



Climate Change and Turkey

Foreword



Climate change and environment are not only ecological phenomena, they are also directly related with economy, energy, industrial investments, social life and law. Under the light of recent developments, climate change has an impact on all aspects of our lives including physical and natural environment. This situation necessitates that governments should increase their efforts to find solutions in these areas.

Global warming and climate change, that are affecting the whole world, have become important problems that our country should take the necessary precautions too. Increasing the capacity to adapt to the impacts of climate change and to design and promptly implement required plans is the priority of our Ministry and all related institutions.

Policies and measures that are needed to ensure sustainable development are being implemented in Turkey for a long time. In recent years, as climate change became more and more noticeable, matters related to energy, economy and ecology are started to be handled together. This is called the 3E (Energy-Economy-Ecology) theory that is defined as the most crucial development criterion of the 21st century. In this regard, Turkey's main policies and measures focus on sectors such as energy, industry, transportation, agriculture, waste and forestry.

Understanding this fact brought the abandonment of traditional development models along with seeking new models in order. Hence, the traditional unlimited growth and unlimited consumption patterns give way to sustainable and balanced development models of the green economy and the green policies.

In a world that is technologically and economically developed, environment-friendly new economy and development concepts are developed. In this respect, minimizing the pressure on the nature and on use of natural resources, keeping energy and water use at minimum levels throughout the production-consumption chain and supporting the energy market through incentives on the use of new and environment-friendly sources of energy is the basis of the new development model for Turkey.

Turkey aspires to integrate its climate change policies into development policies; enhance the use of clean and renewable energy sources; participate actively in the international negotiations on climate change within the scope of its 'special circumstances', and in doing so, become a country that provides her people with high living standards and welfare with a low carbon intensity. With this perspective, Turkey continues its march towards its set goals.

Turkey is a rapidly developing country with high aspirations to pursue its economic and social development in a sustainable development manner. Turkey, maintained progress in contributing to international efforts to address climate change by preparing a comprehensive National Climate Change Action Plan and it was published in July 2011. This document is also the first green development strategy of Turkey.

Within the scope of the Climate Change Action Plan, we are preparing a road map that covers all sectors and identifies our short, medium and long-term targets for combating climate change. Our aim in preparing the action plan that foresees year 2023, is to integrate Turkey's future development and environmental plans and to proceed seamlessly, and without losing pace.

Becoming a country that can pass its heritage of civilization on to future generations is only possible by taking on leading roles in one's time.

Erdoğan BAYRAKTAR
Minister of Environment and Urbanization

Climate Change and Turkey

Climate change is one of the biggest problems we face on a global scale. Especially after the Industrial Revolution, as a result of human activities such as burning of fossil fuels, land use changes, deforestation and industrial processes, greenhouse gases (carbon dioxide- CO_2 , methane- CH_4 , nitrous oxide- N_2O , hydrofluorocarbons-HFCs, perfluorocarbons-PFCs, sulfur hexafluoride-SF6) accumulate in the atmosphere and affect the chemical properties of the atmosphere. As a result, in the long term greenhouse effect causes global warming and it eventually results in climate change which has negative impacts on all fields of our lives as physical and natural environment, city life, development and economy, technology, human rights, agriculture and food, clean water and health.

As a result of the international efforts made to combat climate change, United Nations Framework Convention on Climate Change (UNFCCC) was signed in 1994. Today, 194 countries ratified the UNFCCC.

Turkey, being a member of OECD, was listed in Annex-I and also Annex-II of the UNFCCC together with the developed countries. Along with supporting the aim and general principle of the UNFCCC, Turkey didn't ratify the UNFCCC because of her unfair position and she has combated to change it for a long time. Following the decision 26/CP.7 adopted at the 7th Conference of Parties (COP.7) of the UNFCCC held in Marrakech in 2001 which "recognized the special conditions of Turkey accepted that Turkey remains an Annex I Party of UNFCCC, in a position that is different to that of other Annex I countries and Turkey will be removed from Annex II", Turkey became a party to UNFCCC on 24 May 2004.

Kyoto Protocol, which is established to provide the Convention legally binding, was ratified by Turkey in 26 August 2009. Turkey didn't have any mitigation or limitation commitment in the first commitment period (2008-2012) of the Kyoto Protocol since Turkey was not a party to the UNFCCC when Kyoto Protocol was adopted in 1997.

Turkey's national vision within the scope of climate change is to become a country fully integrating climate change-related objectives into its development policies, disseminating energy efficiency, increasing the use of clean and renewable energy resources, actively participating in the efforts for tackling climate change within its special circumstances and providing its citizens with a high quality of life and welfare with low-carbon intensity.

