

REPUBLIC OF TURKEY MINISTRY OF ENVIRONMENT AND URBANIZATION
GENERAL DIRECTORATE OF ENVIRONMENTAL IMPACT ASSESSMENT,
PERMIT AND INSPECTION
Environmental Inventory and Information Management Department



ENVIRONMENTAL INDICATORS 2012

ced
20th YEAR OF
ENVIRONMENTAL
IMPACT ASSESSMENT



ANKARA 2013

REPUBLIC OF TURKEY MINISTRY OF ENVIRONMENT AND URBANIZATION
GENERAL DIRECTORATE OF ENVIRONMENTAL IMPACT ASSESSMENT,
PERMIT AND INSPECTION
Environmental Inventory and Information Management Department



ENVIRONMENTAL INDICATORS 2012

Release NO:17**FOR YOUR INFORMATION REQUESTS AND QUESTIONS ABOUT RELEASE CONTENT**

Environmental Inventory and Information Management Department

Data Evaluation Divison

Tel: +90 (312) 410 17 00

Fax:+90 (312) 419 21 92

e-mail: cebyd@csb.gov.tr

Web

<http://www.csb.gov.tr/gm/ced/>

ISBN

978-605-5294-22-9

T.R. MINISTRY OF ENVIRONMENT AND URBANIZATION**GENERAL DIRECTORATE OF ENVIRONMENTAL IMPACT ASSESSMENT, PERMIT AND INSPECTION**

Vekâletler Cad. No:1 Bakanlıklar/Ankara

PRODUCTION

All rights of this publication is reserved to Republic of Turkey Ministry Of Environment and Urbanization due to the Law of Intellectual and Artistic Works numbered 5846. It shall not be reproduced or distributed without authorization by real or legal entity.



One of the most important issues among our task as the Ministry is the submission of true and independent information about the environment to public. In addition to activities in creation of awareness, development, application and evaluation of environmental policies, our ministry is the most important public institute in the country which provide information for also public.

Environmental indicators booklet we submitted as an important source establishes a bridge between past and present, gives opinion about environmental issues and guides all the related institutions and people.

I wish “Environmental Indicators 2012” booklet to be an instructive in taking environmental decisions.

Erdoğan BAYRAKTAR
Minister of Environment and Urbanization

Issue No. 1: Ankara Province Environmental Status Report, 1994

Issue No. 2: Provincial Environmental Problems and Priorities Inventory Assessment Report, 1996

Issue No. 3: Industries Affecting Environment Primarily and Main Sector Activities , 1996

Issue No. 4: Environmental Atlas of Turkey 96, 1997

Issue No. 5: Environmental Status Report of Turkey, 2007

Issue No. 6: Inventory of Environmental Problems and Priorities Assessment Report of Turkey (2005 - 2006), 2008

Issue No. 7: Environmental Indicators Handbook 2008, 2009

Issue No. 8: Environmental Indicators Handbook 2009, 2010

Issue No. 9: Inventory of Environmental Problems Priorities Assessment Report of Turkey 2007-2008, 2010

Issue No. 10: Environmental Indicators Handbook 2010, 2011

Issue No. 11: Environmental Status Report of Turkey, 2011

Issue No. 12: Environmental Indicators Handbook 2011, 2012

Issue No. 13-1: 2011 Environmental Inspection Report, 2012

Issue No. 13-2: Environmental Inspection Report of Turkey in 2011, 2012

Issue No. 14: Inventory of Environmental Problems and Priorities Assessment Report of Turkey, 2012

Issue No. 15: Environmental Status Report - 2012 Annual Summary - Provinces

CLASSIFICATION OF CONTENTS	8
SUMMARY TABLE OF INDICATORS	10
EXECUTIVE SUMMARY	12
1-POPULATION	
1.1-Population Growth Rate	16
1.2-Urban Population	17
2-ECONOMY	
2.1-Total Public Sector Expenditure	18
2.2-Sectoral Distribution of Employment	19
3-AIR – ATMOSPHERE - CLIMATE	
3.1-Greenhouse Gas Emissions	21
3.2-Total Greenhouse Gas Emissions by Sectors	22
3.3-Rain	23
3.4-Temperature.....	24
3.5-Sea Water Temperature	24
3.6-Types Of Natural Disasters	25
4-AIR QUALITY	
4.1- Air Pollutants	26
4.2- Number of Short-term over the limit value for Air Pollutants.....	27
Air Pollutants Emissions	28
5-WATER - WASTEWATER	
5.1-Water Usage.....	29
5.2-Municipal Drinking Water Sources.....	30
5.3- Municipalities Served by Wastewater Treatment Plant	31
6-LAND USE	
6.1-Land Use	32
7-AGRICULTURE	
7.1-Agricultural Area Per Capita	33
7.2-Non-Objective Use Of Agricultural Lands.....	34
7.3-Chemical Fertilizer Consumption	35
7.4-Use Of Pesticide	36
7.5-Organic Agriculture	37
7.6-Good Agricultural Practices.....	38
8-BIOLOGICAL DIVERSITY	
8.1-Biological Diversity	39
8.2-Protected Areas	40
8.3-Forested Areas	41
8.4-Forest Fires.....	42
9-FISHERY	
9.1-Fishery.....	43
10-INFRASTRUCTURE AND TRANSPORTATION	
10.1-Road And Railway Road Network.....	44
10.2- Amount of Passengers and Freight by Mode of Transportation	45
10.3-Number Of Motor Vehicles	47
11-ENERGY	
11.1-Total Energy Consumption by Sectors	48
11.2- Share of Consumption in Renewable Energy Sources	49
11.3-Energy Efficiency In Buildings.....	50
12-WASTE	
12.1- Municipal Wastes and their Disposal	51
12.2- Landfill of Wastes	52
12.3-Medical Waste	53
12.4- Oil Wastes	54
12.5-Vegetable Oil Wastes.....	55
12.6-Waste Batteries and Accumulators	56
12.7-Packaging Wastes.....	57
12.8-End of Life Tires.....	58
12.9- End of Life Vehicles	59
12.10- Waste Electrical and Electronic Equipment	60
12.11-Mining Wastes.....	61
12.12-Dangerous Wastes.....	62
12.13-Ship Waste Management.....	63
12.14- Risk Assessment and Emergency Response	64
13-TOURISM	
13.1-Number of Tourists.....	65
13.2-Blue Flag Applications	66
14-OTHER	
14.1-Liability Insurance	67
14.2-Number of Installations with Environmental Management Certificate	68
WATER, WASTEWATER AND WASTE DATA COMPARISON OF 2008 AND 2010 ACCORDING TO SECTORS	69
DEFINITIONS	70
SOURCES	76

CLASSIFICATION OF INDICATORS

Different approaches implemented for the development of environmental indicators, indicator sets are created within different conceptual frameworks or models. One of them is, "Pressure-State-Response (PSR)" framework. In 1994, the OECD (Organization for Economic Cooperation and Development) to provide a basis for the work of reporting by the environmental policies and a comprehensive indicator system has been developed and established. The main concept of this framework is, human activities exert "pressure" on the environment and affect its quality and the quantity of natural resources ("state"); society responds to these changes through environmental, general economic and sectoral policies and through changes in awareness and behaviour ("societal response")

The other model of DPSIR framework has been established by EEA (European Environment Agency) with the development of the PSR framework in order to define the relationship between society and the environment in 2004, This model includes the five elements; driving force , Pressure, state, Impact ,Response . It is possible to explain the driving forces and effects between relationship and the entity , in other words, measuring the effectiveness of applied precautions with this approach.

The Indicators in the Booklet can be classified as follows

Driving Force Indicators	Pressure Indicators	State Indicators	Impact Indicators	Response Indicators
<ul style="list-style-type: none"> . Population Growth Rate . Urban Population . Total Energy Consumption By Sectors . Passenger And Freight Transport 	<ul style="list-style-type: none"> . Air Pollutants Emission . Usage Of Water . Municipal Drinking and Potable Water Sources . Non-Objective Use Of Agricultural Lands . Use Of Chemical Fertilizer . Use Of Pesticide . Fishery . Road And Railway Network . Number of Motor Vehicles . Waste Production Quantities . Number Of Tourists 	<ul style="list-style-type: none"> . Sectoral Distribution Of Employment . Greenhouse Gas Emissions . Total Greenhouse Gas Emissions By Sector . Rain . Temperature . Air Pollutants . Number of Short-term over the limit value for Air Pollutants . Land Use . Agricultural Areas Per Capita . Forest Areas . Forest Fires . Blue Flag Applications 	<ul style="list-style-type: none"> . Sea Water Temperature . Disasters By Types . Number Of Threatened Species (Biological Diversity) 	<ul style="list-style-type: none"> . Total Expenditure Of Public Sector . Number of Municipalities served with Waste Water Treatment Plant . Protected Areas . Organic Farming . Good Agricultural Practices . Renewable Energy Consumption . Energy Efficiency in Buildings . Disposal Of Waste Collected by or on behalf of City Municipalities . Disposal And Recovery Of Various Wastes . Liability Insurance . Number of Installations with Environmental Management Certificate

(Trend Over The Previous Year)

POPULATION		LAND USE	
Population	↑	Artificial Regions	↑
Population Growth Rate	↓	Agricultural Areas	↓
Urban Population	↑	Forest And Semi-Natural Areas	↑
ECONOMY		Wetlands	↑
The Total Expenditure Of Public Sector	↑	AGRICULTURE	
AIR – ATMOSPHERE - CLIMATE		Agriculture Areas Per Person	↓
Greenhouse Gas Emissions	↑	Non-Objective Use Of Agricultural Areas	↑
Total Greenhouse Gas Emissions Per Sector	↑	Chemical Fertilizer Consumption	↑
Rain	↑	Use Of Pesticide	↓
Temperature	↑	Organic Farming	↑
Sea Water Temperature	→	Good Agricultural Practices	↑
Disasters By Type	✗	BIOLOGICAL DIVERSITY	
AIR QUALITY		Biological Diversity	↓
Air Pollutants Emissions	↑	Protected Areas	✗
WATER – WASTE WATER		Forest Areas	↑
Usage Of Water	→	Forest Fires	↑
Municipal Drinking and Potable Water Sources	↑	FISHERY	
Municipalities Served By Waste Water Treatment Plant	↑	Sea Fishery	↓

Aquaculture ↑

INFRASTRUCTURE AND TRANSPORTATION

Highway Road Network ↑

Railway Network →

Transportation of Passenger on Road ↑

Transportation of Freight on Road ↑

Transportation of Passenger on Railway ↓

Transportation of Freight on Railway →

Number Of Motor Vehicles ↑

ENERGY

Total Energy Consumption By Sector ↑

Share Of Consumption Of Renewable Energy consumption ↓

Energy Efficiency In Buildings ↑

WASTE

Amount Of Municipal Waste ↑

Amount of Landfilled Waste ↑

Waste Landfills ↑

Medical Waste Disposal (Sterilization) ↑

Medical Waste Disposal (Incineration) →

Oil Waste Collection Amount ↑

Waste Batteries And Accumulators Collection Amount ↑

Recycled Packaging Waste Amount ↓

Amount Of End of Life Tires Disposed ↑

Amount Of End of Life Vehicles Disposed ✗

Waste Electric And Electronic Equipment Collection Amount ↑

Mining Waste ✗

Hazardous Waste Recovery Amount ↑

Amount Of Waste Collected From Ships ↑

TOURISM

Number Of Tourists ↑

Blue Flag Applications ↑

OTHER

Liability Insurance ↑

Number of Installations with Environmental Management Certificate ↑

ADVERSE DEVELOPMENTS		POSITIVE DEVELOPMENTS		NEUTRAL DEVELOPMENTS
↑	GROWING TREND	↑	GROWING TREND	→
↓	DECREASING TREND	↓	DECREASING TREND	
COMPARATIVE DATA NOT FOUND ✗				

Today, environmental policies in Turkey should be given as much importance as economic and social policies.

Looking at the past 30 years, many environment policies have been developed and struggled against pollution. In addition, approach and standpoint for environmental issues of the public has been constantly evolving.

Population, one of the most important parameters that effect environmental issues in Turkey, has increased but the population growth rate tends to decrease. In the 1920's, while 24% of the population lived in cities, 77% of the population lives in cities today. This requires the urbanization and environmental problems, economic and social problems to be resolved.

Total environmental expenditure of the public sector in 2010 was realized as 9.86 billion TL, there is an increase of 1.5% as compared the previous year. However, while the total environmental expenditure for the public sector in GDP (Gross Domestic Product) is 1.02% in 2009, it was decreased 0,89% in 2010.

The distribution between sectors with the increase in the urban population was changed. Employment in agriculture decreased in Turkey, and most of the industry has increased its share of the services sector. The share of the agricultural sector in the current situation is still high as compared to developed countries. This situation is even more economically viable employment in industry and services is expected to increase.

Turkey's greenhouse gas emissions rate, even if it was not such as that between the years of 1990-2007, is increasing. As a developing country, the growing population in our country, in line with evolving industry and consequent rising demand for energy has increased, and the increase in greenhouse gas emissions are expected to continue like that in the period ahead.

Looking at the sectoral distribution of greenhouse gas emissions, it is observed that increase in total emissions is largely due to energy production and consumption followed by emissions aroused from industrial processes.

Unusual phenomenon of climate change, as the weather changes and we examine data from Turkey as regional water shortages, in 2012, by 16% normal to wet conditions in 2011 were increased by 14% compared with the precipitation. According to data from the General Directorate of Meteorology in Turkey for many years, a slight upward trend in the average temperature of the sea water, although at this stage to talk about the global warming is not true. However, the ongoing climate change, and for the past 100 years, average temperatures in Europe will be increased by 0.95 ° C and 2-6 ° C in the next century .

Upon taking a glance at proportional distribution of the natural disasters that occurred between the years 1894-2012 in Turkey, forest fires (38%), landslides (18%), storm (12%) and hail (7%) are observed .

When observed air pollutant emissions between the years of 1990-2011, an increase is observed. Also, it is observed that there is an increase in NO_x (97,9%) followed by SO₂ (51,5%), CO (51,3%), NMVOC (22,6%), PM₁₀ (3,3%) ve NH₃ (0,4%). Exposures to these concentrations cause early deaths and health problems.

Studies conducted in Europe show us that low-carbon-emission economy reduces energy consumption and increase the share of renewable energy to ensure efficiency in the use and production of energy is connected. Use of renewable resources for energy production is also increasing.

According to TURKSTAT data, while dependency rate to importation for fulfillment of energy consumption in 2000 is 67,6%, it is 72,5% in 2010. In 1990, the contribution of renewable energy in total energy consumption in Turkey is around 18%, with the increasing need for energy and other sources of energy to meet this need, in 2010, the ratio decrease around 9%.

It has been reached 50% rates when Building sector, energy efficiency and savings potential compared to current consumption. .

Turkey in the short term, the increased use of renewable energy sources like wind and solar power, in the future, for the benefit of developing economy, is expected to increase the use of nuclear power.

Protection of water resources as much as consumption is one of the important issues. In particular, demand for residential drinking water continues to rise. Drinking and potable water demand will increase further in the coming years. This requirement is met, and the industry needs more water for irrigation of agricultural products would make it harder water demands. Long term issue of climate change, it is expected to become more common and more intense.

The increase in the number of wastewater treatment plants in urban water resources of lakes, rivers and the sea a positive effect on water quality.

As of 2012, 73% of the fresh water is consumed for irrigation, 16% for drinking water and 11% for industry.

In 2010, while the municipal population served by water supply system is 82% in Turkey's population, the share of the total municipal population was found to be 99%.

As of 2012, the municipal population served by wastewater treatment plants reached to 72% of the total municipal population.

According to TURKSTAT 2010 data, wastewater in Turkey was treated 37.9% by advanced treatment, 34.3% by biological treatment, 27.6% by physical treatment and 0,2% by natural treatment.

The period of 1990-2006 in Turkey, artificial areas (settlements, industry, transport areas, etc.) increases caused a decline in agricultural areas.

11.6 million hectares of forest areas in Turkey normal (11-100% off) the area of the damaged 10.1 million hectares (0-10% off) area. In this case, proportionally, forest areas, 53.3% normal, 46.7% are qualified corrupted.

According to data in the last decade (2003 - 2012), it is seen in our country that average annual forest fire rate is 2.071 and approximately 8.556 ha forest area is damaged in one year.

In Turkey, out of 11.466 taxons of species and sub-species, 3.650 are endemic. According to current data, 2.370 of the endemic species are endangered.

Despite all these negative factors, with 468 bird and 162 mammalian species, our country is much richer in fauna compared to the other countries in close proximity to ours. Endangered bird species number is at 30, while 13 species are in immediate danger of extinction.

While number of Turkey's marine alien species was 263 in 2005, this number was 422 in 2011 and continues to rise.

Surface area of protected areas in Turkey is 7.24% . While 6.57% of this rate is containing marine and coastal ecosystems, 93.43% percent is terrestrial protected areas.

In 1990, the total agricultural area (0.76 ha per capita), according to provisional data of the year 2012 decreased to 0.51 ha area. As of 2012, considering the total arable land (23,795,000 ha), 0.31 ha per capita is decreasing.

In Turkey, in 2001-2012 periods, the total allowable non-agricultural farmland is 938,368 ha.

While consumption of chemical fertilizers on the basis of plant nutrients was 1,613,692 tons in Turkey in 1988, in 2012 it was 2,065,354 tons. According to TURKSTAT, 23.8 million ha of arable agricultural area to be taken into consideration, the use of fertilizers per hectare by 2012 (on the basis of plant nutrients) is about 87 kg. While fertilizer consumption in Europe is 176 kg and the world average is 116 kg per hectare, the average fertilizer consumption in Turkey is below these figures. However, there is excessive use of fertilizers in some regions and areas where aftercrops and third-phase products.

While total use of pesticide in Turkey in 2000 was 46.428.641 kg/lt, it is 40.011.621 kg/lt in 2012.

Ratio of production area of total organic agricultural products to total agricultural area is 2,2% in 2012.

It may take many years to reach ground water resources of pollutants leaking from the underground water quality which affects the change in the same way. Therefore, in the long term, prevention of pollution by changing farming practices causes more effective cleaning.

Our country people are exposed to chemical pollution aroused from modern consumer products including foods and the daily life furniture, clothing and household products. Cancers in reproductive organs (testes, prostate and breast cancer)and leukemia in children show the link between chemicals. The use of less dangerous chemicals in agriculture and the use of chemicals in consumer products with lower residue rates will constitute the production and consumption preferences in the future.

