REPUBLIC OF TURKEY
MINISTRY OF FORESTRY AND WATER AFFAIRS
GENERAL DIRECTORATE OF COMBATING
DESERTIFICATION AND EROSION

COMBATING DESERTIFICATION AND EROSION ACTIVITIES IN TURKEY

Forest and Water are Life.

Malatya - Pütürge

INTRODUCTION

The desertification is described as the land degradation occurring as a result of climate change and human activities in arid, semi-arid and semi-humid areas. In today's world, climate change, desertification, land degradation and drought are amongst the most critical issues as they affect over 4 billion hectares of land in more than 164 countries, and directly impact approximately 1.5 billion people. These hazards threaten not only the environment, but also economy, security, development, food security and social life in Turkey as well as around the globe.

The Middle Eastern region, where Turkey is located, comprises subhumid, semi-arid, arid, and extremely arid climates. In addition, Turkey is particularly vulnerable to desertification and drought as it'd been home to various civilizations throughout centuries.

The drivers of desertification are multi-faceted and intricate. Moreover, the lack of education or information, as well as socio-economic and political factors exacerbate the impacts of desertification. Therefore, a consistent and coordinated policy in combating desertification is essential in order to identify the drivers of desertification and their interrelations.

The "General Directorate of Combating Desertification and Erosion" (ÇEM) was established in 2011 with the mission to formulate policies, strategies, plans and projects, and to build coordination and cooperation between concerned institutions and organizations regarding soil conservation, natural resources improvement, combating desertification and erosion, and avalanche, landslide and flood control activities. It is also the first General Directorate worldwide that carries this title.

ÇEM General Directorate has been established in line with Turkey's vision for 2023 and beyond, as a structure aiming to find solutions not only for Turkey's problems but also for regional and international problems.

Turkey assumes its responsibilities in achieving the UN Sustainable Development Goals target 15.3 to strive for a "Land Degradation Neutral World by 2030". Within this context, the "Land Degradation Neutrality (LDN) National Report of Turkey" was drafted drawing from our experiences, and in co-operation with concerned institutions and organisations. This report presents not only a significant step in setting Turkey's national LDN targets, but also an exemplary model to other countries willing to set their targets.

The only effective way to overcome these environmental threats humanity faces today, is for the countries to cooperate efficiently and to act united against a common problem.

With this in mind, Turkey hosted the 12th Conference of Parties to the United Nations Convention to Combat Desertification (UNCCD COP 12) between the dates of 12-23 October 2015 in Ankara. Correspondingly, we assumed presidency of the conference for a two-year period.

With the "Ankara Initiative (2016-2019)" that we launched during our COP12 Presidency with a view to support the implementation of the Convention and to enhance Turkey's involvement therein, we aim to render our efforts more efficient, sustainable, and collaborative, as well as accelerating the Land Degradation Neutrality process by benefitting from other countries' experiences.

We carry out joint projects with less developed and developing countries that we share a common inheritance with, in order to attain the Sustainable Development Goals target 15.3 to "combat desertification and strive to achieve a Land Degradation Neutral World by 2030", and to share our vast knowledge and experiences.

Desertification and land degradation are the decline and loss of land productivity due to various factors, especially climate change and human activities. Desertification brings significant socio-economic problems as well as the emerging environmental problems. As a result of land degradation, people depending on land experience a turnaround and often have to migrate. For this reason, desertification and land degradation are a serious problem or risk factor for development and prosperity. Measures to be taken against desertification require a chain of responsibility extending from the local to the globe.

One of the major drivers of desertification is "erosion". While human factors are the leading drivers of erosion in Turkey; the geographical position, topography and climate exacerbate erosion and obstruct control activities. Afforestation, erosion control, degraded forestland rehabilitation and pastureland rehabilitation works have been maintained increasingly since 1946. By the end of 2016, on 9,040,460 hectares of land in Turkey; afforestation, erosion control, rehabilitation of degraded forestlands, pastureland rehabilitation, energy forestry, artificial regeneration, and special afforestation works were carried out. Of the total works, 1,358,579 hectares are mainly erosion control works, while the remaining contributed indirectly to erosion control.

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Turkey is amongst the world leaders in erosion control activities, and is one of the few countries that increased their forestlands. Compared to the 1963-1972 inventories, the forest area of Turkey was increased to 22.3 million hectares by the end of 2015 from the previous 20.2 million hectares as a result of the afforestation, erosion control, and rehabilitation works.

Turkey prepared the "National Afforestation and Erosion Control Mobilization Action Plan" to cover the years between 2008-2012, and completed afforestation, erosion control and forest rehabilitation activities on 2,429,000 hectares of land in the dedicated five year period.

As a result of these efforts, the amount of soil transported with erosion reduced from 500 million tons per year to 168 million tons. The target amount for 2023 is 130 million tons per year.

Our target is to rehabilitate our forestlands within a short period of time in order to increase our forest area to 30% of Turkey's total area by the 100th Anniversary of the Republic, and to achieve land degradation neutrality in Turkey.

COMBAT DESERTIFICATION

Desertification in Turkey

Turkey is geographically positioned in the Mediterranean climate zone in an arid and semi-arid region. Located exceptionally at the intersection of Europe-Asia and African continents, the region has been home to various civilizations since the first human settlements. However, its exceptional location also means centuries of human, animal and bird migration through its territories, leaving a trail of numerous pressures and degradation on forests, pastures, and agricultural lands. Turkey is one of the most heavily affected countries by global warming and Climate change which have been escalating particularly in the last century. Therefore, a series of intense efforts were initiated to mitigate the risks and alleviate the damages of desertification, land degradation and drought.

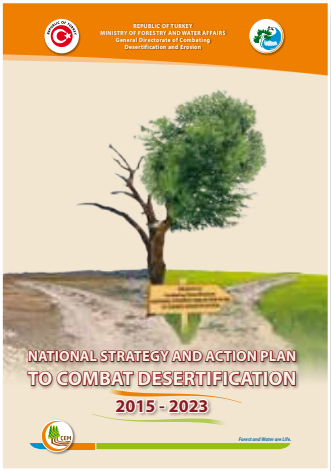
Combating Desertification Activities in Turkey

History of land and water resources conservation activities in Turkey: it began as being aware of country's sensitivity to desertification and aridity in the early years of the republic. After being formally one of the Parties of the Convention for Combating Desertification in 1998, the studies have been accelerated with the preparation of the **"National Action Program for Combating Desertification"** (UEP), as the main instrument for the application of the convention having the characteristics of a reference document, for the reporting of the developments recorded in the scope of the convention, which has entered into force with the circular published in the Official Gazette of the 9 March 2005.

The National Action Program for Combating Desertification is an important beginning in the struggle against desertification.

The **"General Directorate of Combating Desertification and Erosion"** (ÇEM) established within the Ministry of Forests and Water Affairs, under the decree law No. 645 of the 4th of July, has been the first general directorate established with the desertification term in the world. The combating desertification works and coordination started to be more effective with the establishment of the General Directorate on national and international levels.

NATIONAL STRATEGY AND ACTION PLAN TO COMBAT DESERTIFICATION (2015-2023)



The Contracting Parties to the United Nations Convention to Combat Desertification are obliged to prepare National Action Plans. Formulated in order to ensure more effective combat against desertification, to establish inter-institutional coordination, to abide by the Convention requirements, and to regularly monitor activities, the "National Strategy and Action Plan to Combat Desertification" entered into force upon publication of circular notice (2005/2) on 09 March 2005 in the Official Gazette.

During the 8th Conference of Parties held in Madrid in 2007, the "United Nations Convention to Combat Desertification 10-Year Strategy" for the period between 2008-2018 was accepted. Correspondingly, the Secretariat of the United Nations Convention to Combat Desertification (UNCCD) demanded country parties to align their National Action Plans to the 10-year strategic plan.

Thus, the General Directorate of Combating Desertification and Erosion and the FAO cooperatively launched the "Alignment of Turkey's National Action Plan With UNCCD 10-Years Strategy and Reporting Process" with a view to adjust the previous action plan. The process was supported by the Global Environment Facility (GEF).

National Action Plan was formulated with the contributions of all concerned institutions, organizations, CSOs and universities, and it was integrated with the National Strategy to Combat Desertification, whose preparations began in 2012, to be unified within a single document as the "National Strategy and Action Plan to Combat Desertification".

The document incorporated the below;

- ✓ Strategic Objectives,
- ✓ 7 Operational Objectives,
- ✓ 23 Outputs,
- ✓ 74 Actions,
- ✓ 165 Indicators.

NATIONAL STRATEGY AND ACTION PLAN TO COMBAT DESERTIFICATION MONITORING, EVALUATION AND REPORTING

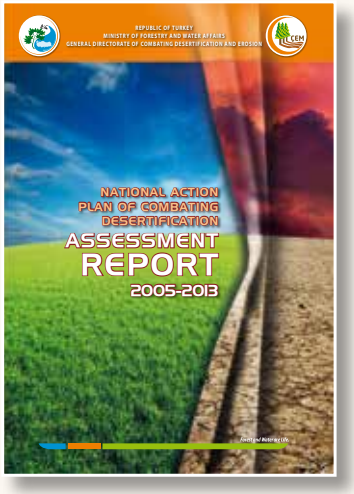
A web-based monitoring, evaluation, and reporting System to provide online submission and reporting for the activities of institutions/organizations was developed and launched within the framework of the National Strategy and Action Plan to Combat Desertification (2015-2023).