Coordination Board on Climate Change

Being the focal point of climate change in Turkey, Ministry of Environment and Urbanization carries out the coordination role on all the fields related with climate change. Besides this, before becoming a party to the UNFCCC, an institutional structuring took place in Turkey and with the Prime Ministerial Circular No. 2001/2 the Coordination Board on Climate Change (CBCC) was established. The CBCC was restructured in 2004, after Turkey became a party to the UNFCCC and in 2010 its remit was expanded with the participation of new members.



Members of the CBCC are:

- Ministry of Environment and Urbanization (Coordinator)
- Ministry of Science, Industry and Technology
- Ministry of Foreign Affairs
- Ministry of Economy
- Ministry of Energy and Natural Resources
- Ministry of Food, Agriculture and Livestock
- Ministry of Development
- Ministry of Finance
- Ministry of Forestry and Water Works
- Ministry of Health
- Ministry of Transportation, Maritime Affairs and Communication
- Undersecretariat of Treasury
- Turkish Union of Chambers and Commodity Exchanges (TOBB)
- Turkish Industry and Business Association (TUSIAD)

National Climate Change Strategy and Action Plan



The National Climate Change Strategy (2010-2020), developed under the coordination of our Ministry, through an effective working process by the participation of public institutions, private sector establishments, non-governmental organizations and universities, was approved by the Prime Ministry Higher Planning Council on 3 May 2010.

In order to ensure implementation of the National Climate Change Strategy, the National Climate Change Action Plan (NCCAP) including strategic principles and goals on greenhouse gases emission control and adaptation to climate change for the period of 2011-2023 was prepared and published in July 2011.

NCCAP was prepared with technical support of all stakeholders including public institutions, private sector, non-governmental organizations, academia and international organizations. 25 workshops were held with the participation of 500 experts and decision makers from 180 institutions.



The overall aim of the NCCAP is to tackle climate change by identifying national actions for limitation of GHG emissions, building resilience through managing impacts, thus encouraging mitigation and adaptation to climate change in Turkey. The NCCAP addresses measures in priority sectors that Turkey can employ under its special circumstances, specifically focusing on long term cooperation, technology development & transfer, and national and international financing mechanisms.

The preparation of the Turkey's NCCAP is based on the policy of the Ninth Development Plan which states that "In the framework of the national circumstances of Turkey, and with the participation of the relevant parties, a National Action Plan that sets forth the policies and measures for reducing greenhouse gas emissions will be prepared. Thus, responsibilities concerning UN Framework Convention on Climate Change will be fulfilled".

NCCAP which was prepared on the basis of the sectors specified both in the Annex-A of the Kyoto Protocol and in the UN-FCCC National Communication and Greenhouse Gas Inventory reporting formats, includes the goals and actions on energy, buildings, transportation, industry, waste, agriculture, land use and forestry, climate change adaptation and cross-cutting issues. Main goals and actions are listed below.

ENERGY

- Reducing primary energy intensity by 10 % compared to 2008 by 2015 as a result of implemented and planned policies and measures
- Increasing financial resources allocated to R&D on energy efficiency by 100 % of 2009 figures by 2015
- Increasing the amount of incentives for energy efficiency applications by 100 % until 2015
- Reducing nationwide electricity distribution losses to 8% by 2023
- Promoting use of cogeneration, trigeneration and regional heating systems
- Limiting GHG emissions originating from use of coal in electricity production, by using clean coal technologies and taking efficiency increasing measures
- Increasing the share of clean energy in energy production and use

INDUSTRY

- Making legal arrangements for energy efficiency and limitation of greenhouse gas emissions
- Limiting GHG emissions originating from energy usage (including electrical energy share) in the industry sector
- Decreasing the CO₂ equivalent intensity per GDP produced in the industrial sector until 2023
- Designating energy managers in all enterprises above 1000 TOE
- Developing and using new technologies for limitation of GHG in the industry sector until 2023

BUILDING

- Decreasing annual energy consumption in the buildings and premises of public institutions by 10% until 2015 and by 20% until 2023
- Appointing energy managers for public buildings consuming 250 toe or more energy or that are larger than 10 thousand m²
- Meeting at least 20% of the annual energy demand of new buildings via renewable energy resources as of 2017
- Reducing greenhouse gas emissions in new settlements by at least 10% per settlement in comparison to existing settlements (which are selected as pilot and the greenhouse gas emissions of which are identified until 2015) until 2023

TRANSPORTATION

- Increasing the share of railroads in freight transportation (which was 5% in 2009) to 15% and in passenger transportation (which was 2% in 2009) to 10% by 2023
- Increasing the share of seaways in cabotage freight transportation (which was 2.66% in ton-km in 2009) to 10%, and in passenger transportation (which was 0.37% in passenger-km in 2009) to 4% as of 2023
- Decreasing the share of highways in freight transportation (which was 80.63% in ton-km in 2009) below 60%, and in passenger transport (which was 89.59 in passenger-km in 2009) to 72% as of 2023