Aquaculture production in Turkey in 2012 was decreased by 8.34% compared to the previous year.

According to 2011 data, Turkey, road per 100,000 population is 90 km, the railway per 100 000 population is 13 km. Average of the EU 27 countries is respectively, 360 km and 45 km.

With data for the year 2011 in Turkey, the domestic passenger (passenger-km basis) is 90.5% and domestic load (in tonne-km), is 87.4% and roads fulfill almost single-handedly all transport services in Turkey.

In Turkey, total number of motor vehicles which was 1,566,405 in 197,9 has increased rapidly since 2004 and reached to 17,033,413 in 2012.

As of the year 2012 in Turkey, the municipal population served by waste landfill facilities is 74 of the total municipal population.

Total amount of waste batteries in 2012 reached to 497 ton.

Approximately 80.000 ton accumulator is released every year in Turkey and approximately 70% of this amount is recycled. An accumulator includes 60% lead all of which is recycled.

According to survey result of TURKSTAT, it is seen that 730 million ton waste was originated in 2010 by mining organizations. It was found that 2.3 tones of total waste amount are hazardous waste.

Hazardous waste rates aroused from industry is compiled by Hazardous Waste Declaration System. A total hazardous waste rate according to the system is 786.417 in 2010 (not including those by mining organizations).

610.770 ton of this rate is processed to recycling.

While tourist rate in 2003 was 15.774.505, it is 35.697.900 in 2012.

As of 2012, Turkey with its 355 beaches, in 49 countries have blue flag application, is at the fourth one following Spain, Greece and France in regards with blue flag beaches.

Environmental problems are not only aroused from production processes, but also are directly related to our way of life and consumption habits. Effects of consumption habits on the environment take an important place. Therefore, increase of environmentally friendly products and consciousness about the effects of consumption habits on the environment will decrease the pressure in this issue.

Besides the implementation of environmental policies enacted by law; our environmental problems, changing habits of production and consumption, as well as technological approaches in transport, energy and agriculture sectors should be focus on methods which are less harmful to the environment.

In order to create a healthy infrastructure development, flexible and long-term policies should be applied with broad-based support of citizens. This is the public information and awareness-raising activities in order to produce effective policy.

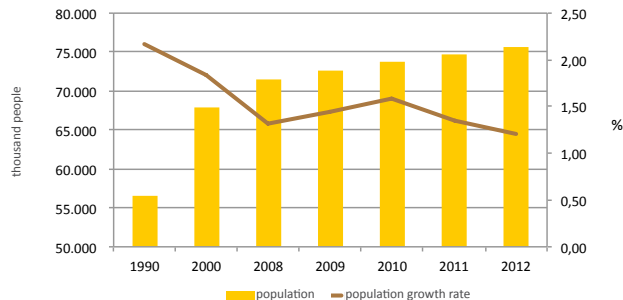
1.1- Population Growth Rate

Population growth rate is important as it is the most important driving force behind human activities which create impact on the environment.

After 1990, it is observed that Turkey's population growth rate, is declined between 1990-2008, increased between 2008-2010 and has a declining trend after 2010. While the population growth rate is 2.17% in 1990, it decreased to 1.2% in 2012.

In addition to this, Turkish population constantly continued to increase. Total population according to 2012 data is 75.627.384, population per km² is 98. Median age of Turkish population, which is 29.7 in 2011, increased to 30.1 in 2012^[1].

According to United Nations projections, the world population is approximately 7 billion 52 million people in the year 2012. In 2012, 1.1 per cent of the world's population, which accounts for Turkey, 18 of the world's largest in terms of population country. According to United Nations projections, in 2050, world population will be 9 billion 306 million people and Turkey will be at 20th rank. In 2075, world population will increase to 9 billion 905 million and Turkey will be 24th in the rank^[2].



Source: TURSTAT (General Population Census Results for 1990, 2000 ve 2007-2012 Address-Based Population Registration System Results).

Note: While calculating yearly population growth rate, previous census is taken into consideration.

YEARS	1990	2000	2008	2009	2010	2011	2012
Population (A thousand)	56.473	67.804	71.517	72.561	73.723	74.724	75.627
Population growth rate (%)	2,17	1,83	1,31	1,45	1,59	1,35	1,20

1.2- Urban Population

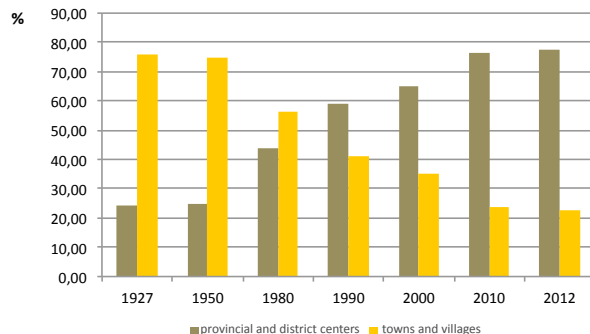
Urbanization is one of the important processes in parallel to industrialization and economic development. In general, 75% of the population of industrialized countries lives in urban areas.

In Turkey, of which population is 13.648.270 according to first census in 1927, while 75,8% of the people lived in town and villages and 24.2% in city and county town, after 1950 population started to be gathered in urban areas. According to address-based population registration system date in 2012, while rate of urban population (58.448.431) in total population is increasing to 77,3%, the people living in town and villages (17.178.953) decreased to 22,7%.

Urban population appears to be a driving force on the values of the environment. Rapid growth of urban population, correspondingly increasing urban expansion , infrastructure, transportation, housing, industrial area, and energy needs , brings environmental problems such as air pollution, wastewater and, noise.

In Turkey, the elimination of these problems, and developments in the provision of controlled sustain urbanization and industrialization, environmental protection and the prevention of environmental pollution to occur, " Territorial plans" are performed.

Territorial Plan for 75 cities was made in Turkey. Territorial Plan will be also completed for five cities in 2013 and one city in 2014.



Source: TURKSTAT

Note: General Population Census Results, 1927-2000 ve Address-Based Population Registration System Results, 2010-2012

2.1- Total Public Sector Expenditure

Environmental performances of countries are directly related to economic welfare level. Environmental expenditures are a response indicator for protection of environmental values.

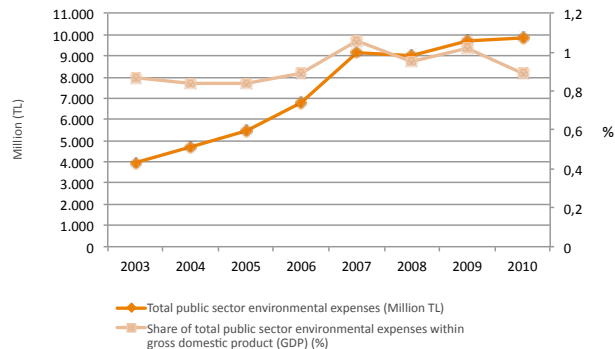
Total environmental expenditure of the public sector in 2010 was realized as 9.86 billion TL, there is an increase of 1.5% as compared to the previous year. However, while the total environmental expenditure for the public sector in GDP (Gross Domestic Product) was 1.02% in 2009, it was decreased 0,89% in 2010. 6.37 Billion TL of total environmental expenditure is current expenditure, 3,48 Billion TL is investment expenditure.

85% of environmental expenditure belong to municipalities, 2,3% to provincial special administrations and 12,7% to other state institutions and organizations.

32,7% of total environmental expenditure of state institutions is water services, 29,9% waste management services, 18,3% for wastewater management services and 19,1% for other environmental services^[3].

YEARS	2003	2004	2005	2006	2007	2008	2009	2010
The total environmental public sector expenditure (Million TL)	3.970	4.716	5.437	6.771	9.155	9.042	9.712	9.857
Environmental public sector current expenditure (Million TL)	2.431	2.925	3.400	3.860	4.741	5.546	6.481	6.375
Environmental public sector investment expenditures (Million TL)	1.539	1.791	2.037	2.911	4.413	3.496	3.231	3.482
The public sector's share of total environmental expenditure in GDP (%)	0,87	0,84	0,84	0,89	1,06	0,95	1,02	0,89

Source: *TURKSTAT*.



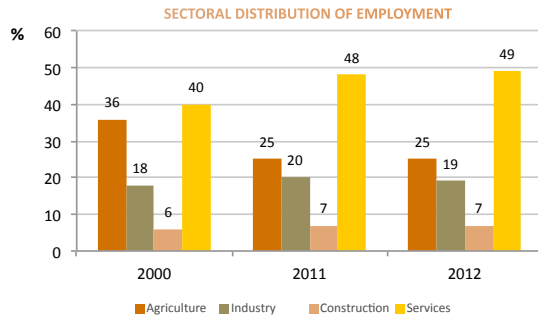
2.2- Sectoral Distribution of Employment

Inter-sectoral distribution of the working population in a country has effect on the the nature and size of the pressure of population on environment.

Employment in agriculture is decreasing as a result of the almost inevitable development and share of industry and mostly services is also increasing.

The share of the agricultural sector in the current situation is still high compared to developed countries. The share of employment in industry and services sectors has been increased in our country. However, The share of employment in the services sector is 70-80% in developed economies, while our country still has not been reached that level.

While the labor forces transition has been continued towards industry employment in Turkey, a shift from industry to services experienced in the advanced economies.^[4]



YEARS	2000		2011		2012	
	Thousand	%	Thousand	%	Thousand	%
TOTAL	21.580	100	24.109	100	24.823	100
agriculture	7.769	36,00	6.143	25,48	6.097	24,56
industry	3.810	17,66	4.704	19,51	4.751	19,14
Construction	1.364	6,32	1.676	6,95	1.709	6,88
Services	8.637	40,02	11.586	48,06	12.266	49,41

Source: TURKSTATK, Household Labour Force Survey Results

Note: 1) sample sizes not sufficient for reliable approximations at mount less than two thousand.

While housekeepers took place in "administrative and support service operations" until the year of 201, they are in the scope of "real property" after 2011 according to the operation of law.

2) NACE Rev-1 was utilized in classification of financial activity until 2009 and replaced with NACE Rev-2 after 2009.

Sectoral Distribution of Employment of Countries (%)

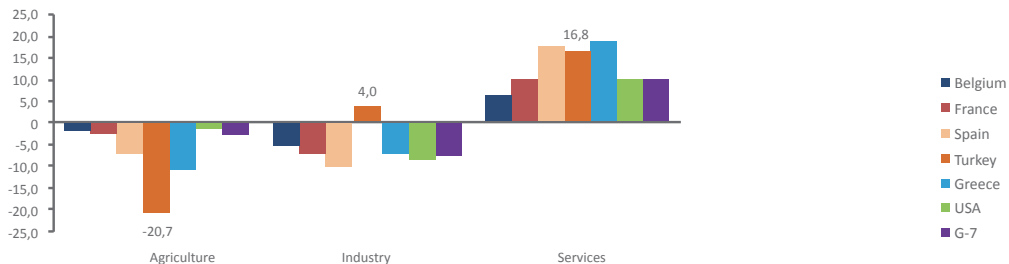
	Industries	Belgium	France	Spain	Turkey	Greece	USA	Euro	G-7
1990*	Agriculture	2,7	5,1	11,5	45,9	23,9	2,9	–	4,4
	Industry	28,3	27,5	33,8	15,9	27,7	26,2	–	30,1
	Services	69,0	67,4	54,7	38,2	48,3	70,9	–	65,4
2000	Agriculture	1,8	3,4	6,7	36,0	17,4	2,6	3,9	3,3
	Industry	26,3	22,5	31,2	17,7	22,6	23,0	32,8	26,6
	Services	71,9	74,1	62,2	46,3	60,0	74,4	63,3	70,2
2010**	Agriculture	1,4	2,6	4,3	25,2	12,5	1,6	3,3	2,3
	Industry	23,4	19,9	23,2	19,9	20,0	17,2	28,6	21,9
	Services	75,3	77,5	72,5	55,0	67,5	81,2	68,1	75,8

Source: OECD, Eurostat, TURKSTAT

* Services data include construction sector.

** Data of France and G-7 countries are of 2009.

CHANGE OF EMPLOYMENT IN SECTORAL DISTRIBUTION IN 1990-2010(%)



Source: OECD, TURKSTAT

3.1- Greenhouse Gas Emissions

Greenhouse gas emissions are important in terms of monitoring and control of emissions according to the country's contribution to climate change and the distribution of sources to this contribution.

Turkey's total greenhouse gas emissions increased to 422,4 Million tones CO₂ from 188.4 million tone between years of 1990-2011. In 2011 82% of total greenhouse gas emissions is CO₂, 14% CH₄, 3% N₂O, 1% F-component gases., Total greenhouse gas emissions (Equivalent to CO₂) increased in 2011 as 124% compared to 1990.

It may be considered that global economical crises has an effect on the decrease in greenhouse gas emissions between 2008 and 2009.

While equivalent CO₂ emission per capita was 3,42 ton/person in 1990, this rate was calculated as 5,71 ton/person in 2011.

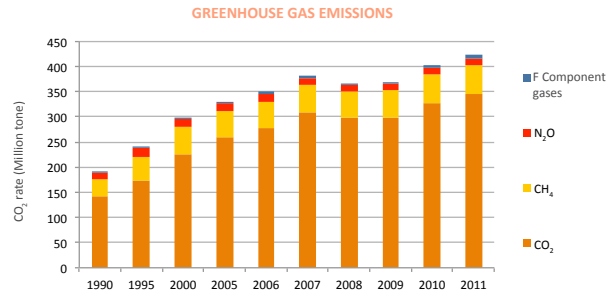
Total CO₂ emissions in 2011 were resulted 86% from energy, 14% from industrial processes. CH₄ emissions were resulted 58% from solid waste disposal, 32% from agricultural activities and 9% from the energy . The N₂O emissions were originated 77% from agricultural activities, 15% from waste and 8% from energy (fuel combustion).^[5]

Upon taking a glance at the distribution as per countries of total greenhouse gas cumulative emissions between 1850 and 2000, it is seen that 30% of total emission is created by USA, 27% EU-25 countries, 8,2% by Russia and 7.2% China. Taking consderation of past 150 years, Turkey is at the 31st rank with share of 0.4%.^[6]

According to 2010 data, AB-27 emissions decreased by 15.4% as compared to 1990 in Europe. In 2010, total greenhouse gas emissions

(excluding, sinks and emissions and uptakes from forestry, land use, land use change); in 4.721 million tonnes CO₂ created in AB-27. 82,4 % of this rate is CO₂, 8,6% is CH₄, 7,2% is N₂O, and 1,9% is F component gases. AB-27 greenhouse gas emissions creators are Italia (10,6%) and Poland (8,5%) Germany (19,8%), England (12,5%), France (11,1%)^[7].

As a developing country, the growing population of our country, a thriving industry and, accordingly, has been the increase in greenhouse gas emissions in line with the growing energy demand, and this trend is expected to continue.^[6]



Source: TURKSTAT.

Note: Sinks and emissions and uptakes from land use, land use change and forestry are not included in the calculations..

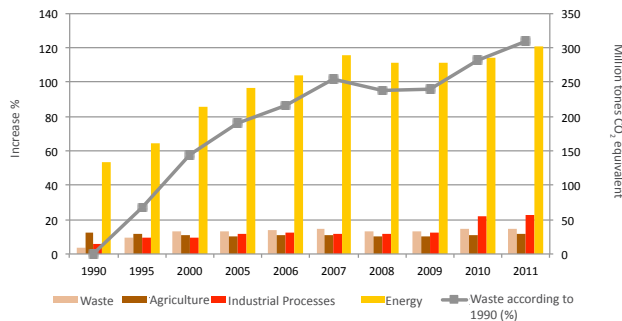
3.2- Total Greenhouse Gas Emissions by Sectors

Looking at the sectoral distribution of greenhouse gas emissions, it is observed that increase in total emissions is largely due to energy production and consumption followed by emissions aroused from industrial processes. It is seen that emissions arising from agricultural activities and wastes did not differentiate so much after 2005.

While Greenhouse gas emissions created by energy sector are 133 millions tones CO₂ in 1990, it increased to 301 million tones CO₂ in 2011. When taken into consideration of greenhouse gas emissions as CO₂ amount, The biggest share is energy-based emissions (71%), following industrial operations (13%), waste (9%) and agricultural activities (7%) in 2011^[5].

In climate change action plan prepared and implemented in 2011 for harmonization to climate change and classification of greenhouse gas emissions, it is planned to create of public awareness under the responsibility of the Ministry for the purpose of carrying out the actions in the fight against climate change, and organizing training programs for various target audiences; monitoring of greenhouse gas emissions from the industrial sector, verification and reporting infrastructure for the establishment of a national emissions trading system to work within the context of adaptation to climate change sectoral impact, vulnerability preparation of reports^[8].

TOTAL GREENHOUSE GAS EMISSIONS FOR SECTORS



Source: TURKSTAT

3.3- Precipitation

Average rainfall of 2012 (January 1 to December 31), is 745 mm (normal average 643 mm) and 656 mm in 2011. 16% increase according to normal precipitation, and 14% increase compared with the precipitation in 2011 were observed.

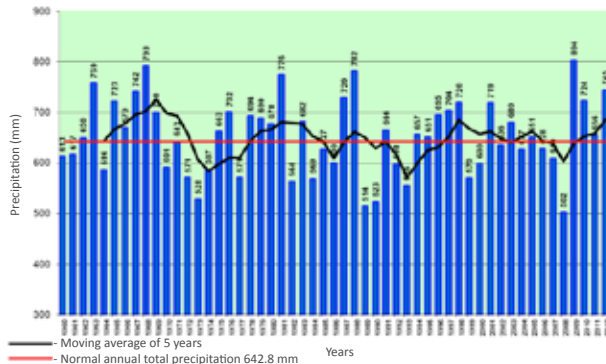
Taking into consideration of 2012 data, the highest increase was in Anamur (92%), Mersin (82%), Manavgat (72%) and Adıyaman (72%), and the highest decrease was Zara (%36), Çemişgezek (29%), Trabzon (29%) and Erzurum (%23). The highest increase as compared to previous year rainfall rate was in Edremit and Anamur (87%), the highest decrease is in Zara (36%).

The highest precipitation rate was in Hopa (2596 mm) and lowest rate was in Ceylanpınar (238 mm) in 2012.

The highest increase as per normal rates was in Mediterranean Region (39,4%) and this increase was around 300 mm. The lowest rate was in Eastern Anatolia Region (4,5%) (around 25 mm)^[9].

