion control works.

By the end of 1998, with the aim of erosion and sediment control DSI has investigated about 50 000 km² eroded land. 181 projects have been completed and 206 projects are still continuing.

DSI has been carried out some structural and land treatment measures, which are as follows:

- construct check dams in the gullies to prevent further cutting,
- construct soil saving dams at such intervals of such heights to fill up and restore themselves,
- construct cross-check in channel to prevent bed erosion,
- construct training walls

(the following treatments are carried out with the cooperation of forest service)

- planting the eroded area to some form of vegetation,
- cover planted area with mulch, brush, or other suitable material to hold the loose soil in place, and help to keep soil moist,
- construct a system of terraces having protected outlet and drops,
- afforestation with terraces on devastated hillside

DSI also makes suggestions to help farmers and countryman to apply contour farming, contour ploughing, strip cropping, rotations, range improvement measures, range seeding, proper use, deferred grazing.

3.1.7 General Directorate of State Meteorological Service (GDSMS)

GDSMS was founded in 1937 with reference to Article 3127 under the Prime Ministry. Major responsibilities of GDSMS are;

- a. to establish meteorological stations and facilities in order to provide efficient and on time meteorological services to public,
- b. to prepare weather forecasting and make meteorological observations,
- c. to provide meteorological support to various sectors, including agriculture, transportation, energy, environment, and health,
- d. to broadcast meteorological forecasting and exchange data and services at local and international levels,
- e. research and planning in meteorology and archive climatic and meteorological data,

- f. to represent Turkey at international level on subjects related to meteorology.

The GDSMS is member of various international organizations in the field of meteorology and is represented in their official bodies and commissions. At present the GDMS runs nearly 500 stations across the country that provide daily meteorological observations. About one fifth of those stations record synoptic observations. The GDSMS also operates weather stations at 30 airports around the country and 23 of those equipped with automated weather observation systems. Meanwhile, the GDMS runs 7 radiosonde stations which provide upper atmospheric observations. Turkish State Meteorological Service has been upgrading its technological infrastructure and capacity to make best use of the more up-to-date technologies that are needed to improve operational aspects of for modern weather centers. New workstations for numerical weather prediction developments have been in operation since 1998; telecommunication system has been improved considerably to meet the demands in the field; a Doppler radar is about to be installed in a location nearby Ankara, and additional five more radars and also a network of automated weather stations through TEFER project, which is financed by the World Bank ,are scheduled to be operational in the coming years. In addition, there have been efforts to establish HRPT data receiving station (High Resolution Picture Transmission) and SADIS (Satellite Distribution Systems) at Turkish State Meteorological Service. Two Unix-operated stations equipped with Silicon Graphics enable access to various ECMWF meteorological products. Activities at GDSMS with regard to implementation of the UNCCD can be categorized as below:

- Drought analysis and prediction
- Determining desertification-prone areas of Turkey from climatic perspective
- Use of satellite technology for determining and monitoring areas vulnerable to desertification
- Planning drought contingency programs and improve early warning capabilities for drought forecasting

3.2 LOCAL GOVERNMENTS

Municipalities produce infrastructure and services for protecting and managing the environment. They are legally responsible for managing solid waste, installing and operating water, gas, and etc.

Local authorities are democratic governmental organizations established outside the central administration to carry out local public services. There are three types of local authorities in Turkey:

Special Provincial Administrations: Special Provincial Administrations are field administrations established to carry out tasks in the regions beyond municipal boundaries, within their respective provinces. Reference law of the special provincial administration is the "Special Provincial Administrations Act". This law was first issued as a temporary law in 1913, and took its current name by the Law no. 3360 accepted in 1987. Duties of Special Provincial Organisations:

- Duties concerning health and social aid,
- Duties concerning public works,
- Duties concerning culture and education,
- Duties concerning agriculture; to found model farms and nurseries, to vaccinate wild trees, to open storage for the vehicles of agriculture in order to rent to the farmers, to find storage for breeding animals, provide bulls, and rams for poor villagers, arrange exhibitions and horse races, improve the pastures for the development of stock-breeding, and to build new pastures.
- Duties concerning economy.