WASTE

- Reducing the quantity of biodegradable wastes admitted to landfill sites, taking year 2005 as a basis, by 75% in weight till 2015, by 50% till 2018 and by 35% till 2025
- Preparation and implementation of Integrated Waste Management Plans (IWMP) by Municipalities/ Municipality Unions
- Strengthening the institutional structure of Waste Management Unions
- Establishing integrated solid waste disposal facilities across the country, and dispose 100% of municipal waste in these facilities, until the end of 2023
- Collecting the landfill gas (biogas) created in the suitable sections of the covered areas of landfill sites and ensuring their use in energy generation
- Finalizing Packaging Waste Management Plans and ensuring effective implementation of source-separated collection of wastes
- Establishing the recycling facilities foreseen within the scope of the Solid Waste Master Plan with the EU-aligned Integrated Waste Management approach
- Increasing the number of compost and biomethanisation plants
- Conducting studies to generate renewable energy from all waste sources (i.e. domestic wastes and other municipal wastes) that have an energy value
- Ensuring that local governments benefit from incentives for implementation of waste management systems
- Termination of uncontrolled disposal of wastes 100% by 2023



LAND USE and FORESTRY

- Increasing the amount of carbon sequestered in forests by 15% of the 2007 value by 2020 (14,500 Gg in 2007, 16,700 Gg in 2020)
- Reducing deforestation and forest damage by 20% of the 2007 values by 2020
- Increasing the amount of sequestered carbon as a result of agricultural forestry activities by 10% of the 2007 values by 2020
- Identifying the amount of sequestered carbon in pastures and meadows in 2012, and increase carbon stock 3% by 2020



AGRICULTURE

- Determining and increasing the quantity of carbon stock captured in the soil
- Identifying the potential GHG emissions limitation in agriculture sector
- Decreasing the increase rate of GHG emissions originating from vegetal and animal production
- Establishing the information infrastructure that will meet the needs of the agriculture sector in adapting to and combating climate change



CROSSCUTTING ISSUES

- Monitoring and reporting of greenhouse gas emissions from key sources using at least Tier 2 methodologies as of the beginning of 2016
- Carrying out negotiations to ensure Turkey's participation in the most advantageous way into the existing and new global and regional carbon markets until 2013
- Carrying out studies to establish the carbon market in Turkey by 2015



Green Growth and Turkey



The rapid developments in the field of industry and technology, on one hand, improve the living standards of people by increasing the man's sovereignty over nature, on the other hand, together with the increasing population and rapid urbanization, causes the degradation of natural balances. Accordingly, these developments led to air, water and soil pollution that could threaten up all living things.

The most important factor that determines the development is the rapid and irreversible destruction of the resources used in the of social and economic development.

Understanding of this fact brought the abandonment of traditional development models along with the seeking of new models in order. Hence, the traditional unlimited growth and unlimited consumption patterns gave way to sustainable and balanced development models of the green economy and the green policies.

Innovation is an essential prerequisite for sustainable growth and with this respect the green economy is a new global economic vision. To begin with,



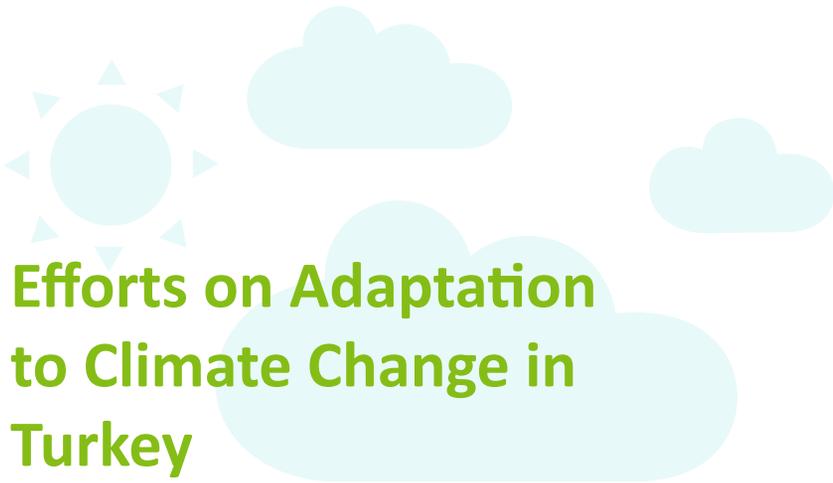
old technologies are cheaper and are going to stay cheaper in the near future, compared to green technologies. Therefore green technologies need to be improved more and made cost competitive. The negative impacts of the green economy should also be taken into account and how to minimize them should be analyzed more in detail.

Economic and technological problems are the constraints on green economy politics. It is needed to maximize the economic and employment opportunities for all countries in expanding renewable sources of energy and clean technology. Consumption tax and value added taxes should be encouraging for entrepreneurs.