(http://cmusep.cem.gov.tr)

Institutions/organizations included in the action plan systematically report on their activities via the system. Nationwide activities are then reported, based on these data, biennially to the UNCCD Secretariat and annually to TUIK.

NATIONAL ACTION PLAN TO COMBAT DESERTIFICATION ASSESSMENT REPORT

The activities of concerned institutions and organizations carried out between the years 2005-2013 were evaluated within the framework of the "National Action Plan to Combat Desertification", initiated in 2005.



The evaluation consisted of progress assessment of the activities within the action plan, and was laid out in a report handling the UNCCD suitability, relativity to the desertification/ land degradation issues, strengths, and weaknesses of a total of 63 activities completed within the scope of combat against desertification. This evaluation, conducted in 2015, will be the first of annual National Strategy and Action Plan to Combat Desertification progress reports. Correspondingly, the progress report covering the years 2014-2015 is also prepared.

LAND DEGRADATION NEUTRALITY (LDN)

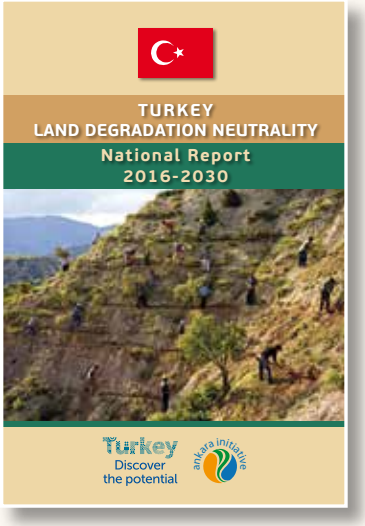
Target 15.3 of the Sustainable Development Goals (SDGs), adopted in September 2015, calls to; "By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral (LDN) world." In return, during the 12th Conference of Parties to the United Nations Convention to Combat Desertification (UNCCD), organized in Ankara from 12 to 23 October 2015, country Parties agreed to set "National Voluntary Targets" towards achieving Land Degradation Neutrality.

Land Degradation Neutrality National Report of Turkey

UNCCD published a "Technical Guide" to provide operational guidance on how to formulate national reports, and shared it with country Parties to the Convention. Within this scope, the "Land Degradation Neutrality (LDN) National Report of Turkey" was authored with the contributions of concerned institutions.

According to these targets, 1 million hectares of afforestation, 750,000 hectares of rangeland rehabilitation and 2,000,000 hectares of agricultural land rehabilitation are regulated by 2030.

These targets will be updated with the monitoring of soil organic carbon content, land productivity index and land use changes throughout the country, setting out the current situation and targets.



Land Degradation Neutrality (LDN) Pilot Project

Since Turkey was amongst the 14 initial countries to participate in the pilot project carried out by the Secretariat to the United Nations Convention to Combat Desertification (UNCCD), a responding pilot project was launched in Gediz Basin. The outcomes of this project was communicated to international project partners during the 12th Conference of Parties to the UNCCD (UNCCD COP12).

Upper Sakarya Basin LDN Project

The project proposal for the GEF 6 period, covering the Upper Sakarya River Basin as a pilot area, was prepared for the purpose of dissemination of the experiences obtained from the Gediz Basin pilot study to the whole country. Through model and software to be created with the project, it is aimed to determine and monitor land use trends and to provide solutions to decision makers by creating projections based on agriculture, pasture and forestry applications, to facilitate the attainment of LDN Targets and to spread the approach throughout the country. The project submitted to the GEF secretariat has been approved and project-oriented studies are ongoing.

MONITORING DESERTIFICATION

Within the framework of TUBITAK-MoFWA joint project on "Watershed Monitoring and Evaluation System" (HIDS Project) and the work package for the Establishment of Turkey's Desertification Model and Risk Map", MoFWA identified 7 criteria and 48 indicators of desertification.

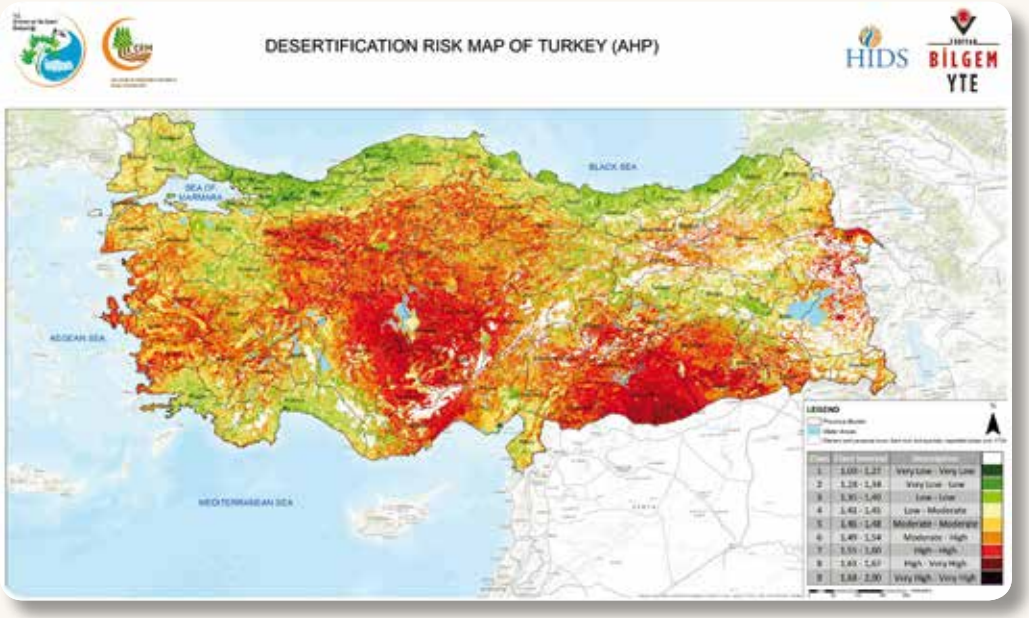
The developed desertification model and existing data sets were utilized to create "the Turkey Desertification Risk Map". The first verification and calibration work of the "Desertification Model and Risk Map for Turkey", were carried out in Gediz Basin as a pilot site.

Turkey's desertification criteria and indicators;

Category (Criteria)	Variable/Parameter/ Index/Number of Indicators
1. Climate	10
2. Water	3
3. Soil	10
4. Vegetation cover and Land Use	
5. Topography and Geomorphology	6
6. Socio-Economy	7
7. Management	10
Total of 7 Criteria	**48 Indicators**

ÇEM initiated the "Turkey Desertification Model Verification and Calibration Project" in co-operation with TUBITAK, and launched in 2016 pilot site projects in Aksaray and Mersin provinces. Following works was held in Çorum, Amasya, Samsun provinces in 2017. Calibration and validation works will be maintained until whole Turkey is covered.

In addition, the Desertification Model is envisioned to be transformed into a regional project covering Middle Asian, African and Mediterranean countries.



EVALUATION OF LAND PRODUCTIVITY VIA COLLECT EARTH TOOL

FAO, within the scope of its Global Drylands Assessment project, carried out evaluations on 100,000 sample plots selected in arid and semi-arid regions across the globe. The project aimed to determine the status of drylands through the evaluation of primarily forestlands, as well as agricultural lands, shrub lands, pasture lands and others. The OGM and our General Directorate supported the Middle Eastern section of the project. Within this scope, 15,000 sample points in the Middle Eastern region, which includes Turkey as well, were assessed.

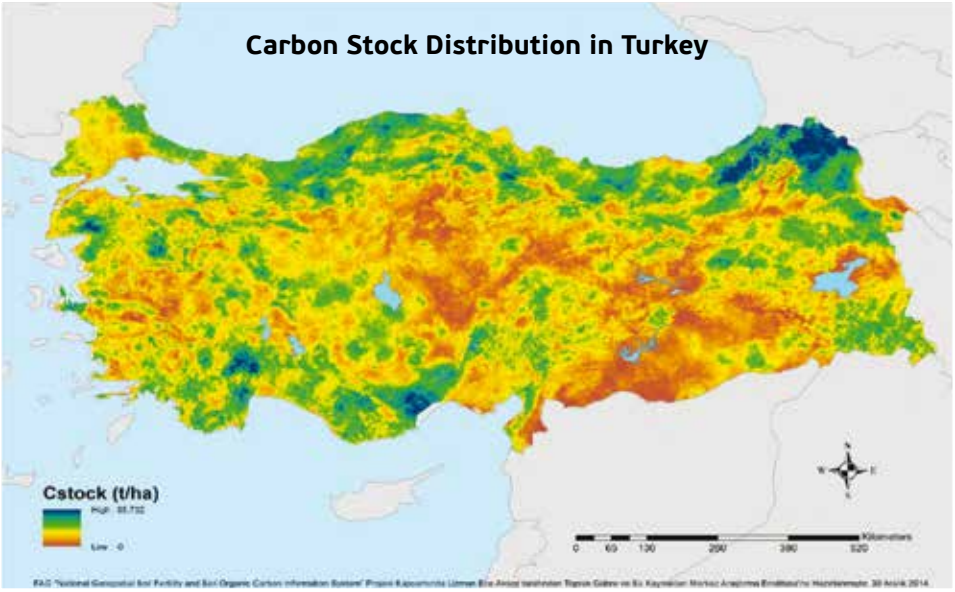
The evaluations indicated a tendency to increased greens on 1,425,000 hectares of land, and a decrease in land productivity on 823,000 hectares.

Visual analysis considered the regeneration works by the General Directorate of Forestry as a decrease in land productivity.