When , After higher precipitation was observed on the years 2010 and 2011, global precipitation was normal in 2012. However, precipitation varied enormously in some regions^[10].

ANNUAL PRECIPITATION IN TURKEY (mm)



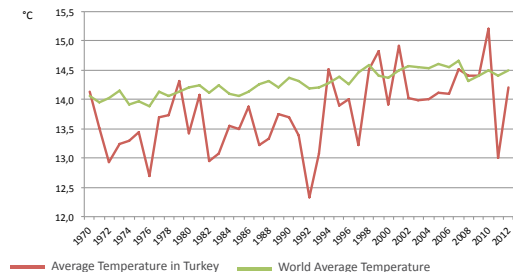
Source: Department of Water Affairs and Forestry, General Directorate of Meteorology

3.4- Temperature

In 1970-2012, world average temperature is 14,3 °C, while Turkey's average temperature 13,8 °C. In 1940-2012 period, the highest yearly average temperature is 15,2 °C in 2010, the lowest yearly average temperature is 12,3 °C in 1992 in Turkey.

In 2012, Turkey's average temperature is calculated as 14,2 °C, while world average temperature is 14,5 °C^[9].

Global average temperatures of the oceans and the lands in 2012 is higher by 0,57°C than 14,0°C which is the average rate of 1961-1990. With this result, the year of 2012 is recorded as 10th hottest year as from 1880, and as 7th hottest year in regards to terrestrial temperature with 0.9 C anomaly. Global average temperatures have an increase trend of 0,16°C/10 year since 1970. ^[11]



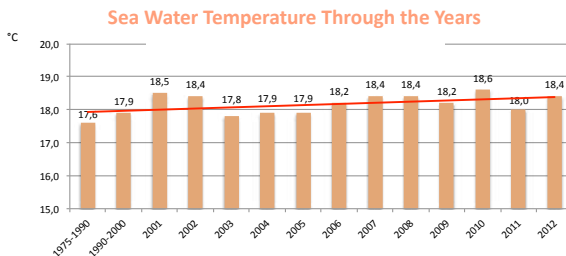
Source: Department of Water Affairs and Forestry, General Directorate of Meteorology

ENVIROMENTAL INDICATORS 2012

3.5- Sea Water Temperature

The real cause for atmospheric occurrences and air masses are the oceans and seas. The best indication of climate change is changing sea water temperatures. Sea water warming or cooling, whilst affecting many species by changing their ecological environments, also affects the lives of a large part of the population that make their livings off the sea.

According to Turkish State Meteorological Service findings, while seas in Turkey have shown a slight increase in average sea water temperature, global increases in sea water temperature are yet to be observed. In order to observe this process, Turkish State Meteorological Service has started measuring sea water temperatures in all our coasts in 2012, and is planning another observation program that will encompass all waters in 2013. This way, we will have a much healthier understanding of our seas. ^[9]



Source: Ministry of Forestry and Water Affairs, State Meteorological Service

3.6- Disasters by Type

The ratio of the natural disasters that took place in Turkey from 1894 to 2012 are as follows: 38% forest fires, 18% landslides, 12% storms, and 7% hail.

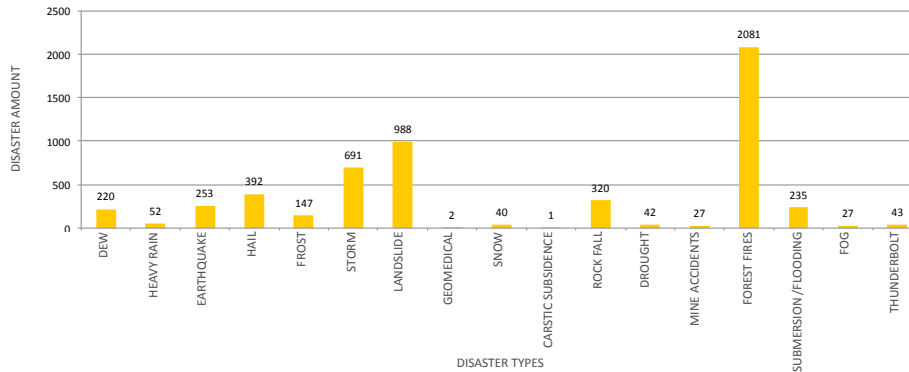
When these findings from 1894-2012 are scrutinized, it is found that forest fires, with 2081 occurrences take the lead, followed by landslides with 988 occurrences, storms with 691 occurrences, and hail with 392 occurrences.

NATURAL DISASTERS THAT TOOK PLACE IN TURKEY
BETWEEN THE YEARS 1894-2012



Source: Prime Minister's
Disaster Relief Agency

TYPES OF NATURAL DISASTERS IN TURKEY BETWEEN YEARS OF 1894 - 2012 – NUMERAL GRAPHIC



Source: Prime Minister's
Disaster Relief Agency

4.1- Air Pollutants

By the end of the year of 2012, as part of our “National Air Quality Observation Network” program, our Ministry has established 125 Stable Air Quality Measurement Stations and 3 Mobile Air Quality Measurement Stations in 81 provinces and continues to monitor the data obtained. The data obtained from these stations are made available in real time to the general public through the website www.havaizleme.gov.tr.

In 2012, the air quality observation stations where the PM_{10} averages were the highest are as follows: Gaziantep, Kayseri 3 (Hürriyet), Siirt, Karaman, Ankara (Cebeci), Ankara (Sihhiye), Ankara (Kayaş), Isparta, Düzce and Ankara (Dikmen). The stations where the SO_2 averages were the highest are: Muğla 2 (Yatağan), Afyonkarahisar, Çanakkale, Aydın, Isparta, Mardin, Van, Muş, Siirt and Çorum.

When the hourly average datas obtained from the stations are interpreted focusing on those of 90% or higher, it is observed that the Long Term Limit Values (UVS) for PM_{10} , which is $78 \mu\text{g}/\text{m}^3$ for the year 2012, is exceeded in 13 stations according to By-Law on Air Quality Evaluation and Management. These are respectively Gaziantep, Kayseri 3 (Hürriyet), Siirt, Karaman, Ankara (Cebeci), Ankara (Sihhiye), Ankara (Kayaş), Isparta, Düzce, Ankara (Dikmen), Sakarya, Bolu and İstanbul (Kartal). In the SO_2 parameters, no stations exceed the Long Term Limit Values (UVS) of $150 \mu\text{g}/\text{m}^3$ [14].

AIR QUALITY OBSERVATION STATIONS WITH THE HIGHEST PM_{10} and SO_2 AVERAGES FOR THE YEAR 2012

Station name *	PM_{10} ($\mu\text{g}/\text{m}^3$)**	Station name*	SO_2 ($\mu\text{g}/\text{m}^3$)**
GAZİANTEP	108	MUĞLA 2 (YATAĞAN)	57
KAYSERİ 3 (HÜRRIYET)	104	AFYONKARAHİSAR	35
SIİRT	100	ÇANAKKALE	32
KARAMAN	93	AYDIN	27
ANKARA (CEBECİ)	87	İSPARTA	27
ANKARA (SİHHiYE)	86	MARDİN	25
ANKARA (KAYAŞ)	86	VAN	25
İSPARTA	86	MUŞ	22
DÜZCE	85	SIİRT	21
ANKARA (DİKMEN)	84	ÇORUM	18

* Averages for PM_{10} and SO_2 are calculated based on the data from stations operating under the National Air Quality Observation Network.

** Estimated based on the hourly average data that was above 90% obtained from the stations.

Source: General Directorate for Environmental Management, Year 2012, Air Quality Newsletter

4.2- Short-term Limit Value Exceeding Number for Air Pollutants

When daily (24 hr) measurements obtained from the air quality observation stations are analysed according to the short term limit (STL) values, the first ten stations that exceed the STL ($140 \mu\text{g}/\text{m}^3$) for PM_{10} averages are as follows: Gaziantep, Ankara (Cebeci), Batman, Kayseri 3 (Hürriyet), Hakkari, Afyonkarahisar, Ankara (Demetevler), Ankara (Dikmen), Ankara (Sihhiye) and Karaman stations.

During the same term, STL($280 \mu\text{g}/\text{m}^3$) for SO_2 averages were exceeded in the stations of Şırnak, Hakkari, Muğla 2 (Yatağan), Tekirdağ, Denizli 1, İzmir (Çiğli) and Zonguldak.

In the Air Quality Assessment and Management By-Law, limits for 13 pollutants (SO_2 , NO_2 , PM_{10} , NO_x , Pb, Benzene, CO, Ozone, Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons) have been set in order to protect human wellness and the environment.

The air quality limit values set in order to protect human wellness and the environment in our country are being decreased every year; therefore, steps that need to be taken in order to increase the air quality in our country gain importance every passing year.

In our opinion, the current standing of air quality should be tested individually and locally, and if it turns out that the area needs improvement, local clean air action plans should be developed and applied.

AIR QUALITY OBSERVATION STATIONS WHERE DAILY PM_{10} and SO_2 AVERAGES WERE OVER THE SHORT TERM LIMIT

Station Name	PM_{10} STL overrun ***	Station Name	SO_2 STL overrun ***
GAZİANTEP	85	ŞIRNAK	74
ANKARA (CEBECİ)	64	HAKKARİ	66
BATMAN	64	MUĞLA 2 (YATAĞAN)	6
KAYSERİ 3 (HÜRRIYET)	59	TEKİRDAĞ	3
HAKKARİ	57	DENİZLİ 1	2
AFYONKARAHİSAR	55	İZMİR (ÇİĞLİ)	1
ANKARA (DEMETEVLER)	54	ZONGULDAK	1
ANKARA (DİKMEN)	54		
ANKARA (SİHHİYE)	53		
KARAMAN	53		

*** The data were interpreted based on the limit of $140 \mu\text{g}/\text{m}^3$ for the PM_{10} parameter and $280 \mu\text{g}/\text{m}^3$ for the SO_2 parameter.

STL: Short term limit.

Source: General Directorate for Environmental Management, Year 2012, Air Quality Newsletter

4.3- Air Pollutants Emission

EMEP (Long-Term Financing of Collaboration Program for Monitoring and Evaluation Programme for Long-Range Transportation of Air Pollutants) protocol established after the Convention of Long Range Transboundary Air Pollution (CLRTAP) ran by United Nations Economic Commission for Europe (UNECE) is currently being ran in our country by the General Directorate for Environmental Management.

Our Ministry compiles a national air pollutants emission inventory annually and reports it through European Environment Information and Observation Network (EIONET) and Secretariat of United Nations Economic Commission For Europe (UNECE). The first report was given in 2010, and the Ministry continues the betterment of the inventory every year. Emission calculations are calculated based on the emission factors taken from internationally accepted guidance documents.

Main pollutants for reporting are NO_x (nitrogen oxides), SO₂ (sulphur dioxide), NMVOC (non methane volatile organic compounds), NH₃ (ammonia), PM₁₀ (particulate matter), CO (carbonmonoxide).

When emissions between the years 1990 and 2011 are evaluated, a general increase is seen. In comparison with the year 1990, the highest increase has been seen in NO_x (%97.9) emissions and the other increases in emissions are as follows: SO₂ (%51,5), CO (%51,3), NMVOC (%22,6),

PM₁₀ (%3,3) and NH₃ (% 0,4). If we compare it to last year, the highest increases are seen to be CO (%19,7) and NO_x (%18,7) emissions while NH₃ and PM₁₀ emissions showed a decrease.

The causes for SO₂ emission for the year 2011 are %56 power plants, %22 industrial fuel and %22 household heating. While the most important reason for the increase since 1990 is power generation, this is followed by household heating and industrial fuel. The SO₂ emissions caused by transportation have shown a decrease.

NO_x emissions for the year 2011 were caused %33 by heavy vehicles, and %32 by power plants. The main causes for the increase since 1990 is power generation followed by heavy vehicles.

NMVOC emissions for the year 2011 were caused mainly by solvent usage with %31 followed by household heating with 30%. The main causes for the increase since 1990 are solvent usage followed by road vehicles, while emissions caused by household heating have shown a decrease.

The main causes of NH₃ emissions are livestock followed by synthetic manure.

In %;	SO ₂	NO _x	NMVOC	NH ₃	CO	PM ₁₀
Tendency (1990-2011)	51,5	97,9	22,6	0,4	51,3	3,3
Tendency (2010-2011)	3,7	18,7	-1,0	4,5	19,7	-7,4

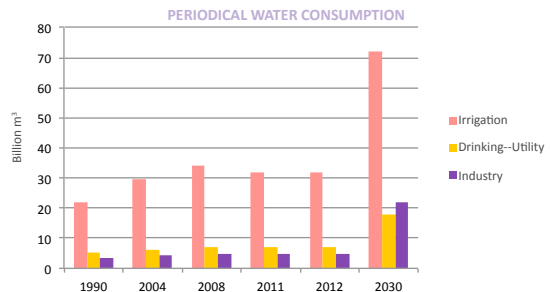
Source: General Directorate for Environmental Management

5.1- Water usage

When water usage in Turkey for the year 1990 is evaluated, it is seen that a total of 30.5 billion m³ of water has been used, broken down to 22 billion m³ for the irrigation industry, 5.1 billion m³ for drinking water, and 3.5 billion m³ for the industry sector. The usage in the year 2011 for the same sectors is a total of 44 billion m³, broken down respectively to 32 billion m³, 7 billion m³, and 5 billion m³. 2012 data is almost identical. When population increase, rapid urbanisation, and developments in industry are taken into account, it is estimated that by the year 2030, this number will have increased to 112 billion m³, %64 of this will go to irrigation, while %16 goes to drinking water consumption and %20 to the industry sector.

According to the Former State Planning Committee Specialized Commission Report (2007); even though it differentiates as per various sources, the total water consumption of the world is broken down to %70 irrigation, %22 industry, and %8 for drinking. In Europe, water consumption broken to sectors is comprised of %33 for irrigation, 51% for industry and %16 for drinking^[6].

According to 2010 data taken from TURKSTAT, water drawn by municipalities is 4.8 billion m³, villages 1 billion m³, energy generation 4.3 billion m³, manufacturing industry 1.6 billion m³, mining 0.06 billion m³, and organized industrial sites 0.13 billion m³ (water transfer between sectors are included for each sector's own water drawn).



YEARS	1990		2004		2008		2011		2012		2030	
	Billion m ³	%	Billion m ³	%	Billion m ³	%	Billion m ³	%	Billion m ³	%	Billion m ³	%
TOTAL	30,5	100	40,1	100	46	100	44	100	44	100	112	100
Irrigation	22	72	29,6	74	34	74	32	73	32	73	72	64
Consumption	5,1	17	6,2	15	7	15	7	16	7	16	18	16
Industry	3,4	11	4,3	11	5	11	5	11	5	11	22	20

Source: Ministry of Forestry and Waterworks, General Directorate of State Hydraulic

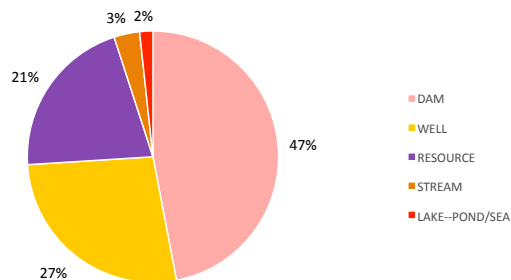
5.2- Municipal Drinking Water Sources

In 2010, ratio of municipalities served drinking water to Turkey's total population is %82 while the ratio to the total municipality population is %99.

While 4.56 billion m³ of drinking water was drawn by municipalities in order to be distributed in the year 2008, this number was increased to 4.80 billion m³ in the year 2010. For the year 2010, %47 percent of water came from dams, while 27% came from wells, 21% came from springs, 3% came from rivers and %2 came from lakes, ponds, and seas.

According to 2010 data, ratio of municipality populations served by drinking water treatment plants to the total population of the country is %45, while this ratio is %54 when compared to the total municipality population. 2.53 billion m³ of the 4.80 billion m³ of drinking water drawn was treated in drinking water treatment facilities. The water treatment methods were %95.3 conventional, %2.5 advanced, and %2.2 physical. According to 2010 data, 2.58 billion m³ of water has been distributed to 21.4 million people through water supply networks ^[15].

Distribution of water drawdown for municipality drinking and utilize water supply to sources (2010) (%)



Drinking Water Drawn for Municipalities' Water Supply Networks Distributed According to Source (%)

YEARS	Dam	Well	Spring	Stream	Lakes
2002	37,3	30,2	26,9	2,7	2,9
2004	40,1	27,8	27,5	2,9	1,8
2006	35,7	27,1	26,7	5,9	4,5
2008	39,8	28,1	23,3	3,8	5,0
2010	47,2	26,6	21,2	3,3	1,7*

Source: TURKSTAT

Note: Since 2004, data is collected biannually.

* Includes water drawn from the sea.

5.3- Municipalities with Wastewater Treatment Plant Service

Rate of municipality population for which service with waste water treatment facility is provided to total municipality population (&) has a significant role to follow success of policies applied for control of pollution arising from domestic waste waters.

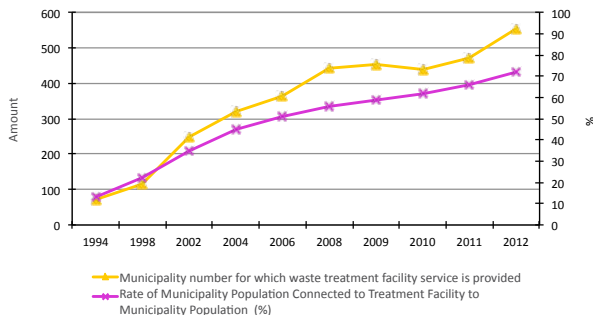
The total number of waste water treatment facilities were increased from 145 in the year 2002 to 444 in the year 2012.

While the number of municipalities served by waste water treatment facilities was 71, this number increased more than 7 times to 554 in 2012. The ratio of municipality population served by waste water treatment facilities to the total population of municipalities reached %72. This number is planned to reach at least %85 by the end of 2017.

According to TURKSTAT data from 2010, waste water treated %37.9 with advanced, 34.3% with biological, %27.6 with physical, and %0.2 with natural treatment methods was applied in Turkey

If we look at Europe, according to data from 2009, approximately %80 of the population of North and South Europe is served by waste water treatment plants. The ratio for Central Europe is higher, exceeding %90.

In Northern and Central Europe, the waste water of more than %70 of the population is served by advanced waste water treatment plants that remove a significant portion of organic matters such as nitrogen and phosphorus from the water with advanced techniques^[16].