Municipalities: Municipalities are a form of local authority established to function in areas with dense population. It is possible to establish municipalities in the settlements of more than 2.000 inhabitants according to the Law. Reference law of the municipalities is the Municipalities Act of 1924 (No. 1580). Duties of Municipality:

- Duties concerning health and social aid,
- Duties concerning public works,
- Duties concerning culture and education,
- Duties concerning agriculture; renaming of the streets and municipal areas according to the plan and program, implanting trees, constructing green fields, nurseries and parks for children, establishing, animal breeding and plant gardens and running them, advising the government on measures to be taken in struggling against the contagious and infectious animal diseases, regulation of meat production places, control of health conditions and cleanliness of animal bazaars and sheds, construction of refrigerated warehouses.

- Duties concerning welfare,

Villages: Villages are traditional settlements where municipal administration hasn't been founded. Reference law for the villages is the Village Act of 1924 (No. 442). The power to establish a village belongs to the Ministry of the Interior. The Village Act divides duties of village into two groups: "compulsory duties" and "discretionary duties". Compulsory duties are services mainly concerning health, cleanliness, road, water and school works. Discretionary duties are services such as building of public baths, laundries, bazaars and marketplaces.

Draft of a law relevant to local authorities has been prepared by Ministry of Interior. Also local authorities awareness will be achieved and the studies will be started at local level on desertification. And it will be included in NAP.

3.3 PRIVATE SECTOR

The private sector is a key environmental actor as its enterprises, generally perform better than parastatals, treating almost twice as much of their wastewater and spending less than half as much for final disposal. Parastatals generate more than half the industrial solid waste, and industrial discharges of Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD). This implies that accelerated privatization of state enterprises, combined with appropriate environmental safeguards and requirements, could reduce industrial pollution. However, some arboretum or botanical gardens established or supported by private sector are good examples to show their potential contribution on *ex situ* conservation. The limited financial supports from certain private companies to some NGOs can be considered as their indirect contribution to the environment and nature issues.

3.4 NON-GOVERNMENTAL ORGANISATIONS

A recently prepared "Guide to Non-Governmental Organizations," based on a sample of 1.793 NGOs identified by the Economic and Social History Foundation of Turkey, states that out of a total of 60.000 voluntary organizations, associations and foundations, only 7% are active in environmental issues. Most are in major cities: 39% in Istanbul, 25% in Ankara and 11% in Izmir. Environmental NGOs have been particularly successful in raising and addressing issues about coastal zone management, protection of endangered species, erosion, mining, and nuclear energy. Although numerous, the effect to these organizations in helping to improve the environment has been limited. Problems involve relations with the Government, inter-organizational solidarity, mobilization of and relations with members, management structures and procedures, remedial approaches and solutions, relations with the media, finances, technical equipment, and self-assurance.

4. IMPLEMENTATION OF THE CONVENTION TO COMBAT DESERTIFICATION

The United Nations Convention to Combat Desertification was signed in 1994 in Paris by Ministry of Environment on behalf of Turkish Government, and it was ratified on 11th of February 1998 by Turkish Grand National Assembly.

Desertification, being related to important concepts like land, water, climate, forestry, agriculture, migration, education, poverty, health and natural stability, requires an interdisciplinary approach. As desertification lies under the authoritative power of several institutions, problems arise in coordination and harmonization.

In accordance with the context of The Convention, National Coordination Body (NCB) has been established in May 2000. The NCB, is composed of technical and administrative staff from various institutions that are involved directly in the fields of desertification and drought. These institutions are MOE, MOF, Ministry of Agriculture and Rural Affairs (MARA), General Directorate of Rural Services (GNRS), General Directorate State Hydraulics Works (GDSHW) and General Directorate of State Meteorological Services (GDSMS) for the time being. Additional institutions might take part in this unit in the future. The body is aimed to promote and coordinate required actions for the implementation of the UNCCD in Turkey. NCB initially identified priority issues as preparation of a regulation to implement the convention and finalization of the NAP.