Project for the Evaluation of Land Productivity in Turkey

The General Directorate of Combating Desertification and Erosion carried out in 2016 a nationwide evaluation project, which consisted of 61,865 sample points selected at symmetrical 4 km intervals across Turkey. While the evaluations of these samples are completed, the analysis works are still ongoing. An original open source software was developed specifically for the evaluations foreseen within the project scope.

TURKEY'S SOIL ORGANIC CARBON MODEL AND MAPPING 2017-2019



The Twelfth Conference of Parties to the UNCCD and the United Nations Sustainable Development Goals target 15.3 requires determination of the amount, monitoring, and accurate mapping of soil organic carbon in Turkey. Within the scope of the Turkey Soil Organic Carbon Model and Mapping Project, which will serve to determine the amount of and to monitor soil organic carbon, a Land Degradation Neutrality criterion, various meetings and workshops were organised to obtain expert opinions from TUBITAK and other institutions, and literature review was carried out. The comprehensive and wide-range project required co-operation with various institutions. To this end, a protocol was signed by the General Directorate of Combating Desertification and Erosion (ÇEM), General Directorate of Agricultural Research and Policies (TAGEM), General Directorate of Forestry, and the General Directorate of State Hydraulic Works (DSI), for the collection of analysis results of soil samples collected for various reasons.

For this purpose, a cooperative project was initiated with TUBİTAK to determine the current status in order to identify the soil organic carbon amount in Turkey, to create a model to determine the soil organic carbon amount, and to develop a monitoring system. The project will set up carbon units of areas containing similar amounts of soil organic carbon; develop a Soil Organic Carbon Amount Estimation Model that will determine aboveground and underground soil organic carbon amounts in Turkey and allow for periodic monitoring through data logs; offer concerned users web-based access to data created and logged in the database within the scope of Land Degradation Neutrality country targets; and thus support decision-makers in responsible and stakeholder institutions.

NATIONAL LAND COVER/USE CLASSIFICATION AND MONITORING SYSTEM – UASIS 2017

CORINE (Coordination of Information on the Environment) project is amongst the land management projects of European Union GMES (Global Monitoring for the Environment and Security) programme. The main goal of the project is to create "Land Cover/Use" maps in compliance with the European Environment Agency (EEA) criteria for European Union member states.

Under the responsibility of the Ministry of Forestry and Water Affairs, the project compiled Turkey's CORINE change databases for the years 1990, 2000, 2006, 2012, 1990-2000, 2000-2016, and 2006-2012 and communicated them to EEA. The maps were drafted based on 5 main, and 44 sub land cover/use classifications defined by the European Environment Agency. In addition, they are renewed every 6 years in compliance with EEA standards, which posits 1/100,000 scale for classification and 25 Ha as the minimum mapping unit.

CORINE, however, proves insufficient regarding continuous and sustainable monitoring, rather than periodic, of land cover changes; the maximum utilization of national satellites in monitoring; and compatibility with sub classifications scaled suitably for sensitive calculations and defined in accordance with national requirements within the scope of combating natural disasters such as desertification, erosion, flood, overflow, and landslide.

For this reason, the National Land Cover / Use Classification and Monitoring System (UASIS) project has started. It is essential to distribute the project work load to share knowledge in order to ensure the immediate submission and verification of data on the system by field officers across country, and to provide quick response to system errors. To this end, a crowdsourcing system utilizing the knowledge of institution personnel to create accurate and up-to-date data would prove beneficial regarding cost reduction and the efficient use of resources.

European Environment Agency

MINE SITE REHABILITATION ACTION PLAN

It is important to reduce the negative effects of mining on forest lands, and to reduce and prevent degradation in ecological balance. The main objective of the remediation of degraded areas is to restore the ecological and economic values of the damaged and affected areas. At the area being rehabilitated, it is targeted to recover the area and have a beautiful landscape view of the land, as well as benefit economically from these areas.

The "Mine Site Rehabilitation Action Plan (2014-2018)" was thus drafted to rehabilitate prior mine sites.

Within the scope of the Mine Site Rehabilitation Action Plan, 5.805 hectares area on 1628 mine sites have been rehabilitated.

ISTANBUL MINE SITE REHABILITATION

EXEMPLARY MODEL PROJECTS TO COMBAT DESERTIFICATION

Genetic diversity of a species bring resilience, stability, strength, vitality, variety and beauty to all eco-systems they grow in, forest eco-systems being no exception. With this awareness, we drafted model projects that aim to protect biological diversity.

Project for the Endemic and Rare Plant Species in Future Dam Sites

The project aims to identify, to relocate to suitable conditions, and to cultivate endemic, local endemic, rare, and endangered plant species of possible economic value in future reservoir sites in order to ensure the continuity of the species and to re-establish their economic value.

Afforestation Project in the Artvin-Ardahan Section of the Posof-Sarıkamış Wildlife Corridor (2012)

The aim of the project is to connect through afforestation the distributed forestlands extending from Kars-Sarıkamış, through Erzurum, Artvin and Ardahan to Georgia.

The project will combine the wildlife populations including Wolf, Bear, Lynx, Wildcat, and Roe Deer in Sarıkamış Forests and Allahuekber Mountains National Park with populations in Karagol-Sahara National Park and Borjomi-Kharagauli National Park close to the border with Georgian order to increase the genetic diversity in the region, as well as decreasing human-wildlife conflicts.

Project area covers the section of the wildlife corridor within the borders of Artvin-Ardahan provinces. The ultimate goals of the project are to widen the movement area of wildlife, to create continuous forestlands through wildlife paths, to facilitate wildlife circulation within country as well as between Turkey and Georgia, and thus to form a wildlife corridor to facilitate the safe movement of wildlife populations away from human threat.

EROSION CONTROL

EROSION IN TURKEY

General Evaluation of Erosion in Turkey

General Information

Turkey is particularly vulnerable to erosion due to its geographic position, climate, topography and soil conditions. While human factors are the leading drivers of erosion in Turkey; the geographical position, topography and climate exacerbate erosion and obstruct control activities. Various minerals and organic matter transported by erosion sweeps away the productivity of soil along. Sediment transportation causes dams to be filled up long before their economic lifetime, thus leading to floods and overflows that claim human and material losses. Land degradation caused by intense erosion may also lead to substantial decrease in agricultural husbandry, exacerbating, in return, rural emigrations. Combating erosion is a must to ensure soil conservation, natural resources management and food security.

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Erosion Control Works in Turkey

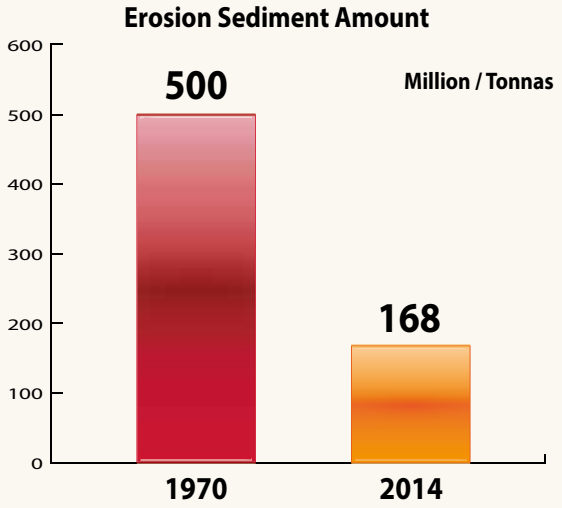
Afforestation, erosion control, degraded forestland rehabilitation and pastureland rehabilitation works have been maintained increasingly since 1946. By the end of 2016, on 9,040,460 hectares of land in Turkey; afforestation, erosion control, rehabilitation of degraded forestlands, pastureland rehabilitation, energy forestry, artificial regeneration, and special afforestation Works were carried out. Of the total works, 1,358,579 hectares are mainly erosion control works, while the remaining contributed indirectly to erosion control.

2 billion seedlings in five years...

As a majority of Turkey's lands face desertification and erosion, the "Afforestation and Erosion Control Mobilisation Action Plan" covering the years 2008-2012 was drafted to speed up afforestation and erosion control works and during the five-year project, afforestation, erosion control and forest rehabilitation works were carried out on 2,429,604 hectares, as well as the planting of 2 billion saplings.

In addition to public institutions and organisations; companies, civil society organisations, universities, students, and in short, the whole public participated in the mobilization.

In five years, we carried out afforestation, erosion control and forest rehabilitation works on **2,429,604 hectares of land, and planted 2 billion saplings.**



EROSION IN TURKEY DECREASES...

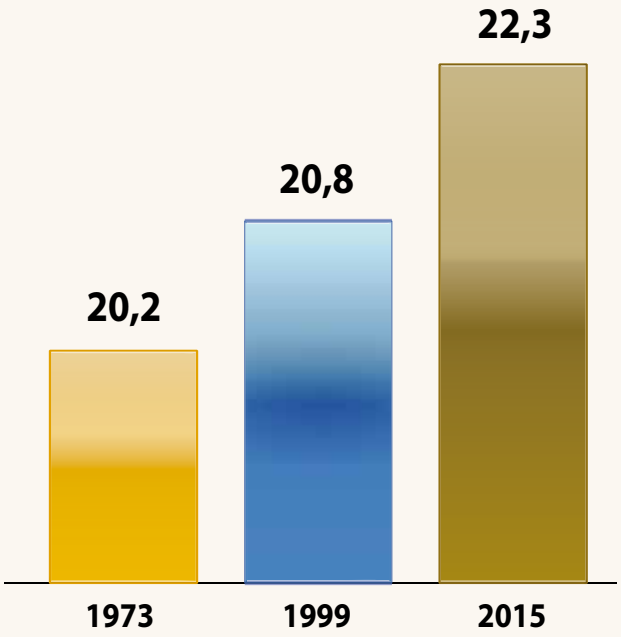
While the amount of sediments carried to seas and less with erosion in Turkey was high a 500 million tonnas/year in the 1970s, the increase in forestlands the increase of productivity resulting from the rehabilitation of degraded forests, arosion control and afforestation activitias, pastureland and the prevention of overgrazing, as wall as the developments in agricultural irrigation technologies the transported sediment oma unt to 168 million tonne/year. (DSİ 2014).