In conclusion, Turkey is a rapidly developing country with high aspirations to pursue its economic and social development in a sustainable development manner. Moreover, expanding the renewable sources of energy and also clean technology, in our country it is aimed to maximize the opportunities for economic development and employment. For this aim, it is mentioned in the National Climate Change Strategy (2010-2020) that “In the medium term, transition to low carbon economy will be accelerated by ensuring support for technology renewal, emission control, climate-friendly technology production, clean product design and cleaner production technologies”.

Being the the first green growth strategy of Turkey, NCCAP, in which the goals, objectives and actions were determined related to the sectors of energy, industry, waste, buildings, forestry, transportation and agriculture, handles the environmental, economic and social dimensions as a whole. In our understanding, green growth has to be economically, environmentally and socially sustainable. Therefore, more attention should be given to the three dimensions of development.





Efforts on Adaptation to Climate Change in Turkey

The key requirements for climate change adaptation in Turkey are stipulated in national and rural development strategies, particularly in Ninth Development Plan (2007-2013). In this context various studies have been conducted to enhance the capacity of national and regional institutions to respond to disasters induced by climate change.

In this regard, with UN Joint Programme on Enhancing the Capacity of Turkey to Adapt to Climate Change (2008-2011) mainstreaming climate change adaptation in Turkey's national plans, developing institutional capacity in order to manage risks induced by uncertainties caused by climate change, implementing community-based pilot projects in the Seyhan River Basin and mainstreaming climate change adaptation into UN programming framework in Turkey were aimed.

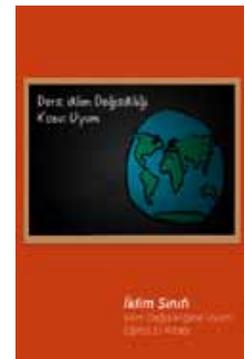
In the framework of UN Joint Programme, a Grant Programme on Adaptation to Climate Change in Seyhan River Basin was initiated in 2009 and through this Grant Programme 18 projects were implemented to enhance the adaptation capacity of institutions and to raise the awareness of the people living in the basin. While the pioneer projects aimed to develop capacities and raise awareness on climate change adaptation in the long run, they also contributed to developing good agricultural techniques, ensuring food security, determining flood risks, encour-

aging the use of alternative irrigation methods, and minimizing the risk of rising sea levels.

Climate Classroom - Climate Change Adaptation Toolkit

It has been prepared in order to raise awareness of primary school students on adaptation to climate change through training the trainees'. This Toolkit consists of five chapters. Every chapter has general information, activities that can be implemented together with students, and questions for evaluating the activities. The chapters are as follows:

- Unit 1** Introduction to Climate Change
- Unit 2** Greenhouse Effect and Climate Change
- Unit 3** Observed and Projected Impacts of Climate Change
- Unit 4** Global Climate Change and Turkey: Possible Impacts of Climate Change in Turkey
- Unit 5** Looking for Solutions





National Climate Change Adaptation Strategy and Action Plan

It is foreseen that the climate change in Turkey will have negative impacts like diminishing water resources, increase in flood, forest fires, drought, desertification and linked to these ecological degradation. Climatic forecasts that are carried out within the scope of the UN Joint Program on Enhancing the Capacity of Turkey to Adapt to Climate Change also produced

similar outputs supporting the other studies that indicate noticeable increase in temperature and change in the precipitation regime, water cycle in other words, which may impact all economic sectors, all settlements and climate-related natural disaster risks. An interpretation of this data would only emphasize an obvious impact of changes in temperature and precipitation patterns on closely related areas such as water resources, agricultural production, public health and natural disaster risks; and ecosystem services that provides raw materials for economic activities and that directly affect the amount and quality of basic inputs such as water, to manufacturing activities.

Therefore to sustain the adaptation to climate change in Turkey, the first national adaptation strategy of Turkey has been prepared. National Climate Change Adaptation Strategy and Action Plan have focused on five important fields which are supported by technical and scientific studies and participatory processes.

Water resources management

- Integrating adaptation to the impacts of climate change into water resource management policies,
- Strengthening water resources management capacity, inter-agency cooperation and coordination with regard to adaptation to climate change,

- Develop and expand R&D and scientific studies to ensure adaptation to the impacts of climate change in water resources management.

Agricultural sector and food security

- Integrating Climate Change Adaptation Into The Agriculture And Food Security Policies,
- Developing a 'Soil and Land Database and Land Information System' taking into consideration the effects of climate change,
- Sustainable Planning Of Water Utilization In Agriculture.