YEARS	1994	1998	2002	2004	2006	2008	2009	2010	2011	2012
Number of Municipalities Served by Waste Water Treatment Facilities	71	115	248	319	362	442	452	438	470	554
Ratio of municipalities served by waste water treatment plants to the total number of municipalities (%)	13	22	35	45	51	56	59	62	66	72

Source: 2009,2011,2012 data from General Directorate for Environmental Management, rest from TURKSTAT.

Note: In 2010, due to administrative district changes, the number of municipalities served with waste water treatment plants decreased for a year.

6.1- Land use

Being informed about the land use is important in order to be able track developments and plan intended purpose.

One of European Union's land management projects, CORINE (Coordination of Environmental Data Project- Environmental Information Order) has ran projects under land cover program in Turkey titled CORINE 1990, CORINE 2000, and CORINE 2006.

When the data from 1990, 2000, and 2006 CORINEs compared, it is seen that artificial areas in Turkey increased from 1.23% to %1.56 between 1990 and 2000, and continued increasing from 1.56% to 1.61% between 2000 and 2006. The ratio of agricultural land was 42.92% in 1990, then %42.6 in 2000, and %42.34 in 2006. The ratio of forests and semi-natural land was %54 in 1990, then 53.89% in 2000 and 54.04% in 2006. The ratio of wetlands was %0.33 in 1990, then 0.31% in 2000 and 0.36% in 2006. The ratio of water bodies was 1.52% in 1990, and increased to 1.64% in the years 2000 and 2006 thanks to the dams that were built.

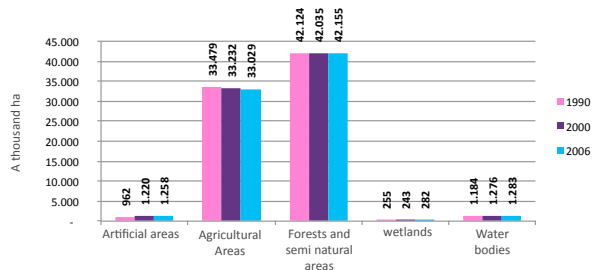
When we look at the land use in Europe, according to CORINE 2006 data (which includes Turkey), ratios for forests are %35, arable lands 25%, pastures %17, semi-natural flora %8, water bodies %3, wetlands %2, and artificial (urbanized) are %4 ^[18].

In short, increase in artificial areas (residential areas, industry, transportation areas, etc.) resulted in a decrease of agricultural land.

Increasing populations, urbanisation and industrialisation are elements of oppression on natural and agricultural areas.

While urbanisation and industrialisation go on, steps must be taken in order to protect our irrigable lands and high efficiency agricultural areas.

1990, 2000 and 2006 - LAND USAGE



Kaynak: <http://aris.ormansu.gov.tr> (24.04.2013)

7.1- Agricultural Area Per Capita

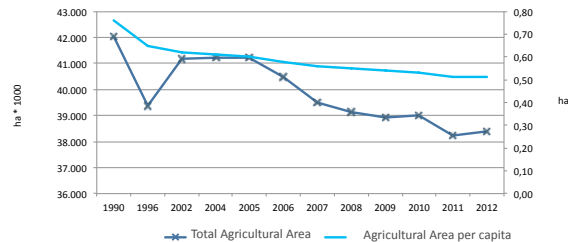
While our agricultural land is important for herbal production, our pastures and plains are important for animal husbandry and protection of the nature.

According to TURKSTAT's 2012 data, total agricultural land is approximately 38.412.000 hectares (this includes forested areas with less than %11 closure). Of the total agricultural land, %53.6 is planted areas, %8.4 is sustainable yield areas (perennial fruits), and %38.1 is pastures and plains.

Due to the Turkish population increasing while total agricultural areas diminished resulted in a decrease of the agricultural land per capita ratio. From 1990 to 2012, Turkish population increased by %33.9 while agricultural land per capita decreased by %32.9.

In 1990, agricultural land per capita was 0.76 hectares, this number decreased to 0.51 hectares by the year 2012. As of 2012, when calculations are based on total arable land (23.795.000 hectares) per capita is 0.31.

According to Food and Agriculture Organization of the United States (FAO), agricultural land per capita for the world is 0.23 hectares, and this number is forecasted to decrease to 0.15 hectares by the year 2050^[19].



Source: TURKSTAT, Food, Ministry of Food, Agriculture and Livestock

(1) multiple cultivations after 2011 are excluded.

(2) 2012 DATA IS PROVISIONAL.

Note: Due to rounding up, numbers may not exactly match.

7.2- Misuse of Agriculture Areas

In Turkey, the agricultural land that was clear to be used non-agriculturally from 2001 to 2012 is 938.368 hectares. During the same period, total agricultural land where right of way was granted is 103.138 hectares.

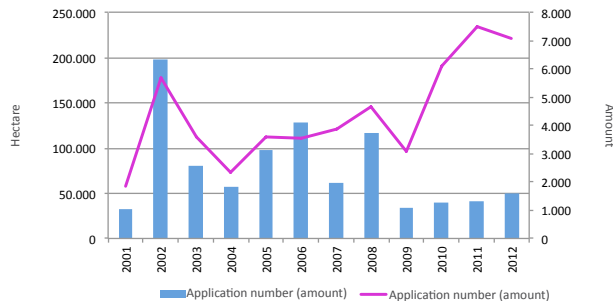
From the year 2005 to 2012, the provinces where 513.374 hectares of agricultural land cleared for non-agricultural use, Yozgat takes lead with 75.314 hectares. Then other ones are distributed respectively as follows: Ankara (39.462 ha), İstanbul (32.546 ha), Afyonkarahisar (28.714 ha), Antalya (27.647 ha), Kahramanmaraş (26.544 ha), Isparta (22.226 ha), Trabzon (15.815 ha).

Soil Protection and Land Use Law numbered as 5403 tells that wetlands and highly efficient agricultural lands should be conserved and unless absolutely necessary, agricultural lands other than marginal ones can not be used for construction.

PROVINCES (In the order of larger to smaller land permitted) 2005-2012 Total Permitted (ha)

PROVINCES (In the order of larger to smaller land permitted)	2005-2012 Total Permitted (ha)
YOZGAT	75.314
ANKARA	39.462
İSTANBUL	32.546
AFYONKARAHİSAR	28.714
ANTALYA	27.647
KAHRAMAN MARAŞ	26.544
ISPARTA	22.226
TRABZON	15.815
ADANA	14.028
VAN	12.224

MISUSE OF AGRICULTURAL FIELDS WITHIN THE SCOPE OF SOIL CONSERVATION AND LAND USAGE LAW NO 5403



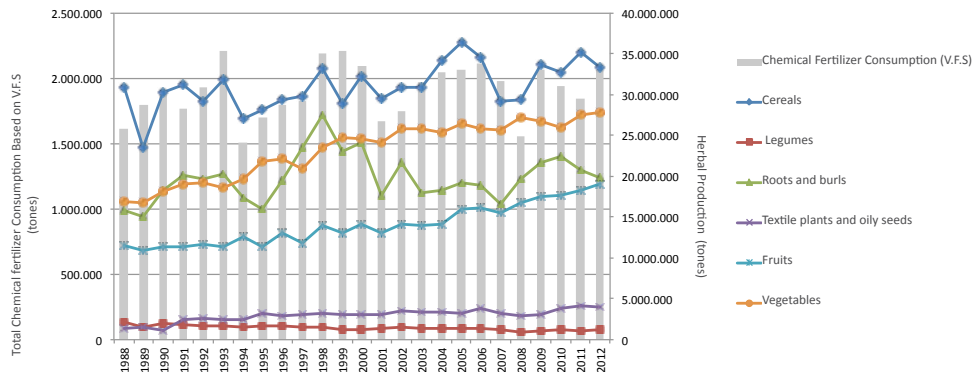
Source: Ministry of Food, Agriculture and Livestock, General Directorate for Agricultural Reform

Source: Ministry of Food, Agriculture and Livestock, General Directorate for Agricultural Reform

7.3- Chemical Fertilizer Consumption

While total chemical fertilizer consumption on the basis of herbal nutrients (V.F.S) shows fluctuations between 1988 to 2012 in Turkey, it shows a general tendency of increasing. Chemical fertilizer consumption on the basis of herbal nutrients was 1.613.692 tonnes in the year 1988. This number increased to 2.065.354 tonnes in 2012. When the plant production values for the same period are evaluated, production rates of cereals, root-tuber crops, plants used in textile, oil seeds, vegetables and fruits were increased with the exception of legumes, which showed a tendency to decrease.

When the 23.8 million hectares of arable land indicated in TURKSTAT datas are taken into account, as of 2012, fertilizer use per each hectare (on the basis of herbal nutrients) is approximately 87 kg. While world's average fertilizer use per hectare (based on V.F.S) stands at 116 kg and Europe's stands at 176 kg, Turkey's average fertilizer use is under these rates. Still, in certain sporadic areas and areas where secondary or tertiary produce is produced, excessive use of fertilizer can be observed. In this matter, Republic of Turkey Ministry of Food, Agriculture and Livestock supports villagers with soil analyses to ensure conscious usage of fertilizers.^[21]



Sources: Chemical Fertilizer as Nutrient datas by Ministry of Food, Agriculture and Livestock, (<http://www.tarim.gov.tr/Sayfalar///IceriklerDetay.aspx?rid=444&NodeValue=161&KonuId=133&ListName=Icerikler>).

Agricultural production data, TURKSTAT, Statistical Charts, (<http://www.tuik.gov.tr/PreTabloArama.do>).

7.4- Use of Pesticide

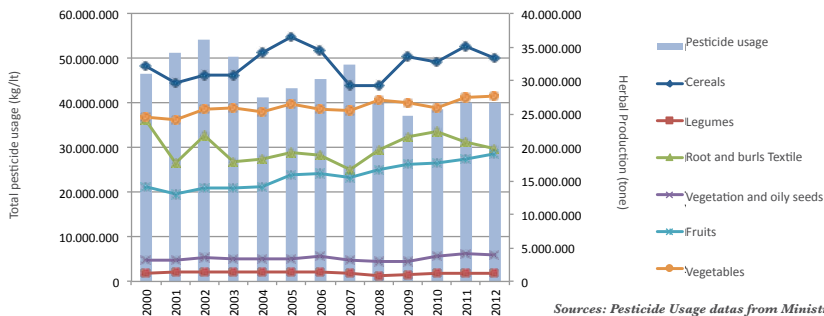
Between the years of 2000 and 2012, while total usage of pesticides fluctuated, it showed a general tendency of decreasing. The total pesticide usage in Turkey for 2000 was 46.428.641 kg/lt (kg or lt). This number decreased to 40.011.621 kg/lt in 2012. When plant production data for the same period is analysed, grain, vegetable, and fruit production showed the tendency to increase, while production in tubers, plants used in textile, legumes and oily seeds showed the tendency to stay stable.

When total pesticide usage for 2012 is divided between provinces, the highest pesticide usage was by Antalya with 5.216.461 kg/lt, followed respectively by Manisa (4.377.263 kg/lt), Adana (3.120.681 kg/lt), Bursa (2.817.871 kg/lt), Konya, Mersin, İzmir, Malatya and Denizli.

2012 pesticide usage was comprised of %38.8 fungicides, %18.4 herbicides, %18.2 insecticides, and %2.1 mite killers.

Turkey down to 40 tonnes until the year of 2023, then reduce the ratio of pesticides in plant protection products down to %85 by 2018, and %75 by 2023. Sustainable agriculture that accepts humans and environment as part of the same system must be utilised. With this goal in mind, Integrated Protection Management (IPM) system was developed.

The usage of ill-advised plant protection products in 2012 was found to be %2.8. This ratio is on average %3 in EU countries. During 2012, 6.923 samples were collected for testing, and out of those 199 were found ill-advised ^[22].



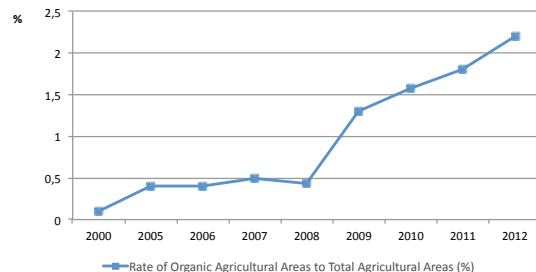
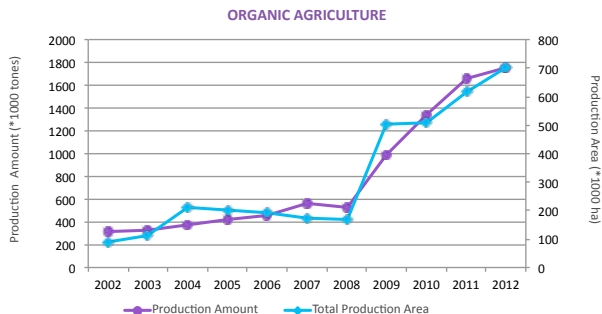
Sources: Pesticide Usage datas from Ministry of Food, Agriculture and Livestock, Plant production datas from TURKSTAT (<http://www.tuik.gov.tr/PreTabloArama.do>).

7.5- Organic Agriculture

The increase in production due to export demand increased from 8 types of product in 1985 to 204 types of product in 2012. The organic production quantity that was produced through 89.827 hectares and 12.428 growers and 310.125 tonnes in 2002 increased to 702.909 hectares, 54.635 growers and 1.750.127 tonnes by 2012.

In 2012, while areas dedicated to organic agriculture increased by %14 compared to the previous year, amount of production increased by %5.

For the year 2012, Turkey's total organic production area ratio to total agricultural land is %2.2. It is aimed to increase this number to %3 by 2015, and %5 by 2023. As of 2012, %1 of world's total agricultural lands and %7.8 of EU countries' total agricultural lands are dedicated to organic agriculture ^[21].



Source: Ministry of Food, Agriculture and Livestock

Note: Any transitional data is included.

7.6- Good Agricultural Practices

The supermarkets and hipermarkets of the countries of EU have set new standards for the production they import or produce nationally in order to provide a healthy and dependable service to their customers. These standards were printed in a document in 1999 called EUREPGAP (EUREP: Euro Retailer Produce Working Group, GAP: Good Agricultural Practice).

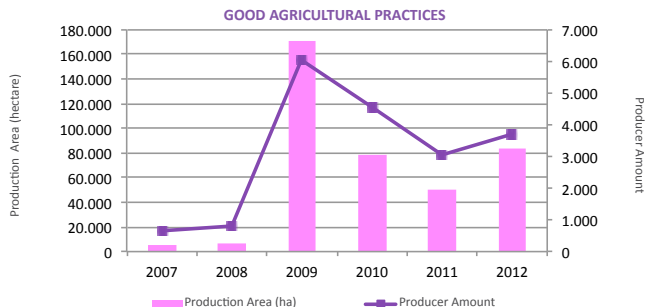
The aim of Good Agricultural Practices is to keep production free from pesticides damaging to human health, and protect enviroment, soil, water and living creatures, avoid disrupting the ecological welfare during agricultural production and produce products in accordance with the standards. In order for this to be possible, production has to be traceable from the soil to the dining table and every transaction has to be recorded. Pesticide, fertilizer and hormone usage is kept under regulation and applied according to various analyses.

The final product is certified by the report given from the relevant control agency. In the near future, especially regarding the production that will go into EU countries, all garden production is expected to follow this certification process.

In our country, Good Agricultural Practices are implemented according to the By-Law on Good Farming Practices no 27778 dated 07 Dec. 2010.

In our country, Good Farming Practices Certificate was put into practice in 2007. That year, the numbers were: 651 growers from 18 provinces and 5.360 hectares. That increased %1462 by 2012 to 3.676 growers from 47 provinces, and 83.717 hectares.

The production area and grower number in compliant to Good Farming Practices is aimed to be increased by %10 each passing year^[21].



Source: Ministry of Food, Agriculture and Livestock

8.1- Biological Diversity

Plant diversity and origin points of Mediterranean and Near East intersect on Turkey, and Turkey can be home to many cultivated plant genetic diversity centers. In Turkey, out of 11.466 taxons of species and sub-species, 3.650 are endemic. According to current data, 2.370 of the endemic species are endangered. Out of these, 1.058 is in CR, 686 in EN and 626 is in VU categories. Furthermore, 149 endemic taxons with insufficient data can also be classified under category DD and is clearly endangered.

As it is in the world, the main factors that threaten wild and game animals in Turkey are respectively; destruction and damaging of their habitats, poaching, introduction of new species, environmental pollution and international trade of wild animals. Despite all these negative factors, with 468 bird and 162 mammalian species, our country is much richer in fauna compared to the other countries in close proximity to ours. Still, it is known that almost all these species are endangered, even this process has been still continuing and their population concentration is sporadic. Turkey houses approximately 468 species of birds. Therefore, Turkey houses more bird species than all European countries combined. In this geography, endangered bird species number at 30, while 13 species are in immediate danger of extinction.

It is known that Turkey inland waters house 236 species and sub-species belonging to 26 families (Kuru, 2004). Out of the 236 taxons, 42 species and 28 sub-species belonging to 8 families are reported to be endemic to our country (Küçük, 2006).

Total coastline of Turkey is 8.483 km, and 1.133 km of this (%13) is under protection. Sea protection area ratio is %6.57.

10 sea mammals live in Turkey's waters. While 21 sea mammals either live in or periodically visit Mediterranean waters, only 3 species live in the Black Sea. The mediterranean seal (*monachus monachus*) has not been seen in the Black Sea since 1994.

While nonendemic species in Turkish waters was 263 in 2005, this increased to 422 in 2011, and continues to increase as a nonendemic specie enters our waters every 8 days through the Suez Canal. While most of the invading nonendemic species in Mediterranean arrive through the Suez Canal, most of the invading nonendemic species in the Black Sea arrive with the ships' ballast water. Some examples of invading nonendemic species discovered in our waters are comb jellyfish (*Mnemiopsis leidyi*), seasnail (*Rapana venosa*), *Asterias rubens*, and blowfish (*Lagocephalus sceleratus*)^[25].

8.2- Protected Areas

The areas that the Ministry of Forestry and Waterworks, Directorate Of Nature Conservation And National Parks is responsible for comprise %5.95 of total surface area of the country. When those areas under our ministry's responsibility and other protected areas are added, this number increases to %7.24. Of this number, only %6.57 is made up of coastal and sea ecosystems while %93.43 is inland ^[26].