The NCB will continue its activities, which are specified and underlined due to importance by the Convention, for the implementation at the national level by forming sub-committees. Sub-committees will involve representatives from NGOs, universities, other related ministries, research institutes and where necessary from the local public. Thus, a platform of more participants, less decision-makers will be achieved. If and when necessary, all people related, from different disciplines and with varying expertise, could contribute and participate in the sub-committees.

Although the government does not have a gender-balance policy, this will be an important consideration for the forthcoming projects. For example, for the National Coordination Body selection gender balance had been a criteria and the same will apply for the sub-committees.

The institutions participating in the NCB communicate through regular meetings, official letters, fax, e-mail and telephone network. The NCB regularly meets monthly, unless otherwise needed due to importance of issues. The NCB is focused on the harmonization of all ideas, as each institution is reflecting their own policies and strategies.

As part of NAP, indicators for level of desertification in Turkey will be identified and prior studies will be investigated. Climate, soil erosion, drought, changes in flora, and socio-economical indicators are among these.

NAP will be a sanction in enforcing the realization of the principles of UNCCD. This study will also be supportive in the integration of these principles into the national policy

The studies carried out before the ratification of the Convention mostly cover the goals of the convention. Projects that started after the ratification, however, set their goals according to the convention criteria and will be reflected in plans and strategies at national level. The projects will be meeting the convention requirements, should they fulfil the goals stated in the NAP.

During the planning and the implementation stages of National Action Programme (NAP), coordination and harmonization attempts related to land corruption issues will be reviewed, the data will be organized and the whole set of information will be put into use when new goals are to be set. Implementing parties have collaborated in several projects even prior to the ratification of the Convention. In the context of NAP, the legal, institutional, financial and socio-economical problems faced during combat desertification and minimizing drought effects activities will be determined. The existing legal framework will be reviewed and where necessary, legal and institutional re-arrangements will be made.

During the preparation of NAP, drafts and samples of NAPs from other countries were shared and have been used as references. Furthermore, Turkey, being a member state of Regional Implementation Annex covering the North Mediterranean Countries (RIANMC), has been participating in Regional Action Programme (RAP) studies

and the meetings with the other RIANMC. As an example to Sub-Regional Action Programme, the protocol for collaboration in environmental issues with Greece can be mentioned. With these countries the communication is kept alive through fax, e-mail and official letters.

Similarities in physiographical, climatological and social problem area calling for cooperation in coordinating the National Action Programs as well as the formulation of common position for the Regional Action Plan for the Northern Mediterranean where both countries will cooperate along with Italy, France, Spain and Portugal.

At the "Tourism, Environment and Trade" Committee Meeting with Greece, drought and desertification combat areas are selected as the most appropriate areas for environmental protection collaboration. There has been a meeting regarding the national action plans and following that a "terms of reference" has been formed.

Under this title, the Annex IV of UNCCD, some of the RIANM Countries, namely Italy, Spain, Portugal and Greece are working in cooperation and are a good example for sub-regional collaboration. Turkey and Greece, are already cooperating in the framework of Annex IV of the United Nations Convention. They are attending the international meeting and they are at the final stages of the formulation of their National Action Plans.

5. FINANCIAL MECHANISM

The NCB, does not possess a separate financial structure of its own; therefore it does not have a budget. Participant institutions provide the required financial support with respect to their legal frameworks till it will have own special budget.. Furthermore, the implementing institutions provide additional financial support from their own budgets in subjects like land rehabilitation, afforestation, public awareness and combat desertification.

The project supported by UNDP can be an example to internationally supported projects. The purpose of this programme is to co-operate with the Government of Turkey for the integration of environmental concerns in development policies/programmes/plans in to cross-sectoral areas: sustainable energy and atmospheric protection and combating desertification, which are the two of the priority action areas identified in Turkey's National Environmental Action Plan (NEAP) and in line with Turkey's National follow-up commitments within the framework of the regional and international agreements. The programme is designed in two subsequent phases. Phase I will aim for setting up the coordination mechanisms for (i) mobilizing further interest and support among relevant national stakeholders for programme activities, (ii) formulation/implementation of pre-selected sub-projects; (iii) resource mobilization for Phase II.