Ecosystem services, biodiversity and forestry

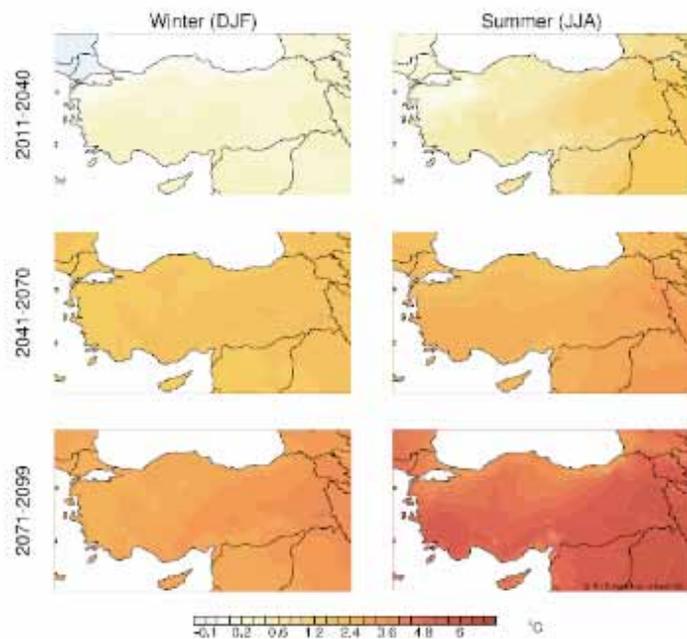
- Integration Of Climate Change Adaptation Approach To Ecosystem Services, Biodiversity And Forestry Policies,
- Identifying And Monitoring The Impacts Of Climate Change On Biological Diversity And Ecosystem Services,
- Identifying the land use changes due to the impacts of climate change in forest land.

Natural disaster risk management

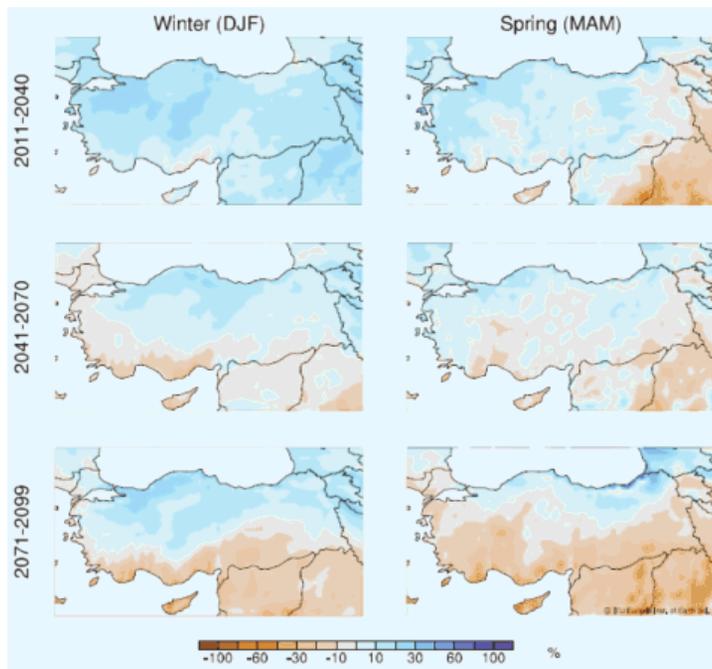
- Identifying Threats And Risks For Management Of Natural Disasters Caused By Climate Change
- Strengthening Response Mechanisms For Natural Disasters Caused By Climate Change
- Continuing the training activities that will increase public awareness and participation with regard to the disaster and risk impacts that may arise due to climate change

Public health

- Identifying The Existing And Future Effects And Risks Of Climate Change On Human Health
- Developing The Capacity To Combat Risks Originating From Climate Change In The National Healthcare System
- Strengthening the capacities of health sector organizations against health risks arising due to climate change



Projected changes (over 1961-1990 period) in surface temperature (°C) for winter (left column) and summer (right column)



Projected changes (over 1961-1990 period) in precipitation (%) for winter (left column) and summer (right column)



The Impacts of Climate Change and Susceptible Sector/Regions in Turkey

Impacts	Intensity	Susceptible regions	Susceptible Sectors/Themes
Modification of river / basin regimes	Low	All regions	Ecosystem services and biodiversity
Dimising surface waters	Medium	Western Anatolian region	Agriculture, water distribution infrastcture
Scarcity of exceeding usage water	High	İstanbul, Ankara, Aydın, Nevşehir, Bursa	Urban areas
	Medium	Afyon, izmir, Kayseri, Muğla, Manisa	Agriculture, industry, energy
Floods	Medium	Black Sea and South-eastern Anatolian Regions	The survival of the agricultural farmer, human health
Soil loss / salinity	Low	Mediterranean , Black Sea and Aegean Regions	Tourism, ecosystem services, biodiversty, marine products
Soil loss / loss of quality of soil	Medium	South Western Anatolia	The survival of the agricultural farmer, human health, shallow lakes and wetlands
Coastral Erosion	Low	Black Sea Region	Fishing, unemployment
Degradation of marine ecosystems	Low	Mediterranean , Black Sea and Aegean Regions	Ecosystem services and biodiversity
Forest fires	Medium	Western Anatolia	Tourism, agriculture
Migration of species to other areas in order to survive	Low	Mediterranean region	Tourism, agriculture, food security
Decreasing agricultural productivity	Medium	Mediterranean and Aegean coastral areas	Agriculture,(employment) food security
Lowering Hydro - Energetic potential	Low	Mediterranean region	Energy, industry,
Lowering production of sea products	Low	Mediterranean region	Agriculture,food security, water distribution networks