Turkey is among the few countries in the world that increase their forestlands.

The repeated afforestation, erosion control, rehabilitation of degraded forestlands, pastureland rehabilitation, energy forestry, artificial regeneration, and special afforestation works contribute to the continuous increase in Turkey's forestlands.

Turkey increased its forestlands by 2.1 million hectares up to 22.3 million hectares by 2015 from 20.2 million hectares in 1972, when the first proper inventory was made.

The rehabilitation of degraded forestlands contributed to increase the productive forestlands to 57% by 2015, from its previous value of 49%.



Erosion is decreasing in agricultural lands and pasturelands.

Agricultural lands and pasturelands suffer the most of erosion. The erosion control activities in these areas contribute to the mitigation of erosion.

Efficient erosion control works in pasturelands include terracing, alternate grazing, and pastureland rehabilitation.

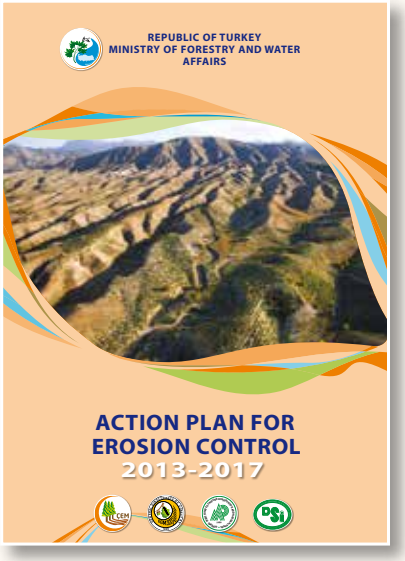
Agricultural lands are protected from erosion, which decreases day by day, through numerous measures such as crop patterns based on agricultural basins; switch to modern, economic and anti-erosion irrigation systems; parcel-based support to farmers; terracing; green manure utilisation; ecology-based alternation; and launching the farmer registration system.

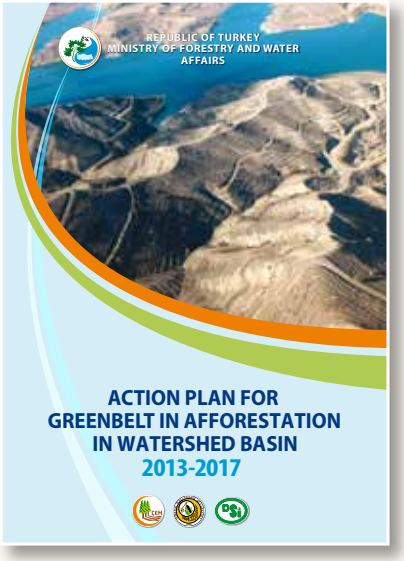
Action Plans

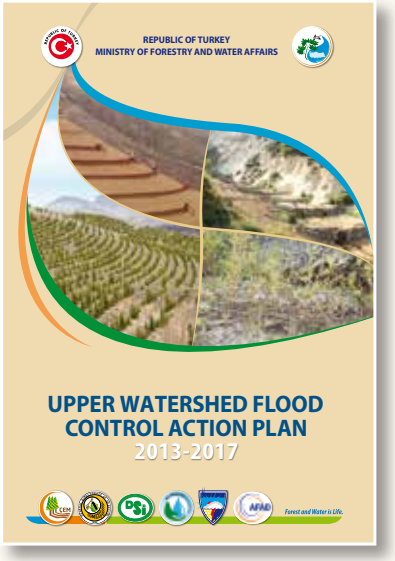
Following the completion of the Afforestation and Erosion Control Action Plan at the end of 2012, relevant institutions and organisations under the coordination of the Ministry of Forestry and Water Affairs drafted the Action Plan to Control Erosion, Action Plan for Greenbelt Afforestation in Watershed Basins and Action Plan for the Upper Basin Flood Control for the years 2013-2017.

Within the scope of the Action Plan to Control Erosion, over a period of 5 years; afforestation, rehabilitation, erosion control, and pastureland rehabilitation establishments were planned on 1,400,000 hectares, in addition to maintenance works on 2,287,379 hectares previously on which afforestation and erosion control measures were implemented. Within the scope of the Action Plan for Greenbelt Afforestation in Watershed Basins, afforestation works for the utilisation of flood-prone lands in dam protection areas; mitigation of erosion and sedimentation; increase in water amount and quality; establishment of new recreational areas and tourist attractions; establishment of new habitats for wildlife; and a contribution to local economy through the preference of income generating species in 400 of the total 1077 dams and ponds were planned. With Action Plan for the Upper Basin Flood Control, flood prevention studies were planned in 4.155.000 hectares of general flood prevention area including 227 priority flood basins and 25 main river basins.

With all these efforts, the erosion control activities continues to be more effective in areas exposed to erosion throughout the country.







Implementation projects are prepared and conducted within the scope of action plans.

Erosion Control and Afforestation Projects

Erosion Control and Afforestation projects aim to support the improvement of soil fertility; ensuring food safety; the establishment of green areas and urban forests around cities; decreasing the air and noise pollution; the prevention of floods, overflows and dust transport; the preservation of water resources; increasing the lifetime of dams; the demand for wood as raw material; people's need for recreational areas; and the preservation of biodiversity. Given the fact that trees are major carbon sinks, it is evident that afforestation is essential in mitigating global warming and climate change.

Greenbelt Afforestation Projects in Watershed Basins

The projects aim the utilisation of flood-prone lands in dam protection areas; mitigation of erosion and sedimentation; increase in Water amount and quality; establishment of new recreational areas and tourist attractions; and the establishment of new habitats for wildlife, as well as a contribution to local economy through the preference of income-generating species in planned afforestation works. Within the scope of the Action Plan, works in 312 dams and ponds were completed by the end of 2016.

Projects for the Afforestation of Land Consolidation Areas

The greenbelt projects are designed for areas designated within the scope of the Land Consolidation Project. These projects will serve to ensure erosion control; wildlife enhancement; soil conservation; windbreaks; biological pest control; and recreational areas for the public.

EROSION MONITORING SYSTEMS

Dynamic Erosion Model and Monitoring System(DEMIS)

The soil transportation into rivers in Turkey were mapped with the RUSLE (Revised Universal Soil Loss Equation) model. The Dynamic Erosion Model and Monitoring System (DEMIS) was developed to attribute a dynamic structure to this model, as well as to provide long-term Monitoring and reporting. The system allows for the temporal, spatial, and areal monitoring of the impacts the kinetic energy of precipitations, changes in the land cover, and the soil-water conservation activities have on erosion intensity fluctuations.

Erosion Map of Turkey

The Dynamic Erosion Model and Monitoring System (DEMIS) digitalizes erosions as “potential”, “real” and “reaching rivers” based on annual average soil loss. The system has also updated the Rainfall Erosivity Factor (R) and the Vegetation Cover and Management Factor (C). Soil Erodibility Factor (K) and the Sediment Delivery Ratio (SDR) will be updated.

Wind Erosion Monitoring System

Nation-wide wind erosion estimates require comprehensive, dynamic, and updateable data sets. These data is essential to develop efficient mitigation methods and to upscale sustainable resource utilisation in these regions. The wind erosion risk map will identify the risky areas in our country. For this purpose, the areas subject to wind erosion at the national scale and having wind erosion potential were determined according to 'wind erosion climate factor'. In the following years, other parameters currently used in the monitoring and evaluation system will be integrated in this system as well to create more realistic demonstrations of areas affected by wind erosion.

In this context, wind erosion is monitored and risk assessment is carried out in pilot projects in pastureland and agricultural areas which are under threat of wind erosion and in areas where wind erosion prevention work is done. The measurements are carried out with sediment trap sets placed into parcels containing different land uses. The outcomes of the measurements will be used to identify wind erosion control methods.

INTERNATIONAL EROSION AND FLOOD CONTROL TRAINING MODEL IMPLEMENTATION PROJECTS

Model implementation areas are established to demonstrate erosion and flood control techniques applied in Turkey as well as around the world with a view to provide national and international trainings. Several trainings are organized every year to local and international participants. Model implementation sites are established during such trainings to demonstrate the erosion and flood control methods.

DUNE DETECTION PROJECTS

It is very difficult to prevent the movement of the sand dune from the measures to be taken before the moving floor is stabilized, as the sand layer forming the floor in the moving dams is constantly moving. In order to stabilize the moving sand dunes and prevent damage to the environment, a series of successive and complementary works must be done.

R & D PROJECTS

Identification of Species Resistant to Extreme Conditions and Drought

Species resistant to drought and extreme conditions to be identified during the research activities within the project, will be used for erosion preventing afforestation works and for the improvement of barren lands, particularly in the Central Anatolian Region where drought and desertification issues are prevalent.

This project aims to identify the species and/or the clones of poplars that could be cultivated in slightly saline, saline, or alkaline soil within the afforestation, windbreak, and gallery afforestation works particularly in the Central Anatolian Region where drought, salinity and aridity are common issues. The project was initiated in 2013, and will be completed in 2023.