When the areas under protection in the whole world are evaluated, there were 30.000 protected areas in 2000, this number increased to 100.000 in 2004, and 113.707 in 2005. While the surface area of protected areas was 13.250.000 km² in 2000, this number increased to 18.800.000 km² in 2004, and 19.600.000 km² in 2005. This is %12 of Earth's total surface area. As of October 2010, protected areas reached 161.000, %13 of Earth's total surface ^[27].

The protected areas are protected and run according to national and international laws and treaties, but still are affected negatively by internal and external factors. There so many local, national and international attempts to remove these negative effects. Certain ecosystems that are already very fragile are under threat by many factors. While globally certain continents and countries developed exponentially when it comes to protection of certain areas, our country has a lot of room for improvement in this regard ^[28].

TURKEY'S PROTECTED AREA STATUS AND DISTRIBUTION

PROTECTION STATUS	AMOUNT	AREA (ha)
National Parks	40	848.446
Natural Parks	183	81.666
Natural Protection Area	31	64. 244
Natural Monument	106	5,549
Wild Animal Development Site	80	1.187,386
Wetland with International Importance (13 RAMSAR Area)	135	2.340,909
Special Environmental Conservation Area	15	1.335,454
Natural Protected Area	1273	1.310,685
Protected Forest	54	363.561
Gene Protection Forest	239	43,684
Seed Stands	373	48,199

Source: Protected Areas and aWild Life Management Study Group Report, Council of Forestry and Water 2013, 21-23 March 2013

8.3- Forested Areas

As of 2012, total size of Turkey's forests is 21.700.000 hectares. According to studies done in 2012, forests make up %27.6 of the country's total surface area.

Out of Turkey's forested lands, 11.6 million hectares are normal (%11-100 closed), and 10.1 million hectares are distorted (%0-10 closed) areas. Thus, %53.3 of forested lands is normal while %46.7 is distorted ^[29].

Through the years 1973 to 2012, our forested land has increased by approximately 1.5 million hectares. While our tree wealth was 0,9 billion m³ in 1973, this reached 1,5 billion m³ in 2012.



YEARS	1973	1999	2004	2008	2010	2012
FORESTED AREA (ha)	20.199.296	20.763.247	21.188.747	21.363.215	2.537.091	21.700.000

Source: Ministry of Forestry and Waterworks.

Not: These numbers do not include forested areas that are used for agricultural purposes. They are made up of all of forested areas that are natural and planted

According to the World Food Organisation's 2010 evaluation of forest sources report, Earth's total forested land is 4 billion hectares. According to this, forested lands make up %31 of Earth's total surface area. In addition to this, there are degraded forest lands of 1,1 billion hectare. When the period from 1990 to 2010 is analysed, it can be seen that forested areas kept getting smaller with time.

The term "old growth forest," refers to the areas where if a critical point is reached, part or all of the forested land might be in need of protection. Old growth forests are expected to make up at least %10 of total areas. In Turkey, areas that fit this description, which may be evaluated as "Nature protection areas", made up %19.6 of total areas in 2011 and %20.5 of total area in 2012.

Since 1986, a total of 121.558 hectares have been specially forested, and %72 of this was applied on forested land.

In The Ministry of Forestry and Waterworks' General Directorate of Forestry Strategic plan (2013-2017), it is aimed for our forested areas to reach %30 of the country's total surface area.

8.4- Forest Fires

Since it is under the effect of Mediterranean climate zone, the majority of Turkey's forests are susceptible to forest fires. When statistics are evaluated, according to data from the last 10 years (2003-2012) a total of 2071 forest fires took place in Turkey, and as a result, a yearly average of 8556 hectares of forested areas were damaged.

For the last 10 years (2003-2012), average area per fire was calculated to be 4.1 hectares.

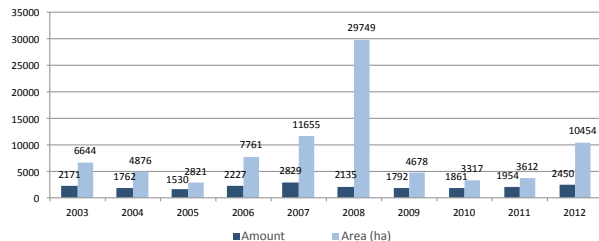
In Mediterranean countries in the last ten years, the ratio of forests damaged by forest fires to the country's total forested areas are as follows: Portugal %38,2, Greece %6, Italy %5,6, Spain %4,2, France %1,2, Turkey %0,04.

The vast majority of the forest fires are caused by humans. According to data from the last ten years (2003-2012), %51 of fires are caused by negligence and accidents, while 11% are caused with intent, 12% are caused by natural causes (lightning). The cause for the remaining %26 is unknown.

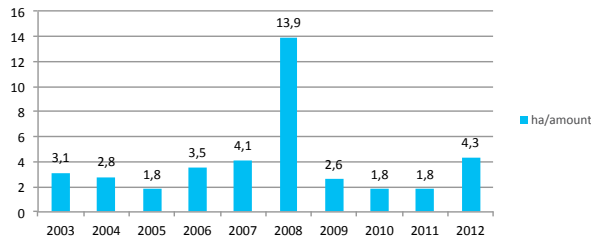
The %85 of forest fires seen in Turkey occur between June and October, where fire risk is highest. When we look at how damage caused by fires are distributed between months, the largest damage is in August with %49, followed by September with %18 and July with %11^[31].

Ministry of Forestry and Water Affairs, General Directorate of Forestry fights against forest fires effectively.

PROGRESS OF FOREST FIRES IN 2003–2012



AREAS PER FIRE AMOUNTS IN 2003 - 2012



Source: Board of Forestry

9.1- Fishery

Turkey has a total of 8.483 km of coastline, 24 million hectares of sea and 1 million hectares of inland water. According to data from TURKSTAT, total water products in 2012 was 644.852 tonnes, down %8.34 from the previous year. %48.95 of this production is comprised of sea fish, %12.51 other sea products, %5.6 inland water products, and %32.94 cultivation. While water product hunting was down by %15.99 in 2012, cultivation production was up %12.51. While 432.442 tonnes of the production came from hunting, 212.410 of it came from cultivation. %52.52 of cultivation is produced from inland waters while %47.48 of it is produced from the sea.

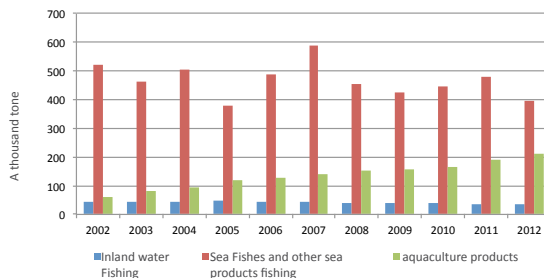
Out of the species farmed in inland waters, biggest share is trout's with %52.42, while of those cultivated at sea are %30.84 sea bass and %14.47 bream.

Hunted water products were a total of 396.322 tonnes, down %17.03 from the previous year. The major area for water products production is Eastern Black Sea area with %41.31 of total production. It is followed by Western Black Sea with %30.02, Marmara with %12.26, Aegean with %9.41, and Mediterranean with %7.

Inland production was 36.120 tonnes, down %2.63 from the previous year^[32].

In order to protect water product sources and keep production sustainable, regulations are being put in place to classify and control hunting according to place, time, size, specie type, depth, and hunting tools.

Furthermore, "Environmentally Friendly" production methods are encouraged in water product farming in order to keep the sector sustainable economically, socially and environmentally. Monitoring of fish stocks and protection of endangered species, reinforcing stocks, monitoring the pollution levels of spring waters and putting in place preventative measure are important.



Source: Ministry of Food, Agriculture, and Livestock, TURKSTAT

10.1- Road and Railway Network

The length of the highway network in Turkey reached to 65,491 km in 2012. By the year 2012 in Turkey, there are 11.112 km of conventional line and 888 km high speed rail line, total of which equals to 12.008 km railway line.

Environmental pollution that occurred because of human activities affect adversely both human and natural life. And transportation sector has a crucial role in the occurrence of these adverse outcomes.

Compared to roads, railways release less greenhouse gas to the atmosphere as it consumes energy more effectively. In addition, as the less land is used for construction, it plays an important role in the preservation of the natural environment. On the other hand, railways

helps to reduce respiration disorders and other illnesses caused by air pollution. According to the TurkStat 2011 greenhouse gas emissions inventory data, 87% of CO₂ emission was originated by road, 7% by air transport, 3% by maritime transport, and 1% by railway.

According to the 2011 data, road is 90 km and railway is 13 km per population of 100,000. Average of these figures in the EU 27 countries are, respectively, 360 km and 45 km^[34].

Turkey's length of road network is expected to reach 70,000 km and railway network is expected to reach 30,000 km until 2023^[35].

YEARS	2002	2003	2004	2005	2006	2007
Road Length (km)	63.219	63.383	63.706	63.714	63.805	63.899
Railway Length (km)	10.925	10.959	10.968	10.973	10.984	10.991
YEARS	2008	2009	2010	2011	2012	
Road Length (km)	64.033	64.319	64.865	65.049	65.491	
Railway Length (km)	11.005	11.405	11.940	12.000	12.008	

Source: Ministry of Transport, Maritime Affairs and Communications

10.2- Amount of Passengers and Freight by Transportation Types

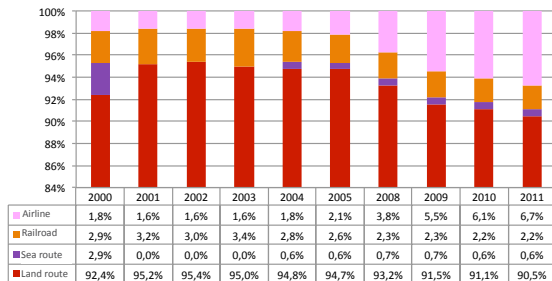
Passenger transportation in 1950, the range among transportation types were 49.9% road, 42.2 % railway , 7.5% maritime transport and 0.6% air transport. For domestic freight transportations, the rates were 55.1% railway, 27.8% maritime transport, 17.1% road.

As a result of the policies pursued, according to the 2011 data, with its share of 90.5 % for domestic passenger (as passenger -km) and of 87.4 % for domestic freight (as tonne- km) road transport became to meet

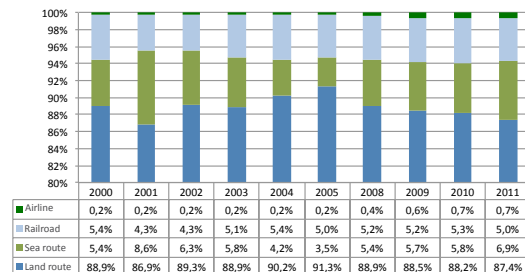
transport services almost single-handedly. In other words, the balance among types in transportation system became unstable.

It is targeted for domestic passenger share (as passenger -km) to be 72% by road , 10% by rail , 14 % by air and 4% by maritime at the end of 2023. And it is targeted for domestic freight transportation share (as ton-km) 60% by road, 15% by rail, 1% by air, 10 % by maritime and 14% by pipeline ¹³⁵.

Domestic Passenger Transportation Rates
(million-passenger-km)



Domestic Freight Transportation Rates
(million-freight-km)



Sources: TURKSTAT

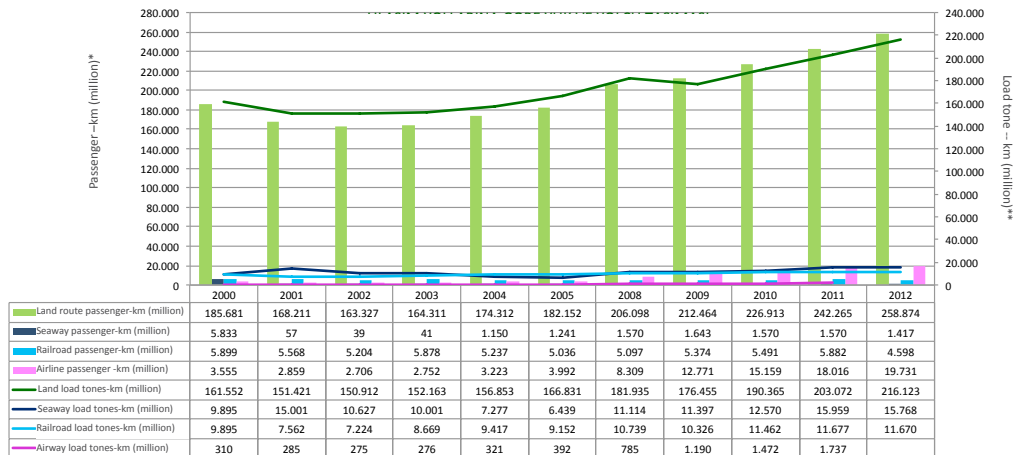
Source of data from 2008, 2009, 2010 for airline passenger and cargo, and data from 2011 for Cargo; ICAO (International Civil Aviation Organization)

Note:

* Passenger-Km: is a traffic measure module obtained via transporting a passenger one kilometer.

**Ton-Km: is a traffic measure module obtained via transporting one ton freight one kilometer.

LOAD AND PASSENGER TRANSPORT ACCORDING TO TRANSPORTATION TYPES

**Freight and Passenger Transporting by Transportation Types**

Road passenger-km (million) Maritime passenger-km (million) Railway passenger-km (million) Airway passenger-km (million)

Road freight-km (million) Maritime freight-km (million) Railway freight-km (million) Airway freight-km (million)

Sources:

Source of 2000-2011 Period data, TSI,

Source of 2012 data; Ministry of Transport, Maritime Affairs and Communications Department of Strategy Development

Source of 2008, 2009, 2010 data for airline passenger and cargo, and data from 2011 for cargo; ICAO (International Civil Aviation Organization)

Note: As validity analysis of values of 2012 for air cargo ton-km continues, it was not used.

* Passenger-Km: is a traffic measure module obtained via transporting a passenger one kilometer.

**Ton-Km: is a traffic measure module obtained via transporting one ton freight one kilometer.

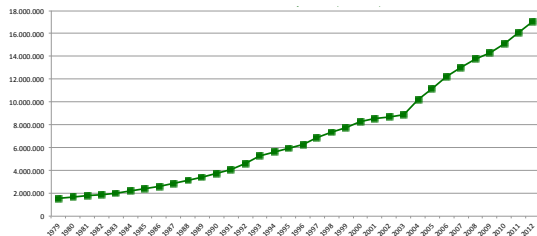
10.3- Number of road motor vehicles

The number of total road motor vehicles, which was 1.566.405 in 1979, increased especially after 2004 and reached to 17.033.413 in 2012. When rates of road motor vehicles of 1979 and 2012 are compared, the increase in the rates of automobile, van and motorcycle is remarkable.

The rates of total road motor vehicles number in 2012 were 50.8% automobile, 16.4% van, 15.6% motorcycle, 8.9% tractor, 4.4% truck, 2.3% minibus, 1.4% bus, and 0.2% special purposed vehicles.

When some members of the European Union and Turkey are compared according to 2010 data; the number of automobile per 1.000 people is 671 in Luxembourg, 609 in Italy, 538 in Finland, 530 in Austria, 517 in Germany, 505 in France, however this figure is only 104 in Turkey^[38].

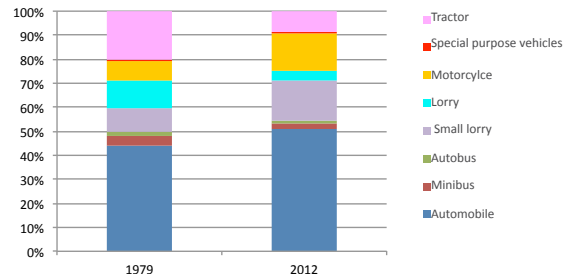
Number of road motor vehicle by years
Rates of road motor vehicle types of 1979 and 2012



Source: TURKSTAT

Emission caused by road motor vehicles is one of the important factors of air pollution especially in metropolitan cities. Exhaust gas measurement and inspection play an important role for reducing emission caused by road motor vehicles. The developments of technologies in hybrid and electrical vehicle manufacturing also play a significant role for the solution.

Tractor Special purposed vehicles Motorcycle truck van bus
minibus automobile



11.1- Total Energy Consumption by Sectors

Looking at the amount of energy consumption in 2011, it reveals that industrial sector and housing sector have the highest consumption rate. Although in Turkey the energy consumption in industrial sector has increased since 2002, due to the global economic crisis in 2008 and 2009, there happened a decrease because of the decline in the production. However, it increased again in 2010. The energy consumption in houses increases compared to 2002 in consequence of the population.

With the increasing demand for electricity, conversion sector is the 3rd and transportation sector is the 4th in the energy consumption. As road transportation is dominant preference for both passenger

and freight transportation in Turkey, most of the energy consumed in the sector is used for road transportation.

According to the data of TURKSTAT, while import dependence to meet energy need was 67.6% in 2000, it was 72.5% in 2010.

YEARS	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total (Thousand TOE)	78.331	83.826	87.819	91.075	99.824	107.627	106.338	106.139	109.266	114.480
Household	18.463	19.634	20.252	22.923	23.860	24.623	28.323	29.466	28.868	29.974
Industry	24.782	27.777	29.358	28.084	30.996	32.466	25.677	25.966	30.628	30.830
Transport	11.405	12.395	13.907	13.849	14.994	17.284	16.044	15.916	15.328	15.950
Agriculture	3.030	3.086	3.314	3.359	3.610	3.945	5.174	5.073	5.089	5.756
Not Energy	1.806	2.098	2.174	3.296	4.163	4.430	4.341	4.153	3.459	4.442
Conversion Sector	18.845	18.836	18.814	19.564	22.201	24.879	26.779	25.565	25.894	27.528

Source: Ministry of Energy and Natural Resources

It can be concluded that Turkey's climate conditions are the main factors for excessive energy demand of housing sector. During the summer climate is hot and dry, humid and rainy in winter. Interior regions are in need of heating approximately for six months and mainly southern regions are in need of cooling in summer.

Boosting efficiency, preventing of waste and reduction of energy intensity become more of an issue during each process of energy from generation to consumption. Within this context, the precaution have been implemented without affecting social and economic development targets. The studies for boosting energy efficiency in electrical energy generation facilities and transmission-distribution networks are in progress. Also studies are to be implemented to extend high-efficient cogeneration applications.

11.2- Rate of Renewable Energy Sources in Consumption

Renewable energy sources are environment-friendly and have much lower CO₂ emission values per energy unit generated. The most common renewable energy sources in Turkey are hydraulic, wind, solar, geothermal and biomass (wood, animal and plant residues).