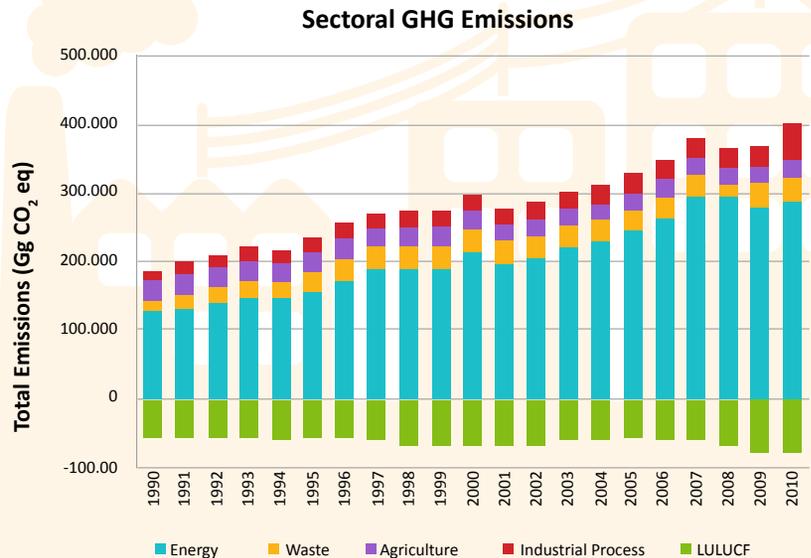
Monitoring GHGs Emissions and Carbon Markets

Turkey's GHG Inventory

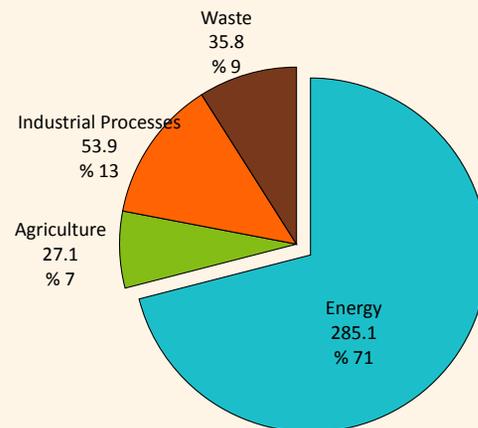
Greenhouse gas (GHG) emission inventory between 1990 and 2010 was submitted to United Nations Climate Change Secretariat on 14 April 2012. According to the inventory results, total GHG emissions in 2010 are estimated at 402 million tonnes of CO₂ equivalent. Total GHG emissions in 2010 arise from energy (%70.9), industrial process (%13.4), waste (%8.9) and agricultural activities (%6.8)

In 2010, Turkey's GHG emissions are 5.5 tonnes of CO₂ equivalent/capita while GHG emissions are approximately 15 tonnes of CO₂ eq./capita and 10.2 tonnes of CO₂ eq./capita for OECD and for 27 EU Member States respectively.

The figure below shows the trend of GHG emissions related to energy, waste, agricultural activities, industrial process and land use, land-use change and forestry (LULUCF).



Sectoral breakdown of Turkey's 2010 GHG Emissions



Carbon Market in Turkey

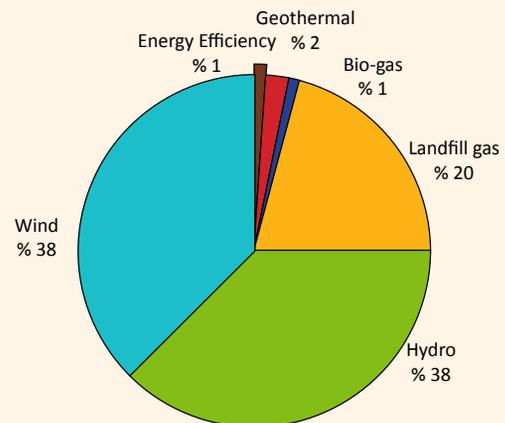
Although Turkey does not benefit from market-based flexible mechanisms of Kyoto Protocol, in Turkey, projects for Voluntary Carbon Markets (VCMs) established under the principle of environmental and social responsibility have been developed and implemented for a long time. Since 2005, Turkey has been a host country for the projects developed under the VCMs.