Project for the Identification of the Impacts of Humic Acid on the Sapling Growth in Arid and Semi-Arid Regions

The reaction of different tree species in arid and semi-arid marginal test areas to the introduction of humic acid in various amounts will be observed to determine the optimum development of different species with varying amounts of humic acid. Then, the humic acid amount ensuring the optimum development according to the test results will be applied during planting and/or maintenance, thus the success of afforestation activities in marginal areas will be enhanced while the maintenance and completion costs will be decreased. The results of this R&D project aiming to increase the long-term success of activities in arid and semi-arid lands will be evaluated to upscale the project countrywide in similarly characterized sites.

Identification and Adaptation of Certain Plant Species Suitable to Saline and Alkaline Regions

The aim of the project is to benefit from the saline ecosystem as a fertile resource. It is intended to benefit from the salt affected lands both economically and in the improvement of agricultural practices by making use of existing genetic living resources, and by using saline water for irrigation in these regions. The R&D projects in similarly characterized marginal regions of Turkey will ensure the creation of an ecosystem of suitable plant species; the protection of soils against erosion and desertification; a contribution to the regeneration of these areas; a favorable environment for the nutrition and shelter of the wildlife; and the provision of inputs such as forage and wood.

Project on the Adaptation of Various Pulse and Gramineae Fodder Species to Marginal Lands (Salinized-Alkali) Affected by Wind Erosion

The project aims to identify various plant species that could be adapted to marginal (salinized-alkali) lands. The target is to provide economic benefits as well as to improve agricultural activities on salinized lands through the use of existing genetic living resources, and salinized irrigation water. Halophyte forage species, and salt-resilient bushes that will cover the bare soil to prevent erosion and desertification, and whose roots will reach deep in the soil to reduce the groundwater levels are selected and grown specifically.

WATERSHED REHABILITATION

WATERSHED REHABILITATION IN TURKEY

General Evaluation of Watershed Rehabilitation Works in Turkey

The watershed rehabilitation activities are realized to improve the social, cultural and economic prosperity of people living in the watersheds, by taking the necessary technical, cultural and administrative measures to ensure the balance between the soil, water and vegetation.

The re-establishment of the disturbed natural balance between plants-water-soil as well as the rehabilitation and sustainable management of natural resources is essential to mitigate the negative impacts of global climate change.

Watershed rehabilitation works in Turkey were first initiated in 1950s with a view to mitigate the impacts of floods and overflows, as well as to ensure the security of existing dams.

Such works generally included constructions and afforestation areas in upper watersheds to reduce soil erosion and water damage. Around the 1970s, human factor was integrated into these activities and "income-generating" projects that ensure "lower wood consumption" were promoted in order to prevent natural resource degradation. When in 1990s the authorities realized that the watershed rehabilitation works fell under the responsibility and authority of several government offices at once, and when they recognized the importance of local public's and civil society organizations' involvement in the projects, they coined the "integrated watershed rehabilitation projects".

The most important of these Projects include;

- Eastern Anatolia Watershed Rehabilitation Project (1993-2001)
- Anatolian Watersheds Rehabilitation Project (2005-2011)
- Çoruh River Basin Rehabilitation Project (2012-2019)
- Murat River Basin Rehabilitation Project (2012-2018)

STRATEGY WORKS

National Watershed Management Strategy (2014-2023)

The National Watershed Management Strategy (UHYS) was developed to present a common path for the works to ensure the sufficient and sustainable provision of ecological, economic and social benefits and services of watersheds. The public institutions/establishments, universities, concerned non-governmental organisations and other related stakeholders contributed to the "National Watershed Management Strategy" holding a participatory approach.

The institutional roles and responsibilities in the monitoring and evaluation of the implementation of UHYS were identified. The clear and exhaustive action plan to ensure the implementation of planned activities is also laid out within the UHYS. The UHYS entered into force upon the Decision of the High Planning Council dated 13.06.2014. All public institutions and organisations including the Ministry of Environment and Urban Planning, the Ministry of Food, Agriculture and Livestock, the Ministry of Development, and the Ministry of Forestry and Water Affairs in particular provided valuable contributions to the preparation of UHYS.

Watershed Monitoring and Evaluation System Project (HIDS)

It is intended to decrease costs related to the monitoring, to take the necessary measures with a rapid and up to date monitoring, to achieve the investments through effective monitoring of projects carried out in watershed and to provide significant benefits to the conservation and the balanced use of natural resources, in order to establish a monitoring system infrastructure able to monitor data themes determined in coordination with institutions active in watersheds in Turkey and to ensure sustainable watershed management with natural resources efficient use.

Data Themes to be Monitored

The project will initially include "soil erosion and mass movements", "flood-overflow", "desertification", "sustainable forest management" and "land use" components of watershed, and will later integrate all identified data themes. Desertification criteria and indicators were identified for the first time in Turkey within the scope of the project, and the Desertification Risk Map for Turkey was created through the desertification model and the nationwide identification of vulnerable areas.

Data Themes to be Monitored

Soil Erosion and Mass Movements	Floods and Overflows	Desertification	Sustainable Forest Management
Land Use	Avalanche Control	Water Management	Biodiversity
Carbon Exchange	Meadows and Pasturelands	Environmental Management	Agricultural Management
Social, Economic and Cultural Structure	Energy	Riparian Zone and Coast Ecosystems	Urban Watersheds

Soil Information System Database Setup Project

The soil maps are utilized in agricultural, forestry and pasture planning works, in the modelling of the environmental impacts, in various engineering branches, and in integrated natural resources planning and conservation activities.

A **"Soil Data Base"** compatible with the planned **"Soil Information System-TBS"** is established.

Project to Digitize Soil Maps

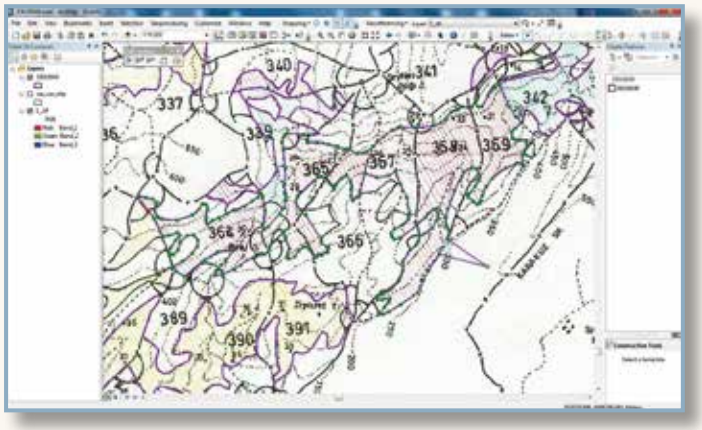
The need to digitalize on a standardized scale the existing soil maps in different formats, and the need to create a common data base arose.

The soil maps within the 1737 Afforestation, Soil Conservation and Rehabilitation projects registered in the CAS (Geographical Archive System), previously created by the former AGM, were digitalized, adapted, and entered into the recent **"Soil Database"** formed within our Ministry.

Proje Uygulaması;

- Within the scope of the project; 217 projects in 2013, 700 in 2014, 1000 in 2015, and another 1000 projects in 2016 were digitalised and integrated to the "Soil Database".
- In the process, 3,000,000 million hectares of land and 45,000 soil profiles were digitalised.

The project allows users an easier and better organised access to data, as well as accessto signatures, approvals, and annotations present on the original document.

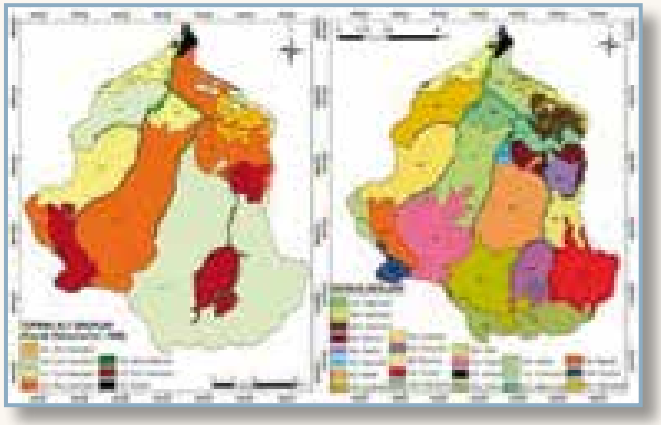


Inebolu Watershed Soil Mapping Work

Soil data and soil maps are among the most important sources consulted for the purpose of ensuring the proper and sustainable use of our land resources. Soil maps produced as outcomes of soil studies and mapping works, including all related reports, constitute a soil database for the use of concerned organisations and institutions. For this purpose, the "Soil Database" was established and put into service by the General Directorate of Combating Desertification and Erosion of the Ministry of Forestry and Water Affairs. Pilot soil mapping works were carried out to identify the soil data characteristics and standards to be submitted to the soil database.

Project Implementation;

- Model Soil Mapping work was implemented in 2013.
- The Inebolu (Kastamonu) watershed of 11.4 thousand hectares was selected as the pilot watershed.
- Experts on forestry, agriculture and remote sensing were employed.
- Layers such as Land use, Vegetation Cover, Geology, Morphologic data etc. were generated.
- Analysis results of soil samples obtained from 32 soil profiles and 234 soil probes were used.
- Data provided by field teams, laboratories, and offices is logged into **"Soil Database"**
- **"Soil Organic Carbon Distribution Maps"** are constituted according to the organic carbon amount analysis results taken from 234 points in 0-10, 10-20 and 20-30 of depth in order to determine the **"Soil Carbon Capturer"**.
- The techniques, methods, and outcomes of **"Model Soil Mapping Work"** are published as a book.