Turkey increases its renewable energy source every year and put it into use with its investment that it increasingly continues.

While contribution of renewable energy was approximately 18% of total energy consumption in 1990, in parallel with increasing energy needs, this figure has decreased to approximately 9% according to TURKSTAT data.

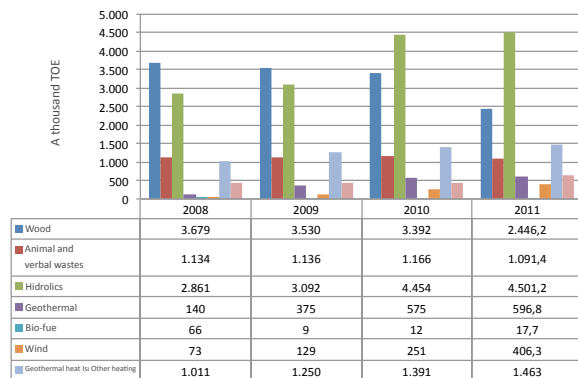
Decrease of wood which is among renewable energy sources has increased the necessity to tend to other renewable energy sources. Plannings and investments continue to increase total rate of consumption of renewable energy sources (other than wood) in Turkey.

For 2012, geothermal heat energy use was 4.813 MWt, solar collector heat energy use was 500 thousand TOE in housings and 268 thousand TOE in industry.

Investments of renewable energy sources such as hydraulic, wind, solar, geothermal, biomass and biogas are aimed to be boosted.

According to TURKSTAT data, the rate of renewable energy sources in electricity generating was 25.4% as of 2011. It is planned to increase this figure to at least 30% in 2023.

RATES OF RENEWABLE ENERGY SOURCES IN PRIMARY ENERGY CONSUMPTION OF THE COUNTRY BY YEARS



Source: Ministry of Energy and Natural Resources

RATES OF RENEWABLE ENERGY SOURCES IN DOMESTIC GROSS ENERGY CONSUMPTION (%)

YEARS	2000	2005	2008	2009	2010
Rates of renewable energy sources in domestic gross energy consumption (%)	12,5	11,1	8,8	9,1	9,0

Source: TURKSTAT Sustainable Development Indicators, 2000-2011.

11.3- Energy Efficiency in Buildings

Regarding Turkey's building industry, existing building supply and new buildings must be dealt with within the framework of sustainability . Energy efficiency in building is important in terms of reducing greenhouse gas emissions and air pollution as well as providing energy savings. The By-Laws on Energy Efficiency in Buildings, and Central Heating and Hot Water Cost Sharing by the Ministry Under the Law on Energy Efficiency were issued and came into force in 2008.

Necessary studies are ongoing to convey the idea of Energy Efficient Building concept to society and cultural activities are organized in this regard.

In order to make future generations and our country more eco-friendly and livable, building industry is of great importance. Regarding 2012 which we closed with a 70% import dependence for energy, that 40% of the total energy is consumed in buildings clearly demonstrates the importance of the issue . When energy efficiency and savings potential of building sector are compared with current consumption, a 50% rate can be reached.

Number of Building Given Energy Identity Certificate	YEAR 2012
New Building	51.639
Old Building	3.040
Total	54.679

Source: General Directorate of Professional Services, the Department of Energy Efficiency

In 2012, a total number of 54,679 buildings were given Energy Identity Certificate of which 51,639 was new and 3040 was old. By the end of 2012, the rate of the buildings which were given Energy Identity Certificate is 1 %.

All existing and new buildings are required to fulfill expense-sharing applications in central heating systems. Within the context of sharing the expenses of heat for central heating systems , in 2012, 43 company were authorized in Turkey.

Fuel consumption is aimed to be reduced by average 30% without disturbing the comfort conditions in these buildings. The process of compliance with the legislation in force in this regard in the sector and with technology is advancing rapidly . By 2023 the targets of the Ministry, all existing and new buildings will be given Energy Identity Certificates in Turkey, and existing building stock, urban rates , energy and greenhouse gas emissions statistics will be collected and the future plans will be shaped more accurate and stable .

Given Turkey's building stock, the use of renewable energy was determined to be 2% . With the recent legislation, it became mandatory to make renewable energy investment of at least 10% of the construction costs in new buildings with an 20,000 m2 or more area of construction. In this way renewable energy use rate is estimated to be no less than 7% by the end of 2017 ^[8].

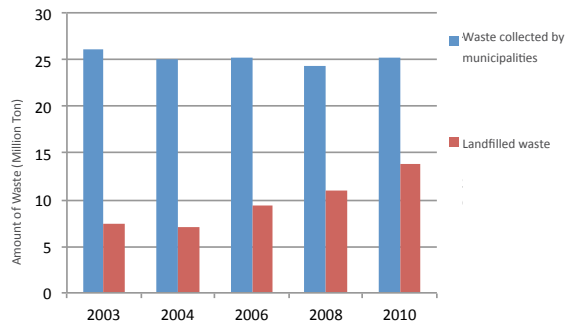
12.1- Waste Collected by Municipalities and Its Disposal

25.28 million ton total waste of which 14.43 million ton in summer and 10.85 million ton in winter were collected from municipalities serving waste collection in Turkey.

Regarding the amount of waste collected by municipalities according to the disposal methods the rate of urban waste collected by municipalities and sent to landfill was 28,5% in 2003, and increased to 54,4% in 2010. 43,5% of total waste was taken to municipalities' dumpsites and 0.8% to compost facilities, 1.3% disposed by other techniques in 2010.

According to TurkStat survey results, the amount of waste per capita is 1.15 kg in summer, 1.10 kg in winter and 1.14 kg average in a year.^[41]

According to Eurostat 2010 data, while the average of waste per capita of EU-27 countries is 502 kg, this figure is 407 kg in our country^[42].



YEARS	2003	2004	2006	2008	2010
Waste collected by municipalities (million ton)	26,11	25,01	25,28	24,36	25,28
Landfilled Waste (Million Ton)	7,43	7,00	9,43	10,95	13,75

Source TurkStat

12.2- Landfill of Waste

Turkey's rapid economic growth, urbanization, population growth and rising prosperity levels increase the types and quantities of waste. This condition, requires an integrated approach involving all waste types rather than managing separately each type of waste. Regarding waste sites in urban areas in Turkey, the number of landfills which was 15 by 2003 rose to 38 in 2008, 59 in 2011, and 69 in 2012.

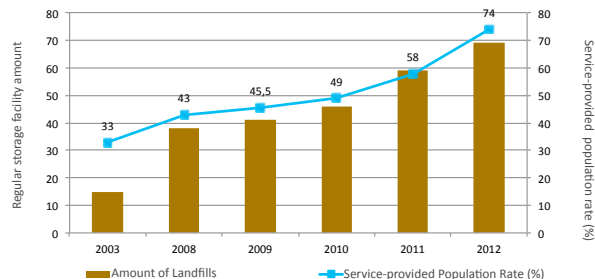
Also project works of 30 landfills which are in the phase of construction and construction tender, and of 30 landfills which are in the phase of planning-project are ongoing.

	2003	2008	2009	2010	2011	2012
Amount of Landfills	15	38	41	46	59	69
Service-provided population(%)	33	43	45,5	49	58	74

Source: General Directorate of Environmental Management, 2013.

As of 2012, with their landfills a total of 903 municipalities in our country serve to a population of 44.5 million and the rate of population served by municipalities to the total municipal population was 74%.

Improvement of existing waste infrastructure facilities, increasing the rate of the population which is given waste disposal services to 100%, collecting at least half of the recyclable waste at source and recycling at least 75% the waste by the end of 2017 are aimed.



12.3- Medical Waste

Principles regarding the safe management of medical waste in Turkey was determined by the "By-Law on Medical Waste Control" which entered into force by being published in the Official Gazette No. 25883 and dated 22 July 2005. According to this By-Law, medical waste can be disposed by incineration or made harmless through sterilization in sterilization facilities. The wastes subjected to sterilization can be disposed by in municipal landfills.

Via sterilization facilities established since 2008 in Turkey, medical wastes are successfully made harmless. By the end of 2012, 79 provinces were served in the country with 35 sterilization facilities. In addition, there is an incinerator where medical waste is disposed.

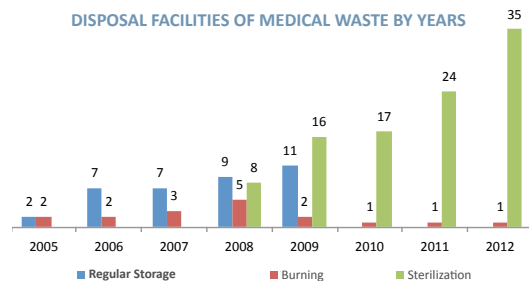
To determine the amount of medical waste in our country until 2011 the data of "Hospital Waste Composition Survey (TurkStat, 1995)" and the Ministry of Health data were used. As the result of the study done taking into account bed occupancy rates in provinces was calculated that approximately 100 thousand tons of medical waste occurred in 2010 in institutions and health care organizations providing inpatient treatment and outpatient care.

The amount of medical waste in 2011 was estimated to be approximately 83,000 tons according to data from Provincial Directorates of Environment and Urbanization and sterilization facilities actively operate in the country in accordance with Circular No.2010/17.

MEDICAL WASTE AMOUNTS PER YEARS

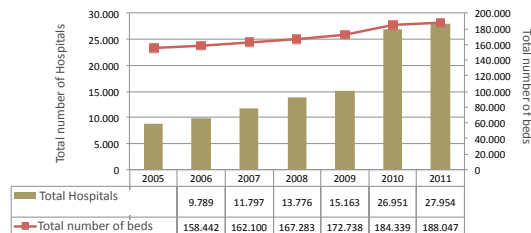
YEARS	2006	2007	2008	2009	2010	2011
Medical waste (thousand tone)	83	87	92	97	100	83

DISPOSAL FACILITIES OF MEDICAL WASTE BY YEARS



Source: General Directorate of Environmental Management, 2013.

According to TurkStat data, as of 2011, there are 27,954 health institutions, 188,047 patient beds in total in Turkey. The data does not include military hospitals.



Source: TurkStat

Note: Not including military hospitals.

12.4- Waste oil

The amount of collected waste oil was approximately 40.000 ton in 2012. The graphic shows the rates of collected waste oil.

On recovery of waste oil, 37 facilities have Temporary Operation Document and Environmental License. Mineral oil with TSE (Turkish Standard Institution) license is produced in these recovery facilities and they need to get a license from EMRA (Energy Market Regulatory Authority) to sell their products.

WASTE OIL RECYCLING AND DISPOSAL AMOUNT PER YEARS

YEARS	RECYCLING (Ton)	ADDITIONAL FUEL (R1)	FINAL DISPOSAL (D10) (Ton)
2005	3.782	4.717	2.938
2006	15.485	7.296	2.950
2007	21.318	11.756	3.356
2008	18.155	13.190	2.887
2009	28.113	13.667	2.668
2010	28.140	14.575	1.244

Amount of Waste Oil Recycling and Disposal by Years

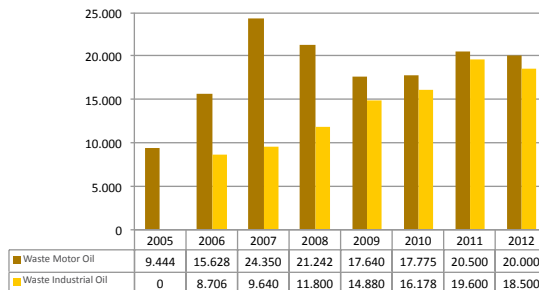
Years Recycling (Ton) Additional Fuel (R1) (Ton) Final Disposal (D10) (Ton)

Note: In accordance with the General Principles of Waste Management Regulation

R1: Primarily to use as fuel for energy generation or in other ways

D10 Burning Overland

Amount of Collected Waste Oil (tonnes)



Source: General Directorate of environmental Management, 2013

Within the context of our Ministry's planning, there are ongoing Works to build refinery facilities that have high technology on recovery of waste oil and can produce base oil from waste oils in Turkey .

12.5- Waste Vegetable Oils

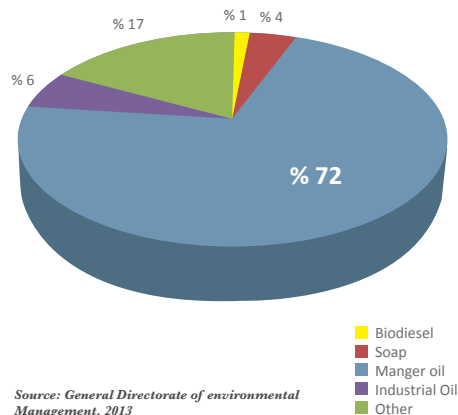
Waste vegetable oils are among those to be managed in harmony with the environment due to their ecotoxicity properties.

Recovery of waste vegetable oils is carried out by recovery facilities with environmental license from the Ministry of Environment and Urbanization. Waste vegetable oils other than used frying oil are generally used in the manufacture of soap and manger oil. Used frying oils in the manufacture of soap is prohibited in accordance with the legislation of the Ministry of Health, and in the manufacture of manger oil is prohibited in accordance with the legislation of Ministry of Food, Agriculture and Livestock.

Used frying oils are generally used in acid oil and industrial oils manufacture.

While 1 collector and 7 vehicle operate as the date of publication of the By-Law on Waste Vegetable Oil, as of 2012, 14 different collector operates in 17 provinces with Temporary Storage Permit. The Ministry gave license to 27 facilities for recovery of waste vegetable oil, and 7 of these facilities were given license for biodiesel

Rates of Recovered Products

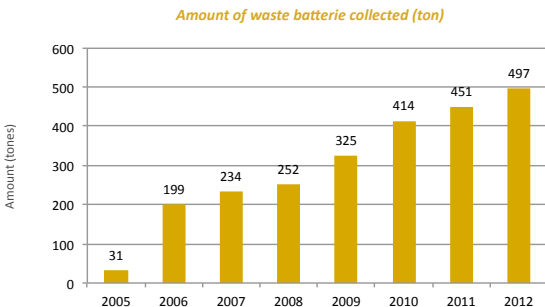


Source: General Directorate of environmental Management, 2013

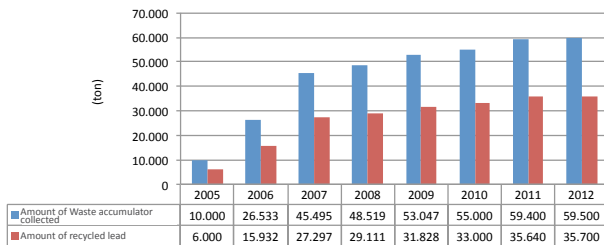
12.6- Waste Batteries and Accumulators

Waste batteries and accumulators are collected separately from other wastes due to both human and environmental health, as well as the economic yield. Waste batteries collecting is carried out by 497 municipalities with the protocol and 77 public agency/institute.

The amount of collected batteries in 2012 was 497 tons. In 2012, 34% of the collected waste batteries was collected through school campaign, 14% through municipalities and 22% through battery importer companies. The amount of waste batteries collected in Istanbul made up 36% of the total amount of waste batteries collected across the country. Istanbul was followed by Izmir, Ankara , Kocaeli, Bursa and Sakarya.



Under the responsibility of a deposit; waste accumulators are collected on a regular basis through accumulator manufacturers , temporary storage areas of waste accumulator and accumulators recycling facilities. Each year, approximately 80,000 tonnes of accumulator are released, about 70% is recovered by collection. An accumulator comprise of 60 % lead and it can be recovered whole. 214,496 tons of lead were obtained from a total of 357,494 tonnes of recovered waste accumulator since 2005. During the acquisition of lead from waste accumulators , less energy is spent than the energy consumed during the production of lead ore.



Source: General Directorate of environmental Management, 2013

12.7- Packaging Waste

30% of waste by weight, and 50% by volume is packaging waste.

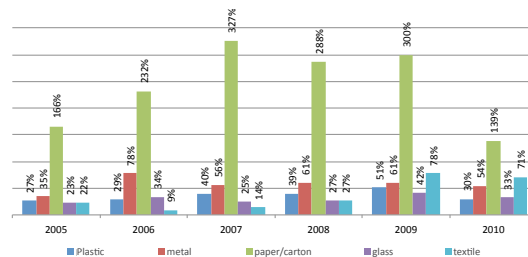
In accordance with the polluter-pays principle of By-Law on Packaging Waste Control; the responsibility to meet the costs of collection of packaging waste is given to the businesses that release their products. It is of great importance to keep a record of businesses in order to meet the costs of separate collection of packaging waste at the source. While the number of businesses that had been recorded was 350 in 2003, this number reached to 17,738 at the end of the 2012.

Between 2005 and 2010, regarding recycling rates of packaging waste types, especially paper and carton recycling rates are quite high. Regarding the amount of packaging released to the market in 2011, it is seen that paper was released to the market at most and composite at least.

STATISTIC RESULT OF PACKAGING WASTE IN 2010

Package Type	Produced Package Amount (tonnes)	Launched Package Amount (ton)	Aimed Recycling Rates (%)	Required Recycling Amount (tonnes)	Recycled Geri Amount (ton)	Recycling Gerçekleşen Occurred Rate (%)
PLASTIC	1.186.213	812.532	37	37.223	242.039	30
METAL	230.945	119.436	37	7.240	64.950	54
COMPOSITE	85.520	67.070	37	5.153	47.502	71
PAPER CARDBOARD	2.590.586	1.024.429	37	71.051	1.423.181	139
GLASS	363.024	492.626	37	33.283	160.238	33
TOTAL	4.456.291	2.516.094		153.952	1.937.912	77

RATES OF RECOVERY OF PACKAGES RELEASED TO THE MARKET IN 2011

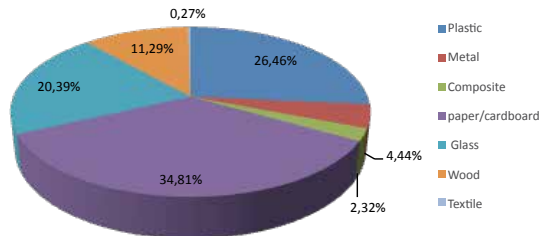


Source: General Directorate of environmental Management, 2013

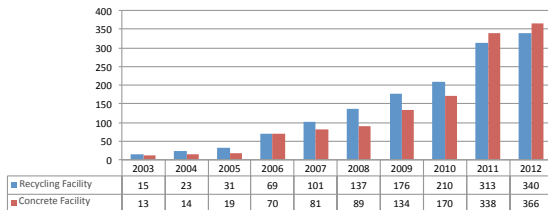
For a healthy and sustainable waste management system, recyclable waste must be collected at source separately and without interfering with household waste, and recycling process must be carried out in an organized structure. Thus, the amount of waste that goes into the landfill can be reduced, as well as the utilizable wastes can be brought into economy as a raw material. For this purpose, a separate collection system was established. Packaging waste management plans are prepared by municipalities within this system and they are approved by the Ministry since 2008. The work of separate collection of packaging waste is carried out under the plan. As of 2012, packaging waste management plans of a total of 379 municipalities were examined and approved by the Ministry.