Even though VCM represents a very small percentage of world carbon market, Turkey's active participation in VCMs gives the opportunity to participate in new carbon markets for the future.

Number of Projects in Turkey and Emission Reduction (May 2012)

Projects	Number of project	Annual GHG Mitigation (tonne CO2 eq)
Hydro	119	5.367.035
Wind	59	5.267.055
Bio-gas	2	100.884
Geothermal	5	285.309
Energy efficiency	3	96.246
Landfill Gas	13	2.741.890
TOTAL	201	13.858.419

VCM project-types and emission reductions



Carbon Registry

Following the publication of the Communication on Registry Operations of GHG Emission Projects in the Official Gazette on 07.08.2010 and no 27665, a carbon registry was established within the Ministry of Environment and Urbanization (Amendment: Official Gazette dated 22.10.2011, No: 28092).

With the registry, it is aimed to register the voluntary carbon projects developed and implemented to reduce and limit greenhouse gas emissions and increase sinks.

Registration can be made through the links below:
<http://www.karbonkayit.csb.gov.tr>
<http://www.iklim.csb.gov.tr>

Regulatory Framework on 'Monitoring GHGs Emissions'

Within the context of tackling climate change, By-law on Monitoring GHGs Emissions was published in the Official Gazette dated 25.05.2012 and numbered 28274 by Ministry of Environment and Urbanization, which is an important step towards establishing the Monitoring, Reporting and Verification (MRV) System.

This new regulation covers major part of the national GHG emissions caused by combustion of fuels and sectors related to steel, ceramic, cement, and pulp and paper, and glass production and with this regulation, installation level based emissions from sectors aforementioned are aimed to be monitored.

In this way, Turkey will be able to calculate GHG emissions, more precisely, and also at least half of the total emissions will be able to be determined at the installation-level. In addition, these emissions will be verified by independent organizations that are authorized by the Ministry. Following verification stage, installations will report GHG emissions.

Within the scope of the By-law on Monitoring GHG Emissions, reporting obligation will begin in 2016. By-law on Monitoring GHGs Emission' is an important step for EU Environment Chapter of Negotiations.

Every year, installations covered by this regulation are subject to monitoring, verification and reporting process. With verification system to be established, controls related to verification of installation level based emission reports will be examined on-site by independent organizations and will be provided before sending these emission reports to the Ministry.

With the implementation of this regulation, transparent, accurate, comparable, complete and consistent installation level data and information regarding GHG emissions will be provided. In this way, basic infrastructure will be established for formation of our country's climate change policies and for the steps to be taken to tackle climate change.





Partnership for Market Readiness (PMR)

World Bank implements a new support program of Partnership for Market Readiness (PMR) bringing together developed and developing countries to provide a platform for sharing experience, fostering new & innovative market-based instruments, and building market readiness capacity for countries to scale up climate change mitigation efforts.

Turkey, the member of Partnership Assembly of PMR, is the first country signed the PMR Grant Agreement. PMR funding and the Grant Agreement were published in the Official Gazette dated 06.01.2012, No: 28165.

Within the scope of PMR Program, Turkey also identified three main areas to be detailed. These are monitoring, reporting, verification (MRV) system, capacity building and piloting.

Towards the Carbon Markets

Concerning the carbon market, the activities mentioned below are defined in the main national strategies and action plans in Turkey.

National Climate Change Action Plan

- **Purpose Y4.** Optimum usage of emission trading mechanisms that contribute to the cost effective limitation of GHG emissions.
- **Objective Y4.2.** Carry out studies to establish the carbon market in Turkey by 2015

Strategy and Action Plan For Istanbul International Financial Center

- **Activity 33.** Establishing the carbon market (2012-2015)

Energy Efficiency Strategy Paper

- **SH-7 / SH-05.** In the context of sustainable financing mechanisms except the public for the applications related to energy efficiency and renewable energy sources the works of developing the infrastructure of carbon trading and carbon market shall be completed within the eighteen (18) months as of the date publication of document.



ZONE

Layer is Our Natural Umbrella
Let's Protect it

Ozone Layer

The ozone layer in the upper levels of the atmosphere acts like a shield protecting all living creatures from the deadly ultraviolet radiation of the sun.

Depletion of the Ozone Layer

The decrease in the capacity of the ozone density in capturing the ultraviolet radiation is called the "depletion of ozone layer". As a result of inadequate capturing of the ultraviolet radiation (UV-B) from sun by ozone layer, harmful impacts occur in all living organisms; growth speed of the plants decreases, number of skin cancer cases increase, eyes are damaged, the risk of catching infectious diseases due to the damage in immune system increases.



Substances causing depletion in ozone layer:

- Chlorofluorocarbons (CFC)
- Halons
- Methyl Chloroform
- Carbon Tetrachlorid
- Hydrobromofluorocarbons (HBFC)
- Hydrochlorofluorocarbons (HCFC)
- Methyl bromure (MeBr)

International Process

Depletion of ozone layer is one of the environmental problems faced by human in the world.