Data Collection from Field via Mobile Devices

It is a system that transfers data collected by mobile devices to an unique database without waste of resources by providing data standard.

Project Implementation;

- The project pilot was carried out in 2013, and the trial implementations were completed in 2014.
- A field survey software (TOPRAKMobil) titled "Information Entry System" was developed compatible with Android, iOS and Windows mobile devices widely used in Turkey and in the world.
- The software uploads the high quality field images to the system.

- TOPRAKMobil receives the coordinates of the study directly from the satellites and uploads to the system.
- TOPRAKmobil is introduced to Android market; and is compatible with all mobile devices (tablet, smart phone, laptop etc.) that contain a GPS, have a camera device, support Wi-Fi or 3G connection, and run Android 4.0 and above, iOS 7.1, or Windows Phone 8 or above.

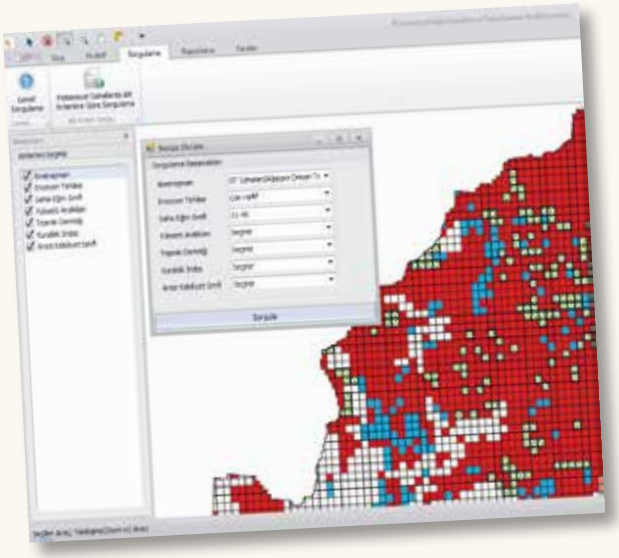
All soil data obtained through projects carried out/supported by our General Directorate since 2014 are uploaded to Soil Database via mobile devices.

Determination of Potential Forestry Sites (POS)

The project aims to identify, within the scope of our General Directorate's forestry activities; the potential afforestation, degraded forest rehabilitation, erosion control and pasture rehabilitation sites through ground survey outcomes, and observational and empirical data in addition to decision-support models in order to develop a suitable model and method for identifying potential working sites to improve the watershed monitoring system.

The model to be developed is to reduce costs and labor power, to minimize field survey durations, to form the basis of other activities, and to facilitate detailed reporting for each activity site. Therefore, for this project, a 461,128 hectares of land was allocated as pilot site in Sakarya Basin, covering parts of Ankara, Çankırı and Bolu provinces.

The model used was M-AHP (Modified Analytic Hierarchy Process). Our study preferred the grid cells method to utilize existing digital data with the model. For this purpose, the project site was divided into grids, and a corresponding data was assigned as value to each grid. Thus, the project site can be analyzed based on grids. The M-AHP model concluded the thematic maps and digital data



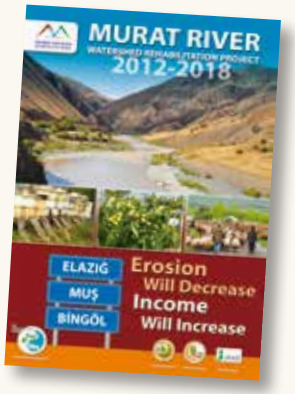
INTEGRATED PLANS AND PROJECTS

The overall targets of Integrated Watershed Projects are;

- To ensure the sustainable use of forests, pasture, soil and water resources on project sites;
- To enhance the life quality and income level in the region through various income generating activities to relieve the stress on natural resources;
- To prevent sediment accumulation in existing or planned dams in watersheds in order to, among other advantages, increase the economic lifetime of dams;
- To contribute to the combat against desertification and climate change, to the protection of biological diversity through watershed rehabilitation and natural resource conservation.

The main targets of Watershed Projects include;

1. To prevent inappropriate land use;
2. To restore degraded ecosystems;
3. To mitigate erosion, floods, and overflows;
4. To protect and improve forests;
5. To enhance best agricultural practices;
6. To augment quality and amount in water production;
7. To manage and rehabilitate watershed pastures;
8. To increase the income level of local communities in watersheds;
9. To enhance the life quality of communities;
10. To obtain global advantages through local activities;
11. To obtain positive results in the combat against desertification and climate change;
12. To carry out educational activities and demonstrations;
13. 13. To raise consciousness and awareness;



UPPER WATERSHED FLOOD CONTROL

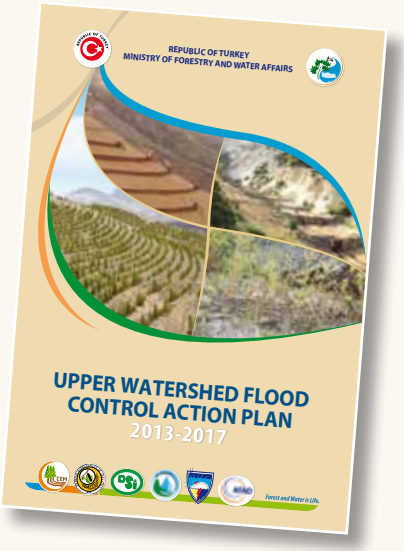
FLOOD CONTROL WORKS IN TURKEY

Turkey is very sensitive to flooding because of sudden and severe torrential downpours due to its high and rugged topography, its geological structure, its susceptibility to soil erosion and its semi-arid climate conditions characteristics. The most important cause of floods is the disruption of the natural balance between soil water-plant in the upper basin catchment area.

The most effective and permanent flood and overflow prevention method is to take measures towards reconstructing natural balance affected in water collection area and to prevent water from flooding and overflowing through superficial flow. Life and material losses will decrease with planned measures, and required measures in the main channel will be reduced to minimum.

Upper Watershed Flood Control Action Plan (2013-2017)

Erosion control and slope rehabilitation works in upper river basins are essential in mitigating floods and overflows. Natural balance will be re-established following the pastureland rehabilitation works, erosion control, flood control and afforestation works in agricultural lands, forest lands, rangelands and afforestation areas with integrated watershed rehabilitation and gully projects executed in upper flood-prone watersheds.



225 priority flood-prone watersheds were identified to be worked on in 25 main river basins by General Directorates of ÇEM, OGM and DSİ aiming to mitigate floods and overflows constantly increasing in recent years. Accordingly, an **"Upper Watershed Flood Control Action Plan"** was prepared, covering the years between 2013- 2017 and 4,130,388 hectares of land in 225 flood-prone watersheds. By the end of 2016, the General Directorate of Forestry completed works in 200 flood-prone watershed within the scope of the Action Plan.

Upper Watershed Flood Control Projects

Concerned agencies and institutions responsible for flood control projects aim to prepare and implement projects within a common framework in order to reduce at minimum the probable human and material losses. Project preparation and implementation are executed in order to make slope and gully land rehabilitation works in upper watersheds causing flood and overflows.

Flood Control Projects in Pasturelands

Slope and gully rehabilitation measures are planned to prevent flood formation following violent and short-duration precipitations in pasturelands turn into superficial flows. Terraces are the most effective slope rehabilitation measure in preventing superficial flow and ensuring water infiltration. Terraces to be established in pasturelands are projected as truncated terraces in wide intervals in order not to limit the movements and grazing of animals. In order to prevent excess waters from deteriorating truncated terraces, continuous and eluent terraces are constructed at certain intervals in the truncated terrace intervals. Maximum precipitation amount; vegetation cover species, height and intensity; slopes, geological structure and soil characteristics of the project site must be taken in account when calculating truncation dimension and intervals of terraces.

Erciş - Van

Flood Control Projects in Forestlands, Pasturelands and Agricultural Lands

Incorrect land use in flood-prone watershed, particularly agricultural use of steep areas, is one of the major causes of flooding. Envisioned projects include individual slope and gully rehabilitation works on productive lands, degraded lands, clearings, pasturelands and agricultural lands.

Discussions (ask-diverge-solve meetings) led to a mutual understanding with property owners in the agricultural lands on project site that the terraces will be constructed by the Administration, and the property owners will carry out the planting works. The terrace width is determined as 1.5 - 2 m in agricultural and pasture lands, which is calculated as the maximum range to hold the maximum rainfall.

In clearings and degraded forestlands, on the other hand, in consideration of the afforestation works; terraces of 80-100 cm of width, fence check dam, mural check dam, living check dam are planned in gullies.

LANDSLIDE CONTROL

LANDSLIDE CONTROL IN TURKEY

Landslides occur in Turkey as a result of earthquakes, sudden and violent precipitations, sudden changes in temperature, and inappropriate land use.

Landslides are very often and widespread in regions of humid climate that receive long-term and abundant precipitations. Landslides and floods strike Eastern Black Sea Region quite often due to inappropriate land uses. Subsequent landslides escalate the destructive power, and material and human claims of floods. Therefore, the landslide projects are formulated to present a model for watersheds.

Landslide control projects aim to protect agricultural lands, pasturelands, settlements and other areas from landslides and floods.

Landslide Risk Mapping Project

Landslide Risk Maps aim to support infrastructure and superstructure projects in basins byidentifying landslide-prone regions.