The number of licensed facilities which was 28 in 2003 rose to 706 by the end of 2012.

PERCENTAGES OF LAUNCHED PACKAGE AMOUNT 2011



LICENSED FACILITIES AMOUNT (2003-2013)



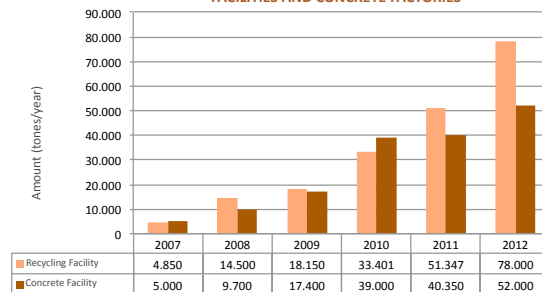
Source: Environmental Management General Manager, 2013

12.8- End of Life Tires

The old tires which have been removed from the vehicles for they had completed their useful lives are defined as end of life tires (EOLT). These tires are used by recycling in packing materials, in paving stones, in roofings and in children's park zones and in cement plants the tires are used as additional fuel with aim of energy recovery.

The implementations are been carried out for building systems to collect and transport the end of life tires with the purpose of recycle or final disposal; for forming management plans and for importation, exportation and transit pass of the tires.

END-OF-LIFE TIRES USED AS ADDITIONAL FUEL IN RECOVERY FACILITIES AND CONCRETE FACTORIES



Source: General Directorate for Environmental Management, 2012

12.9- End of Life Vehicles

In 2012, 17.033.413 vehicles attained place in the traffic in Turkey. But some of them staying out of the traffic due to various reasons, and some of them are scrapped.

According to the data of 2012, %16 of 125.407 vehicles, whose records had been deleted by the General Directorate of Security Affairs, were recycled as scraps within the M1 and N1 categories.

Scrapping transactions on the vehicles are made regarding the M1 and N1 categories under By-Law on End of Life Vehicles.

YEARS	2006	2007	2008	2009	2010	2011	2012
a. Total Motor Vehicle Amount in Traffic	12.227.393	13.022.945	13.765.395	14.316.700	15.095.603	16.089.528	17.033.413
b. Registration-Cancelled Motor Vehicle Amount	68.177	66.840	87.230	163.785	151.700	198.801	125.407
c. Rate of Registration-Cancelled Motor Vehicle Amount to Total Motor Vehicle Amount (%) (bx100/a)	0,56%	0,51%	0,63%	1,14%	1,00%	1,24%	0,74%
d. Total Amount of Vehicle Amount Junked by Security General Directorate	29.817	39.515	50.231	78.487	65.502	113.913	73.567
e. Rate of Junked Vehicles to Registration-Cancelled Vehicles (%) (dx100/b)	44%	59%	58%	48%	43%	57%	59%
f. Amount of Vehicles Worn-out and Junked by Security General Directorate (vehicles in M1 and N1 category)	11.826	13.564	20.170	30.672	27.687	41.848	19.919
g. Rate of Vehicles Worn-out and Junked by Security General Directorate to Registration-Canceled Vehicles (%) (fx100/b)	17%	20%	23%	19%	18%	21%	16%

Source: General Directorate of Security Affairs, General Directorate for Environmental Management

12.10- Waste electrical and electronic equipment

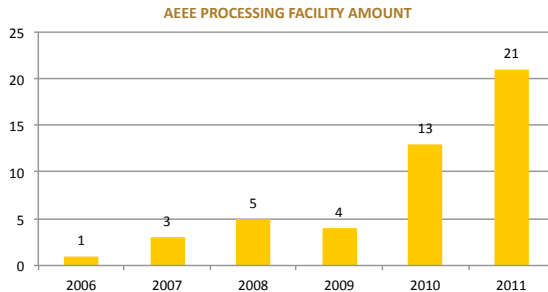
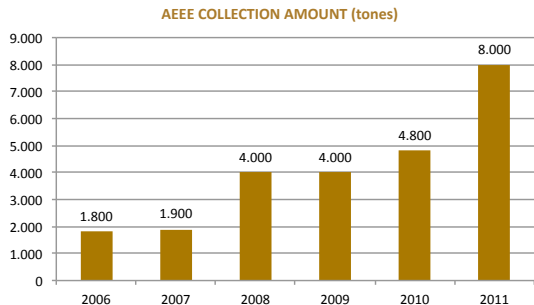
In our country as in the whole world, the consumption patterns are changing rapidly with the advancing technology therefore new waste types have been ensued. One of these types is Waste Electrical and Electronic Equipment (WEEE).

By our Ministry, principles were determined in recovery of electrical and electronic equipment including harmful substances for human health and environment such as computers, monitors, televisions, refrigerators, washing machines, mobile phones in licenced facilities in accordance with certain standards; and also in correct disposal of the wastes which cannot be recovered.

In our country, it is forbidden for electrical and electronic equipment launched by importation or production to include lead (Pb), mercury (Hg), chrome (Cr⁶⁺), polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE) and cadmium (Cd) with some exceptions.

The collection, processing, recovery and disposal of waste electrical and electronic equipment are been carried out in the responsibility of the producers.

The proportion of collecting WEEE (Waste Electrical and Electronic Equipment) in 2011 was about 8.000 tons.



Source: General Directorate for Environmental Management, 2013

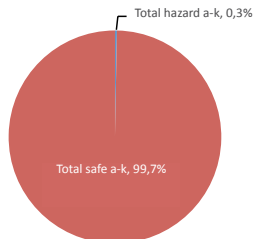
12.11- Mining Waste

According to the 2011 data of General Directorate of Mining Affairs, 33.780 mining licences were given for operating and for pretreatment; and 13.128 of them are in operation.

TURKSTAT made a survey which was answered by 1.482 pit mining plants working in coal and lignite drawing, in ore mining, in other sectors related with mining and quarrying; and also by mining and quarrying plants which have at least 10 workers. According to the results of the survey, in 2010, 729,75 million tons of wastes were generated. 728,87 million tons consisted of mineral wastes. It was determined that the 2,3 million tons

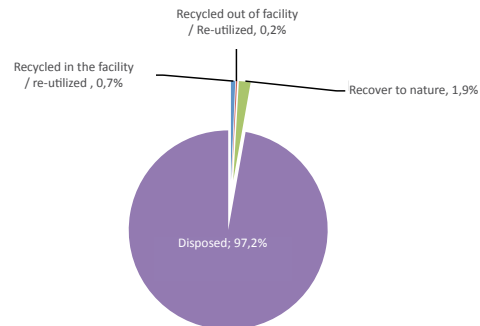
of the total were hazardous wastes. %0,7 of the total waste had been recovered/reused within the facility, %0,2 had been recovered/ reused out of the facility, %1,9 had been returned to the nature and %97,2 had been disposed. %74,9 of disposed wastes had been stored in tails or in sanitary landfills, %23,8 had been dumped to the pits and %1,3 had been disposed by other methods. Here mentioned other methods are; dumping to the dump sites, incineration in open air, storing temporarily, burying to the ground and leaving in water sources ^[46].

SEPARATION OF MINE WASTES AS PER HAZARD CONDITION



Source: TURKSTAT, Pit Mining Water, Waste Water and Waste Statistics News Bulletin, 2010

RECOVERY AND DISPOSAL OF MINE WASTES



12.12- Hazardous Wastes

Hazardous wastes, especially originating from the industrial plants, are serious elements of oppression for the environment.

Recovery/disposal of hazardous wastes has been carried out by plants which have the licence provided by the Ministry. By 2012, there have been 37 waste incineration and co-incineration plants, 6 hazardous waste storage facilities (1st class) and 201 hazardous waste recovery plants in Turkey.

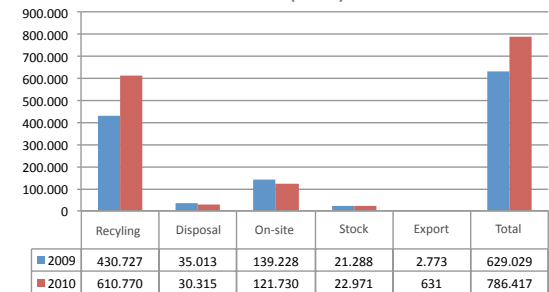
A nation-wide proportion of hazardous waste generation can be identified with the Waste Notification System used by the industrial plants generating wastes during the operational processes. By 2012, 21.692 plants have used the Hazardous Waste Notification System.



Considering the years, it is seen that the amount of waste is increasing, on the other hand, the large part of this amount has been recovered.

Regarding to the waste management principles; the wastes should be decreased firstly in the source, then recovery, energy recovery and finally disposal methods should be applied. According to the data provided by the Hazardous Waste Notification System, the rate of hazardous waste generation is higher in places including industrial zones.

HAZARDOUS WASTE NOTIFICATION SYSTEM 2009, 2010 DATA (TONES)



Source: General Directorate for Environmental Management 2013

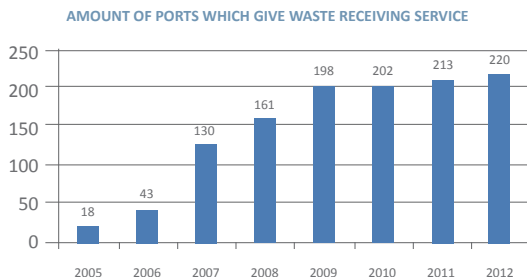
Note: Hazardous waste proportions of mining sector are not included here.

12.13- Management of Wastes from Ships

Turkey became a party of International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) in 1990 and is fulfilling the obligations of the Convention with the “dated 26 December 2004 and number 25682 By-Law of Waste Reception from Ships and Waste Controls”.

As a requirement of this By-Law; waste receiving facilities have been founded and operated by the parties with the aim of preventing the ocean dumping with wastes and residues from the ships in the territorial waters of Turkey and protecting the marine area.

In 2003 there were no licenced waste receiving facility, but by the end of 2012 this service have been given in 220 seaports.

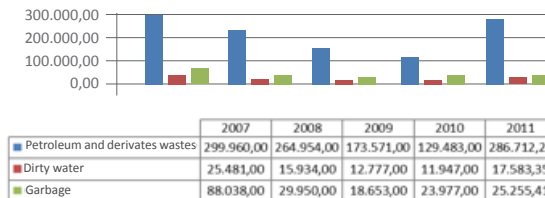


Source: General Directorate for Environmental Management , 2013

The obligators operating the waste receiving facilities, are disposing the wastes collected, in accordance to the Environment Law no. 2872 and relevant legislation provisions. The obligators, receiving the wastes of the ships in their ports or waiting in the offshores to land, as defined in the By-Law, without causing the ships lose time. The oily wastes collected are incinerated in the licenced facilities as additional fuel, by providing the required criteria as in the EU countries.

Thereby, the marine pollution caused by the increasing sea traffic has been prevented in Turkey.

DISTRIBUTION OF WASTED ORIGINATED FORM SHIPS TO YEARS (M³)



Source: General Directorate for Environmental Management , 2013

12.14- Risk Assessment and Emergency Response

In states of emergency such as the marine pollution caused by the technical problems or accidents of the ships in the sea shores or near; according to the Law no. 5312 “Law and Implementing By-Law on the Emergency Response and Compensation of Damage in Pollution of the Marine Environment by Oil and Other Harmful Substances” the facilities, perform the activities near the sea shores which can cause marine pollution by oil or other harmful substances, have been prepared emergency plans and the plans have been confirmed by the Ministry.

The emergency plans of 219 sea shore facilities had been confirmed with the By-Law. With the confirmation of the plans; determination of necessary number of vehicles, equipment, materials and personnels; and the protection and sensibility of marine pollution by oil or other harmful substances are provided. In addition to this, practices on effective identification of the damage and application of compensation; and on rehabilitation of the marine environment and sea shores after the pollution have been made.

PROVINCES	2009	2010	2011	2012
ADANA	75%	75%	83%	83%
ANTALYA	7%	36%	36%	43%
ARTVİN	0%	50%	50%	50%
AYDIN	0%		0%	0%
BALIKESİR	10%	20%	20%	30%
BARTIN	0%	0%	0%	0%
BURSA	20%	60%	60%	60%
ÇANAKKALE	13%	25%	25%	38%
DÜZCE	100%	100%	100%	100%
GİRESUN	0%	40%	40%	40%
HATAY	14%	81%	86%	86%
İSTANBUL	4%	81%	82%	84%
İZMİR	65%	79%	79%	79%
KASTAMONU	0%	0%	0%	0%
KOCAELİ	25%	63%	78%	85%
MERSİN	44%	68%	76%	80%
MUĞLA	0%	4%	4%	12%
ORDU	0%	14%	14%	14%
RİZE	7%	7%	7%	7%
SAMSUN	11%	67%	78%	89%
SINOP	0%	0%	0%	0%
TEKİRDAĞ	25%	42%	50%	67%
TRABZON	0%	8%	15%	23%
YALOVA	7%	7%	7%	21%
ZONGULDAK	40%	60%	80%	80%
Total	21%	52%	56%	60%

Source: General Directorate for Environmental Management, 2013

The table above, is showing the ratio of the plans of sea shore facilities confirmed by our Ministry in this context.

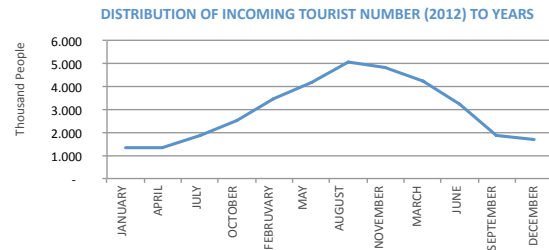
13.1- Number of Tourists

The number of tourists is found by subtraction the number of overnight tourists from the total of foreign visitors and the visitors residing abroad.

In 2003 the number of tourists was 15.774.505 and that number increased to 35.697.900 in 2012. The distribution by months of number of tourists shows that the tourists are mostly coming to Turkey in the summer months.

Increasing water consumption per capita in tourist facilities and lack of water springs in summer months are causing environmental problems about water.

Excessive water taking from deep water wells is also risky for increasing the water problem. In the touristic zones in Turkey, environmental problems are existing in waste water, in waste, in energy consumption, in natural resource usage and in noise. However, ultimate attention is shown in enterprises to protect and advance the natural, historical and social environment.



Source: <http://www.ktbyatirimisletmeler.gov.tr/TR,51430/19062013---turizm-istatistikleri-revizyon-duyurusu.html>

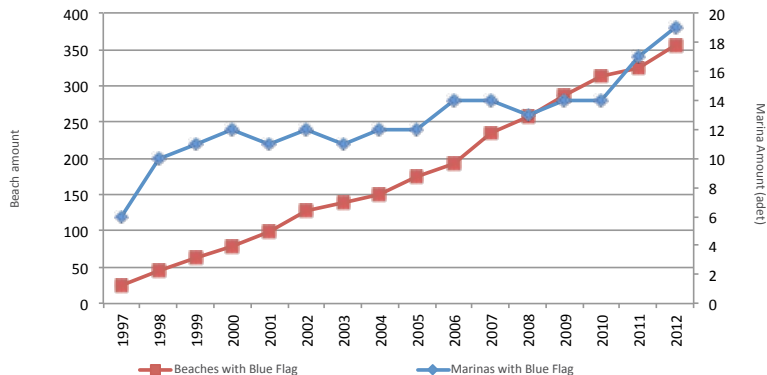
13.2- Blue Flag Applications

Blue flag is an international environmental award which is given to the qualified beaches, marinas and yachts in accordance with required standards. The purpose of Blue Flag Implementations, started in 1978 in Europe and in 1993 in Turkey, is to constitute high standards for beaches and marinas.

Beaches are considered within 32 and marinas are considered within 24 criteria in this procedure. The places providing all the criteria, have right

to get the Blue Flag for one year time with the approval firstly of the national and then of the international jury. The number of Blue Flags in Turkey increased strongly between 1997- 2012. There were 355 beaches, 19 marinas and 13 yachts with Blue Flags existing in 2012.

Turkey is the 4th of 46 countries by 2012 according to the quantity of Blue Flag Beaches. 1st is Spain (540 beaches), 2nd is Greece (394 beaches) and the 3rd is France (358 beaches).



Source: <http://sgb.kulturuzizm.gov.tr/Eklenti/5866,mavi-bayrak-istatistikleri.pdf?0>

14.1- Liability Insurance

The concept of risk brings the concept of insurance as a requirement to assure the risk. In this context, environmental liability insurance is used as a means of the management of environmental risks nowadays. The companies which have the potential of causing environmental pollution, can assure their risks in case of facing with national and international enforcements on environmental pollution. In the context of environmental legislation; General Conditions of Compulsory Liability Insurance of Seashore Facilities Marine Pollution entered in force on 01 July 2007; General Conditions of Compulsory Liability Insurance of Dangerous Substances and Hazardous Wastes on 11 March 2010 and General Conditions of Liability Insurance of Environmental Pollution on 01 September 2011.

Due to the case of pollution or the risk of pollution in the inland waters, in territorial waters, in continental shelves and in territorial waters consisted of restricted economic zones caused by the seashore facility; the expenses for clearance, for collection and disposal of wastes, for wounding or death of third persons and for damage of private goods have been compensated by Compulsory Liability Insurance of Seashore Facilities Marine Pollution. Concerning with the mentioned insurance, the number of insurance policies raised from 239 of 2011 to 317 in 2012; and the premium production had been 1.533.938 TL.