UNDP umbrella project were approved by relevant Ministries, Institutions and SPO. Now, this project has been presented to Ministry of Foreign Affairs' opinion. After this process, the implementation will be started. The approximate cost estimated for the project is 1.927.000 US Dollars, of which 200.000 \$ will be covered by UNDP and 1.527.000 \$ by United Nations Energy Conservation Fund. The remaining 200.000 \$ is expected from Turkey.

6. REVIEW OF THE BENCHMARK AND INDICATORS

Monitoring and assessment of desertification process are done through various mechanisms established by the concerning agencies and organizations

GDRS has made soil surveys and mapping studies, statistics inventory and soil analysis for irrigation, soil conservation and fertilizer purposes.

To obtain information about soil property The first studies was initiated in 1960's by making reconnaissance soil surveys. The field works were completed in 1971 by TOPRAKSU which is the predecessor of GDRS. During the surveying genetic soil groups, soil depths, land slopes, rockiness and stoniness, wetness, soil salinity and alkalinity, land cover types and land use, degree and variety of erosion alluvial and colluvial origins,

land capability classes and the other properties of land were determined to prepare a general soil management plan, land use and especially to combat soil erosion.

For this purpose 1/25000 scale topographic maps were used. After reconnaissance surveying soil maps were prepared based on provincial and for basins. The maps for provincial and basins were printed in 1/100000 and 1/200000 scale respectively.

After completion of Turkey soil maps, erosion maps were prepared, the information of erosion map was compiled from provincial soil maps. The main purpose of soil map were to prove the danger of erosion, to show and to start the general erosion control measures. The soil map of Turkey was revised in 1980's by GDRS

For the continued usage of our natural resources, it is necessary to constitute a database by using the present data. This situation necessitates the use of advanced technologies such as the geographical information systems and remote sensing in the storage and processing of the data and for putting them into service cheaply and at the necessary speed. In parallel with this understanding, the soil and water resources national information centre has been established in the year 1999. The geographical data that are collected and produced shall be presented to the service of the users under different circumstances.

At present various climatic and environmental indices are used in assessment of drought and desertification in Turkey by the GDSMS. The climatic indices are aimed to determine and monitor dry and wet spells in spatial and temporal terms and determine desertification vulnerability. The major climatic indices used:

a. Standardized Precipitation Index (SPI): Standardized Precipitation Index (SPI) quantifies the precipitation deficit for multiple time scales, which reflect the impact of precipitation deficiency on the availability of the different water suppliers.

b. Palmer Drought Severity Index (PDSI): The PDSI is a meteorological drought index and responds to weather conditions that have been abnormally dry or abnormally wet. When conditions change from dry to normal or wet, for example, the drought measured by the PDSI ends without taking into account streamflow, lake and reservoir levels, and other longer-term hydrologic impacts. The PDSI is calculated based on precipitation and temperature data, as well as the local Available Water Content (AWC) of the soil.

c. Water-Balance Method (Potential Evapotranspiration/Precipitation): It is used as desertification index, which is based on the ratio between potential evapotranspiration and precipitation. The index quantifies precipitation deficiency to determine desertification-prone areas.

Environmental Indices: to identify the areas where vegetation-cover change and land degradation, occur and monitor the desertification process in the degraded lands of Turkey. The major environmental indices include;

a. Natural Vegetation Difference Index (NDVI): NDVI provides a crude estimate of vegetation health and a means of monitoring changes in vegetation over time. The spectral bands used currently for vegetation monitoring are the Channel 1 visible band (0.58 to 0.68 micrometers) and Channel 2 in the near infrared band (0.725 to 1.0 micrometers). Various mathematical combinations of Channel 1 and 2 data have been found to be sensitive indicators of the presence of green vegetation and are referred to as vegetation indices. Difference in the Channel 2 and Channel 1 data values (which are proportional to the reflectance of the scene viewed) computed as $Ch2 - Ch1$, is a measure of the degree to which the scene viewed includes green vegetation.