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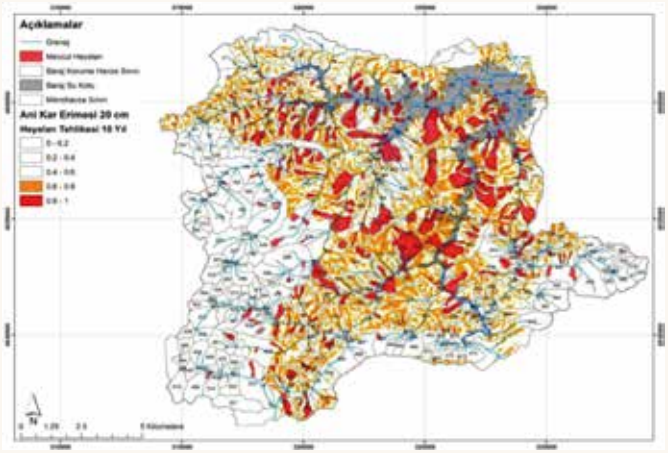
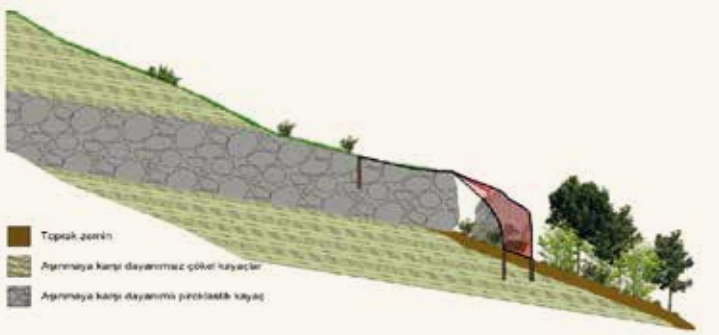


Stone-Rock Rolling Projects

Some of the regions in Turkey are under threat because of their geological and topographic features and the movement of stones and rocks on the slopes.

Stone-rock rolling is a serious hazard especially in settlements and highways. Project-making studies are carried out to reduce the damage of stone-rock rolls.



AVALANCHHE CONTROL

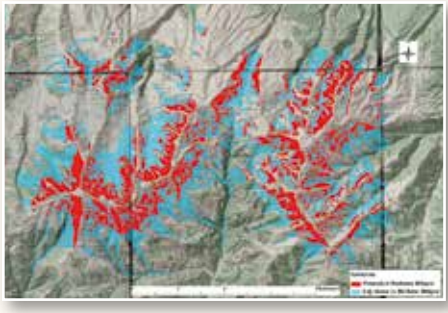
AVALANCHHE CONTROL IN TURKEY

In particularly the northern, north-eastern and eastern regions of Turkey, topographic and meteorological conditions of mountainous areas pose a threat of avalanche. Avalanche prone areas of an average altitude of over 1000 metres comprise a high percentage of total mountainous regions. Avalanches in the area threaten settlements, roads, touristic facilities and all other investments in the vicinity.

Avalanches, like other natural disasters, impact settlements on both economic and social aspects. A brief representation of the social impacts of avalanches in Turkey would be the 219 registered avalanches since 1968, claiming 201 lives, injuring 74 people, and otherwise affecting 19,757 people according to the National Disaster Archive of Turkey. Emigration of communities struck by avalanche who cannot afford the material losses is another social impact. From an economic perspective; the damage inflicted by avalanches cannot be compensated overnight, leading to constant decrease in production and manpower, as well as indirectly affecting tourism in certain regions.

Avalanche Control Projects are being prepared and implemented with the aim of minimizing the damages that may be caused by possible avalanche disasters.

Avalanche Risk Mapping Project



Human activities in mountainous regions (including tourism facilities and hydro-electric power plants) may cause avalanches that claim significant human and material losses. Risk/danger assessment works, therefore, in order to prevent and mitigate impacts of avalanches through active and passive avalanche control methods hold substantial importance. Avalanche Hazard Mapping is being prepared for this purpose.

INTERNATIONAL ACTIVITIES

12th Conference of Parties (COP 12) to the United Nations Convention to Combat Desertification (UNCCD)

The 12th Conference of Parties (COP12) to the United Nations Convention on Combating Desertification was hosted by the Ministry of Forestry and Water Affairs from 12-23 October 2015 in Ankara, Turkey.

The 12th Conference received 57 highlevel participants including ministers, deputy ministers, the speaker of the Grand National Assembly, and high-level officials from the UN, and 70 participants among parliamentarians.

The total number of participants reached 6700. Non-governmental organisations as well as private sector showed high interest in the Conferencer.

Recep Tayyip Erdoğan, President of the Republic of Turkey, participated in the opening ceremonies of the High-Level Session of the Conference between 20-21 October 2015.

Country representatives adopted 37 significant decisions, and published 6 declarations regarding combat against desertification.

Ankara Initiative

Ankara Initiative, launched during COP 12 for the period between 2016-2019, aims to contribute to the global development agenda drawing on Turkey's previous experiences and practices in land management.

The Initiative will contribute to achieve land degradation neutrality through the tools and practices of UNCCD. Turkey designated two officials to be appointed in Secretariat (UNCCD) and Global Mechanism (GM) each respectively in order to take effective part in the implementation of Ankara Initiative.

An Action Plan was drafted with the UNCCD to cover the Ankara Initiative activities. In accordance with the Action Plan; numerous countries were supported within the contexts of 3S Initiative (Sustainability, Security, Stability), International Sand and Dust Storms Workshop, African Drought Conference, Drought Early Warning System Pilot Project in Colombia, and Land Degradation Neutrality Target Setting Programme.

"Desertification Working Group" within the TBMM

Following COP 12, the presidency of the Parliamentary Forum, which will be held in 2017, has passed the Grand National Assembly of Turkey until COP 13. Within this scope, "Desertification Working Group" was formed within the Grand National Assembly of Turkey (TBMM) in order to coordinate the presidential period activities.

Establishment of the United Nations Convention to Combat Desertification Regional Coordination Unit for the Northern Mediterranean in İstanbul

The United Nations Convention to Combat Desertification geographically groups country Parties under 5 Annexes to the Convention in order to facilitate coordination. Turkey is a part of the "Northern Mediterranean Regional Implementation Annex IV", along with Albania, Croatia, Cyprus, Greece, Hungary, Israel, Italy, Malta, Portugal, Spain, and Slovenia.

The UNCCD Regional Coordination Unit for the Northern Mediterranean was established in İstanbul in 2016.

Memorandum of Understanding with the Pan-African Agency of the Great Green Wall

The United Nations Convention to Combat Desertification (UNCCD) was signed between the Ministry of Forestry and Water Affairs and the Pan-African Great Green Wall Agency in the context of the Ankara Initiative, which was declared during the period of our COP Presidency, Memorandum of Understanding on the fight against desertification. This Memorandum of Understanding envisions to share Turkey's experiences in combating desertification with the country members of the Agency.

Within this context, cooperation subjects include; combat against desertification; water, wind and dune erosion control activities; drought mitigation; establishment and utilisation of desertification monitoring systems; integrated watershed management; and forest species nurseries.

Project to Increase Capacity to Combat Desertification, Land Degradation and Drought (DLDD) in Developing African Countries

The main target of the project is to combat desertification and land degradation in Africa, as well as ensuring the sustainable management of forests; and to this end, the project aims dryland afforestation works, erosion control works, degraded forestland rehabilitations, improvement of nursery techniques, participatory and integrated watershed management, involvement of civil society organisations and public, enhancement of technical cooperation through trainings and expert exchanges on land rehabilitation, and capacity building in the concerned countries.

In the scope of DLDD-Niger Project, the **10-hectares "Niger-Turkey Friendship Forest"** was established in Niger. Then Prime Minister, Recep Tayyip Erdoğan visited the "Turkey-Niger Friendship Forest" during his official visit to Niger on 9 January 2013, and planted a seedling to commemorate his visit.

Within the scope of the project, 10 hectares of "Senegal-Turkey Friendship Forest" was established within the MBAO forest, 19 km from Dakar, Senegal. The development of local people in neighboring villages is aimed especially in income-generating species. In addition, a nursery and dune afforestation project will be undertaken in Mauritania and studies are under way.

DLDD
Training and Technical Cooperation Project on Combating Desertification, Land Degradation, Drought (DLDD) and Forestry for African Countries

Evaluation of land degradation and Dissemination of Support for Sustainable Land Management and Good Practices Project (DS-SLM Projesi)

With the scope of Decision Support for Mainstreaming and Scaling up of Sustainable Land Management "Evaluation of land degradation and Dissemination of Support for Sustainable Land Management and Good Practices Project" was prepared jointly by UNCCD and FAO.

It is aimed to improve countries capacities and to disseminate the concept of sustainable land management to combat land degradation in countries such as Turkey, Bosnia- Herzegovina, Argentina, Bangladesh, China, Colombia, Ecuador, Lesotho, Morocco, Niger, Panama, the Philippines, Thailand, Tunisia, and Uzbekistan that take place in this global Project. The General Directorate of Combating Desertification and Erosion is coordinating this project on behalf of Turkey, and is cooperating, due to the scope of authorities, with the General Directorate of Forestry, the Ministry of Food, Agriculture and Livestock (General Directorate of Agricultural Reform, General Directorate of Agricultural Research and Policies), and the Soil Science Society of Turkey.