Since 1986, relative limitation of the ozone depleting substances has been agreed because of the defects observed in the ozone layer. In 22 March 1985 the Vienna Convention on the Protection of Ozone Layer and in 16 September 1987 the Montreal Protocol on the Substances that Deplete the Ozone Layer were signed.

Montreal Protocol, being the most successful environmental agreement, has been the starting point of the activities under the umbrella of United Nations on the resolution of environmental problems.

The usage of the HCFC gases, as alternatives to the CFCs, was decided to be phased out with international agreement due to their negative impacts on both ozone layer and climate change.

National Process

Turkey has been a party to the Vienna Convention and Montreal Protocol on the Protection of Ozone Layer since 1991 and ratified all amendments.

The monitoring of the international and national activities is carried out under the coordination of the Ministry of Environment and Urbanization, acting as the National Ozone Unit. Our country is one of the successful countries in the implementation of the Montreal Protocol. Turkey has successfully implemented an accelerated phase-out schedule in CFC compared to the countries listed in the same group under the Montreal Protocol.

As the CFC gases were phased-out, HCFC group gases will be phased-out.

With the by-law on the Reduction of the Ozone Depleting Substances;

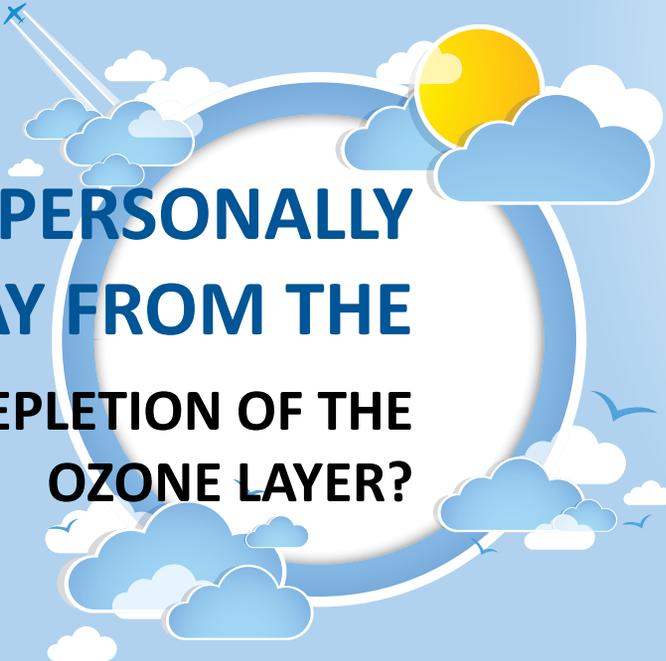
- The import and usage of all CFC gases in all fields have been banned since 1 January 2006.
- The import of halons used in fire extinguishers has been banned since 1 January 2008.
- Taking the 2007 import amounts as the baseline, the import of the HCFC group gases has been limited by quota since 1 January 2009.
- The import of the HCFC group gases in the insulation sector will be ended by 1 January 2013.
- The import of the HCFC group gases in the refrigeration sector will be ended by 1 January 2015. Excluding the use of technical service providers.
- Control license is issued by Ministry of Environment and Urbanization for the import of the ozone depleting substances. estry for the import of the Ozone Depleting Substances.





- Buy ozone friendly products not containing the chemicals harmful for the ozone layer. Use your power as a consumer!
- Take care of periodical servicing of your refrigerators, deep freezers and air conditioners. If needed, warn the service technician not to let the used gas leak to the air.
- Car air conditioners may contain ozone depleting substances as refrigerants. Choose the models not containing such substances.
- Do not forget that the insulation materials and packaging foams may contain ozone depleting chemicals. Do not consume these products unnecessarily.

Get more detailed information on the ozone depleting chemicals and materials containing them.



WHAT CAN WE DO **PERSONALLY** TO KEEP AWAY FROM THE **IMPACTS** OF THE DEPLETION OF THE **OZONE LAYER?**

- To be exposed to direct sunlight heavily increases the color distortion in the skin, sun burns and the skin cancer risks in the older ages.
- While preventing the conditions increasing the skin cancer, do not omit to gain sufficient D-vitamins from ultraviolet radiation. Establish a balance of both!
- Do not forget the skin of the babies is also sensitive to the sunlight.
- To avoid from the harms of the direct sunlight, do not get out between 11:00-15:00 hrs if there is not any emergency. If you have to do so, use
 - Long sleeve, cotton light colored clothes
 - Wide edged hats
 - U.V. filtered sun glasses
 - Creams having sun protection factor (SPF)
- Cloudy weather is not protective. As the clouds do not deprive the intensity of the ultraviolet radiation do not neglect to be protected in such days!



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