Integrated Natural Resources Management Project in Drought-Prone and Salt-Affected Agricultural Landscapes in Central Asia and Turkey (CACILM II) 2016-2019

Trans-boundary drought and desertification threat in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan prompted a multi-country approach in 2003, with the Sub-regional Action Programme for Central Asian Countries on Combating Desertification and Drought introducing and implementing the 10-year-long international "Central Asian Countries Initiative for Land Management (CACILM-I)" project. Activities within the project included multi-country partnerships and information exchanges, legislative framework enhancements, numerous field applications, and mainstreaming of best practices.

The follow-up project CACILM II will focus on;

- Multi-country co-operations and partnerships to promote Integrated Natural Resources Management,
- Integration of resilience to political, legislative, and institutional frameworks for Integrated Natural Resources Management,
- Mainstreaming climate friendly agricultural practices in drought-prone and salinized production landscapes.

Turkey-FAO Forestry Partnership Program Agreement

The Forestry Partnership Program Agreement (FTFP) was signed between the Ministry of Forestry and Water Affairs (OSİB) and the UN Food and Agriculture Organization (FAO) in June 2014. The agreement was approved in the Parliament of March 2016. The agreement will focus on the sub-regional offices of countries such as Azerbaijan, Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, Turkey and Turkmenistan where the FAO Central Asia Sub-Regional Office provides assistance and other countries with common interests. The Fund shall be made payable to the Fund within the scope of the Agreement in the amount of 10 Million US Dollars for 5 years including 2 Million US Dollars annually. The first installment payment was made in June, 2017.

In the first phase of the FTFP framework, the project is planned to be carried out in Mauritania, Eritrea and Sudan, with the support of the Ministry of Foreign Affairs of the Republic of Turkey to "PAN Africa Great Green Wall Project". For this purpose, a draft project note titled "Restoration of Forest and Landscape Areas in Sudan, Eritre and Mauritania: Increasing Land Productivity, Resilience and Improving Livelihoods" was prepared within the framework of FAO and the technical units of our Ministry. Within the scope of the project which is planned to start in September 2017 and will last for three years; a total area of 5,000 hectares, in Eritre, including 1,000 ha in the Gash-Barka region on the border with Sudan, 2,000 ha in Kassala province in Sudan and 2,000 ha in Mauritania; Restoration activities, the development of non-wood forest products, the establishment of country monitoring systems, information management, awareness building / communication and visibility activities.

Regional Cooperation and Workshops on Sand and Dust Storm

Representatives from various Middle Eastern countries contacted our Minister of Forestry and Water Affairs, during the 15th Conference of Parties (COP 15) to the United Nations Framework Convention on Climate Change, organised between 07-18 December 2009, and suggested co-operation on meteorology, dust transport, and combat against desertification and erosion.

Correspondingly, following the 1st Ministerial Conference held in Ankara between 28-29 April 2010, Turkey, Iran, Iraq and Syria signed the "Ankara Declaration" on 29 April 2010. The Ministers agreed with this Declaration to cooperate, and to share knowledge and experience on subjects relating to environment, meteorology, combat against desertification, forestry, soil rehabilitation, soil erosion control, and sand and dust storms mitigation.

The 2nd Ministerial Conference on "Co-operation on Environment and Meteorology" was organised in Tehran between 26-29 September 2010, as an outcome of which, Iran, Iraq, Syria, Qatar and Turkey signed the "Action Plan on the Co-operation on Environment and Meteorology".

The Action Plan envisioned activities regarding;

a-) Environment

b-) Air Quality Management

c-) Meteorology

d-) Combat against Desertification, Forestry, Soil Rehabilitation, Soil Erosion Control, and the

Mitigation of Sand and Dust Storms.

Activities Completed within the Scope of the Action Plan

Land Degradation Neutrality (LDN) Target Setting Workshop for African Countries

The "Land Degradation Neutrality (LDN) Target Setting Workshop" facilitated by Secretariat of UNCCD, Global Mechanism and ÇEM was hosted by Turkey from 28-30 May 2016 in Konya. In addition to 39 experts from 31 African countries, the workshop drew approximately 70 participants including UNCCD national focus points, national and regional LDN consultants, and representatives from the LDN-TSP team (UNCCD Secretariat/Global Mechanism).

Within the framework of the Ankara Initiative 2017 program, a workshop was organized on May 20-21, 2017 to create an opportunity for the National Targets of Land Degradation Neutrality (ATD) for Central and Eastern Europe and Central Asian countries. The workshop took place in Konya with the participation of 11 different countries (Azerbaijan, Bosnia Herzegovina, Georgia, Montenegro, Kazakhstan, Kyrgyzstan, Macedonia, Uzbekistan, Russia, Serbia, Ukraine) and UNCCD national focal points, National ATS study group members and experts.

Operational Guideline for Arid and Semi-Arid Lands

The **"Operational Guideline for the Establishment of Forest Ecosystems Resilient Against Global Changes in Arid and Semi-Arid Lands"** was prepared in cooperation with FAO, and was distributed to participators during the UNCCD COP 12.

The first workshop within the framework of the guideline was organised in Konya between 28- 31 May, 2012. The second workshop was organised jointly by TİKA, Ministry of Forestry and Water Affairs, FAO, Ministry of Environment and Sustainable Development of Senegal, and the African Union Commission in Dakar, capital of Senegal, between 25-28 February, 2013. 123 expert representatives from, besides Turkey and Senegal, the US, the UK, Belgium, France, Italy, FAO Rome, FAO Central Asia, Kenya, Ghana, Algeria, Chad, Niger, Nigeria, Mali, Morocco, Sudan, Egypt, Mauritania and Burkina Faso attended the workshop. A cooperation agreement was also signed with the Government of Senegal.

The guideline was finalised in 2015, and the final version was promoted and distributed during the UNCCD COP 12 held in Ankara between 12-23 October 2015. This guideline aims to disseminate information on good practices in drylands, as well as to shed light on the improvement and capacity building works in arid areas.

World Food Day Award Ceremony

Each year on the World Food Day, United Nations Food and Agriculture Organisation (FAO) awards institutions and organisations successfully contributing to food safety.

In 2016, the General Directorate of ÇEM was awarded with an award for work on food safety.

International Trainings

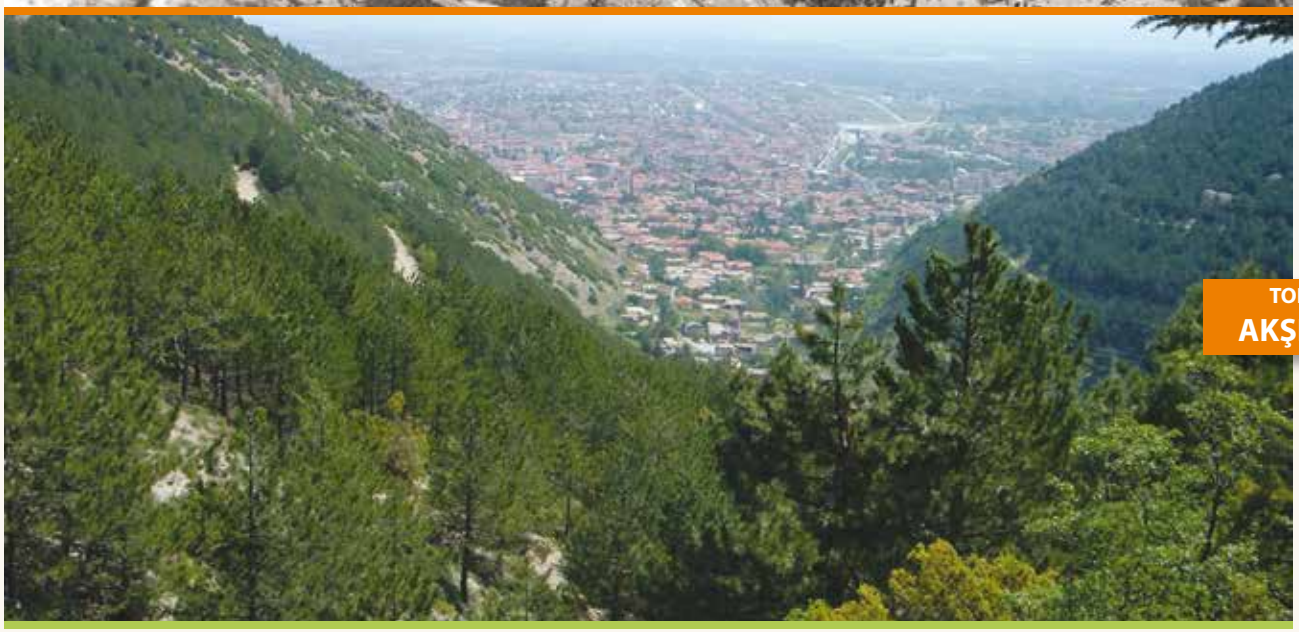
Approximately 100 specialists are trained each year in our country and abroad under Regional Cooperation Projects to transfer the experiences of our country to the experts of Central Asia, Balkans and African Countries and other countries in the fight against desertification and erosion on a global scale. Trainings given so far:

- "Training on the Improvement of Seed and Seedling Production Methods"
- "Role of Civil Society Organisations in the Combat against Desertification"
- "Participatory Integrated Watershed Management and Rehabilitation
- Participatory-Integrated Watershed Management: Planning, Rehabilitation and Income-Generating Activities
- Combat against Desertification
- Seed, Nursery and Dryland Afforestation
- Land Degradation Neutrality

Web site (www.cem.gov.tr) (Turkish, English)

The General Directorate of Combating Desertification and Erosion sharws news regarding its activities and agenda with national and international public through it: website in a timely, efficient and comprehensive manner.

Afforestation and Erosion Control Activities are the Most Effective Actions against Desertification and Drought...



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August - 2017

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