Compulsory Liability Insurance of Seashore Facilities Marine Pollution	2007	2008	2009	2010	2011	2012
Number of Insurance Policies	2	5	10	165	239	317
Amount of Premium (TL)	1.569	25.381	33.137	1.128.008	1.573.016	1.533.938

Liability Insurance of Environmental Pollution	2011	2012
Number of Insurance Policies	30	32
Amount of Premium (TL)	2.217.852	613.014

Compulsory Liability Insurance of Harmful Substances and Hazardous Wastes	2010	2011	2012
Number of Insurance Policies	27.484	32.383	32.998
Amount of Premium (TL)	15.514.616	18.277.679	20.659.540

Source: Prime Ministry Undersecretariat of Treasury

Due to the pollution or the risk of pollution in all or a number of soil, ground waters, inland waters and sea waters; the expenses of the personal injuries, death or material damage of third persons are been compensated accordingly with the Environmental Legislation. Also the expenses the expenses for clearance, for collection and disposal of wastes made out of the facility are been compensated legally from the owner of policy as a scope of Liability Insurance of Environmental Pollution. By 2012 there have been 32 Liability Insurance of Environmental Pollution policies are existing and the premium production for this insurance is 613.014 TL.

The materially and morally damages of third persons as a result of a possible accident caused by occupational activities related with dangerous substances, are compensated within the scope of "Compulsory Liability Insurance of Dangerous Substances and Hazardous Wastes".

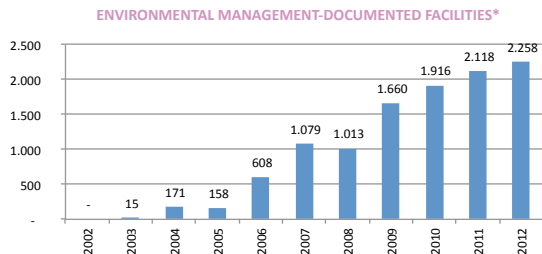
The number of insurance policies existing in this context was 32.383; and increased to 32.998 by 2012. The premium production for this insurance is 20.659.540 TL ^[49].

14.2- Number of Facilities with Licence of Environmental Management

The Technical Committee no. 207 (ISO/TC 207) which is a member of International Standards Organisation (ISO) and concerning with the environmental management; had started studies to be an international guide for everyone to profit in accordance with complaints by the business world and the governments. By these determined needs, the establishment of internationally valid standards had been required.

This Committee (ISO/TC 207) principally specified standards including instantiation, testing and analytical methods which can be used only by some production sectors (nuclear, energy, plastic etc.). At the present time, there are more than 350 standards existing for the control of the air and water used in industry. These standards have been selected as the baseline for the laws on environment in many countries.

Afterwards, ISO/TC 207 Technical Committee, prepared a general standard on environment which can be applied in every sector all around the world. This had been prepared in 1993 and developed to fulfil the requirements answering the advances in the environment. The primacy was given to the Environmental Management Systems, the control of environmental management systems, environmental labelling and to the life cycle assessment. In 1996, EN ISO 14001 Standard was published by the Committee and it took its final form after the revisions made in 2004.



Source: Turkish Accrediting Agency

* Including the data received from the Foundations which are accredited by Turkish Accrediting Agency TS EN ISO/IEC 17021 Standard and making ISO 14001 filing.

ISO 14001 Environmental Management System has been applied particularly by the industrial foundations and public institutions and also by all service providing foundations and producers.

According to the data of Turkish Accreditation Agency (TURKAK), by 2012, 2258 establishments are using this system filed by the foundation accredited by TÜRKAK ^[50].

COMPARISON OF THE WATER, WASTE WATER AND WASTE DATA OF 2008 AND 2010 BY SECTORS

The amount of water drawing from sources by sectors

	2008		2010	
	Amount (Billion m ³ /year)	(%)	Amount (Billion m ³ /year)	(%)
Municipalities	4,55	10,0	4,79	10,9
Villages	1,22	2,7	1,01	2,3
Manufacturing Industry Plants	1,19	2,6	1,50	3,4
Thermal Power Stations	4,54	9,9	4,27	9,8
Organized Industrial Zones	0,10	0,2	0,11	0,3
Pit Mining Plants	...	...	0,05	0,1
Irrigation	34	74,6	32 ⁽¹⁾	73,2
Total	45,60	100	43,74	100

Note: Numbers are not including the amount of water provided from other sectors.

Source: Irrigation numbers Ministry of Forestry and Water Affairs General Directorate of State Hydraulic Works (DSİ), other numbers Turkish Statistical Institute "Sectorial Water and Waste Water Statistics 2010" <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=10824> ... No Information.

(1) DSİ year 2011 data.

Waste water amount directly discharged to receiving environment by sectors

	2008		2010	
	Amount (Billion m ³ /year)	(%)	Amount (Billion m ³ /year)	(%)
Municipalities	3,11	35,7	3,50	38,5
Villages	0,20	2,3	0,19	2,1
Manufacturing Industry Plants	0,84	9,6	1,04	11,4
Thermal Power Stations	4,44	51	4,16	45,8
Organized Industrial Zones	0,13	1,5	0,16	1,8
Pit Mining Plants	...	...	0,04	0,5
Total	8,7	100	9,10	100

Note: Numbers are not including the amount of water waste sent to other sectors. Numbers in the table can be different from the total because of rounding off. .

... No Information.

Source: Turkish Statistical Institute "Sectorial Water and Waste Water Statistics 2010" <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=10824>

Amount of Wastes generated by sectors

	2008		2010	
	Total Waste Amount (1000 tons/year)	Amount of Hazardous Waste in Total Waste Amount (1000 tons/year)	Total Amount of Waste (1000 tons/year)	Amount of Hazardous Waste in Total Waste Amount (1000 tons/year)
Municipalities	24.361		25.277	
Manufacturing Industry Plants	12.482	1.136	13.366	964
Thermal Power Stations	25.622	24	18.748	(**)
Organized Industrial Zones	255	34	313	(**)
Pit Mining Plants	...	...	729.750 ⁽²⁾	2.314
Healthcare Organizations	92	92	100	100

Sources: Data of Healthcare Organizations Ministry of Environment and Urbanisation, General Directorate for Environmental Management other data Turkish Statistical Institute "İstatistiklerle Çevre, 2010" <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=13134> verileridir.

(**) According to the Law no. 5429 privacy policy, data on units could not be given for the number of units is three or more or two units dominated..

... No Information.

(2) Including stripping materials and tallow wastes..

POPULATION

Population Increase Rate

This indicator is the average yearly increase in the population growth in a year or in a certain period. Every 100 population which is increasing yearly is called increasing population.

Urban Population

It shows the percentage of the population of province and counties and the population within the municipalities to the total population.

ECONOMY

Total Environmental Expenditures of Public Sector

Environmental protection expenditures are the expenditures made for the activities with the intention of prevention, reduction and removal of the pollution arising out of production processes and product and service consumption. The expenditures made for the management, monitoring and legislation applications in the Public Sector are included. In order to describe the whole of the environmental protection expenditures; CEPA – Classification of Environmental Protection Activities prepared by the United Nations European Economic Commission and European Statistics Office, is used.

Public Sector Environmental Expenditures

This include the expenditures belonging to public institutes, special provincial administrations and environmental expenditures of the municipalities.

Sectoral Distribution of the Employment

This indicator shows the rate of the active population in the agriculture, industry, construction and service sectors to the total active population.

WEATHER, ATMOSPHERE, CLIMATE

Greenhouse Gas Emissions

Emissions arising out of energy, industrial processes, agricultural activities, waste disposal includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF₆) which are directly greenhouse gases and indirect greenhouse gases nitrogen oxides (NO_x), non methane volatile organic components (NMVOCs) and carbon monoxide (CO) emissions. National Greenhouse Emissions are calculated using 1996 Intergovernmental Panel on Climate Change (IPCC) Guide.

Greenhouse Gas Emissions for Sectors

It indicates the amount of greenhouse gases arising out of different sectors as CO₂ equivalent.

Rain

It is the average rain amount for unit area.

Temperature

It means the monitoring of the average surface temperature on time series.

Sea Water Temperature

It indicates the yearly change of the sea water surface temperature on time series.

Natural disasters and their types

This indicator shows the SO₂ and PM concentration amounts in the air. SO₂ is a pollutant, suffocating, colorless and acidic gas which forms during the combustion of the sulphur compounds which exists in the form of

the SO₂ fuels. Particle substances form with the chemical transformation of the gas state emissions and formation in bulk. Particles which are 5-10 micrometer in diameter are described as the suspended particles. They generally contain heterogeneous mixtures and their characteristics show substantial changes from one place to another. Particles with the diameters below 10 micrometer are called PM₁₀.

Short Range Limit Values (KVS)

When maximum daily average values or statistically all the calculation results are arranged according to their size of the measurement results should not exceed %95. This is different for the settled dust which should not be exceeded maximum monthly average value. In the KVS value calculations 140 µg/m³ for 2012 year in the PM₁₀ parameter; 280 µg/m³ for 2012 year in the SO₂ parameter limit values are based as it was stated in the "By-Law on of Air Quality Evaluation and Management".

Air Pollutant Emission

Air Pollutant Emission is the expression of total emissions globally (Kiloton, GigaGram... etc.) obtained from the multiplication of emission factors and yearly activity data for certain pollutants.

WATER-WASTE WATER

Water Usage

This indicates the water amount which was taken from the sources in a sectoral base such as municipality, irrigation, drinking, using and industry.

Municipality Drinking and Usage Water Sources

It gives the rates of the water taken by the municipality according to its sources from the dams, wells, spring waters, streams, lakes which is used for drinking and using.

Municipalities Providing Service with Waste Water Treatment Facility

This shows the number of the municipalities providing service with the waste water treatment facility and the population getting benefit from this service.

LAND USE

Land Use

According to the Coordination of Information on the Environment-CORINE project usage types are divided into two.

1. Land Cover: it shows the aspect of the land covered with biological and physical elements. For example, natural maquis shrublands, natural cliffs, natural pastures etc.
2. Land Use: means the land uses occurring with the human effect. This shows the comparison between the land use changes and proportional indication of land use types determined according to Coordination of Information on the Environment-CORINE project.

Land use types determined according to CORINE are:

1. Artificial Areas: Most of these areas are covered with buildings and transportation network.
2. Agricultural Areas: both tamed agriculture lands and pasture areas are placed under this headline.
3. Forest and semi natural areas: they are the areas consisting of forests, maquis, herbaceous plants and non-plant and less planted open areas.
4. Wetlands: all the areas which stay wet ecologically from the coastal line to the land side and all the water, marshes, reeds and turbaries which do not exceed six meters during the tide movements of the

seas, bitter or salted, stagnant or flowing, continuous or temporary, natural or artificial and which has an importance as the living space of the creatures starting with water birds.

5. Water bodies: it includes the water bodies such as the Land waters (stream surfaces) and sea waters (lagoons, bay, sea and oceans).

AGRICULTURE

Agricultural Land Per Capita

It is described as the rate of total arable agricultural land to the total population.

Out of Purpose Use of Agricultural Land

It means the permission of the lands which carry the agricultural land property to be out of purpose with the law and by-laws.

Consumption of Chemical Fertilizer

It states the amount of active matter (tons / year) which is with nitrogen, phosphor, nitrogen-phosphor-calcium mixed in the fertilizer consumed in the agriculture sector.

Usage of Pesticides

It describes the total yearly usage of pesticides.

Organic Agriculture

Organic agriculture is an agricultural production type in which no chemical entries are used in production, only with the usage of the entries permitted by the legislation and controlled and certified in every stage from the production to the consumption. This shows amount and area of agricultural products produced with organic agricultural methods.

Good Agricultural Practices

According to the by-law published on Official Gazette dated 7 December 2010 and numbered 27778; good agricultural practices are indicates the actions to be applied in order to make the agricultural production system livable in a social view, profitable and fertile in economical way, protecting human, animal health and welfare and to make it nature aware.

BIOLOGICAL DIVERSITY

Biological Diversity

Biological Diversity is the complete consisting of genes, species, ecosystems and ecological events in a certain area. In other words Biological Diversity contains the whole of the genes in a certain area, the species carrying these genes, the ecosystems which is the home of these species and the processes which bind these together.

Protected Areas

Protected areas are according to the description by International Union for Conservation of Nature (IUCN) updated in 2008: it is the area which is managed by legal and other effective methods, having geographical borders expressly described for the protection of the nature and related ecosystem services and cultural values in the long term.

Forests

This indicator is the explanation of the total surface areas of the natural or sown forests change by the periods.

Forest Fires

This indicates the total burnt forest area in the forest area by years.

FISHERY

Fishery

It shows the amount of fish, shellfish, mollusks, sweet water products fished from inland waters and cultivated products which are fished every year from our seas. Data about the production is expressed in live weight when it is caught.

INFRASTRUCTURE AND TRANSPORTATION

Road and Railroad Network

It is the total road (highways, state roads, province roads) and railroad development and their length.

Freight and passenger amount according to transportation types

This indicates the distribution percentages between the transportation types in the country for freight and passengers.

Number of road motor vehicles

It indicates the total number of road motor vehicles such as automobile (including land vehicles), minibus, autobus, pickup, truck, motorcycle, vehicles with private purposes, road and work machines and tractors.

ENERGY

Total energy consumption according to sectors

This shows the total energy consumption for the residences, industry, transportation, agriculture, non-energy, conversion sector with the equivalent of petrol.

Share of renewable energy sources in the consumption

This shows the total energy consumption rate which is gained from renewable energy sources (wood, animal and plant remains, hydraulic, geothermal, wind and sun). Renewable energy sources are the equivalent of the energy gained from the existing exterior environment energy flows and materials derived from these.

WASTE

Municipal wastes and their disposal

This indicator shows the amount of the wastes collected by the municipalities or on behalf of municipalities and the amount of the regularly collected municipal wastes. Wastes produced in the homes is the most important amount of the municipal wastes. It also includes the wastes made by the buying-selling and commercial companies, office buildings, institutions and small workplaces.

Landfill of wastes

Landfill facilities are the areas in which the wastes are disposed according to certain technical standards excepting the facilities in which the wastes are stored in the interim storages less than 1 year for disposal, facilities in which the wastes are stored in interim waste storages less than 3 years for recovery or pretreatment and the units in which the wastes are stored in temporary waste storages for disposal or pretreatment or recovery in the facility where the wastes are produced. This indicator contains information about the rate of waste landfill facility number to the population the service is provided.

Medical Wastes

It indicates the medical waste amounts formed according to years and disposal/sterilization facility number according to years.

Waste oils

This indicator expresses the amount of total oil which is used, from the gasoline engine, diesel engine, transmission and differential box, transmission, grease and other private vehicle oils and hydraulic system, turbine and compressor, slide, open-closed gear, circulation, metal cutting and processing, textile, thermal processing, heat transfer, isolation and protection, isolation, transformer, mold, steam cylinder, pneumatic system protector, food and medicine industry, paper machine, bed and other industrial oils and industrial greases, used thickener, protective, cleaning and other similar substances and oil products which are not appropriate for use.

Waste vegetable oils

Waste vegetable oil: it is the total amount of gathered vegetable oil which are soap-stocks from refinery industry (residue formed during the removal of the fatty acids from raw oil with using a base), tank bottom residues, oiled soils, used frying oil, oils from the oil holders of various facilities and vegetable oils of which usage dates are expired.

Waste batteries and accumulators

It shows the total collected amount and recovered amount of the used batteries and accumulators which are required to be collected, transported and disposed separately from household wastes.

Packaging Wastes

It contains the information about the amounts and recycled amounts of the sale, secondary and transportation packaging which are left to environment including the used for the presentation of the product during the reaching of the material to the end user or the consumer and which are expired and formed after the usage and are reusable aside from the production wastes.

End of life Tires

It means the amount of end of life tires which are used as additional fuel in recovery facilities or cement factories.

End of life Vehicles

It is the number of vehicles which are left to junkyards by years.

Waste Electrical and Electronic Equipment

It is the number of the waste electrical and electronic equipment collection and processing facilities.

Mining wastes

It expresses the wastes determined by the results of the questionnaire made in the mine companies which employs 10 or more people in the coal and lignite, metal ore mining, mining and quarrying and other supportive actions sectors.

Hazardous Wastes

It contains the information about the amounts and recovery amounts of the wastes which carry the properties of being explosive, flammable, self-combustible, exhaling flammable gases when in contact with water, oxidizing, containing organic peroxide, poisonous, corrosive, exhaling toxic gases when in contact with air and water, toxic and Eco toxic.

Business Firms

It contains the packaging producers, merchandisers and suppliers.

Wastes Produced by Ships

All the wastes formed during the normal activities of a ship including the sewage and entered into the scope of MARPOL 73/78 APPENDIX-I, APPENDIX -IV and APPENDIX -V', and other wastes aside from the weight and loads residues described in Convention of MARPOL 73/78 APPENDIX -V application.

TOURISM

Tourist numbers

Tourist numbers are the number obtained by subtracting the number of the excursionists from the number of foreign visitor coming to Turkey and visiting citizens residing abroad.

Blue flag applications

Blue flag is the international environment award which is awarded to the qualified beach and marinas that have the required standards and this is the total number of blue flag given to the beach and marinas in Turkey since 1997.

OTHER

Compulsory Liability Insurance of Seashore Facilities Marine Pollution

In accordance with the law numbered 5312 on the Emergency Response and Compensation of Damage in Pollution of the Marine Environment by Oil and Other Harmful Substances, the seaside facilities are obligated to make compulsory liability insurance against the damages within the scope of the law. Within this concept as a result of an incident resulting

from the seaside facility mentioned in the policy and Compulsory Liability Insurance of Seashore Facilities Marine Pollution which entered into force on 01.07.2007; all the cleaning costs, transportation of gathered wastes and disposal costs, costs arising out of injury or death of third parties and losses which might be occurred for private products arising out of the pollution or the danger of pollution in the sea judicial areas consisting of inland waters of Turkey, land water, continental shelf and economic areas.

Liability Insurance of Environmental Pollution

The environmental pollution compulsory liability insurance which entered into force on 01/09/2011 has arisen due to not being able to guarantee the compensation by the compulsory insurance of the liability of seaside facilities based on the 5312 numbered law. Risks which are not be able to secured by the compulsory insurance even though they are evaluated within the responsibility of the seaside facilities by the law numbered 5312; now can be secured. With the above mentioned insurance not only the responsibility arising out of sea pollution can be secured but also the responsibilities arising out of land, underground waters and air pollution can be secured.

Compulsory Liability Insurance of Dangerous Substances and Hazardous Wastes

Compulsory Liability Insurances would have to be made for the dangerous substances dated 11/03/2010 and numbered 2010/190; are obligated to have a compulsory liability insurance against the damages within the scope of the second article of said decision. Within this context; with the "Compulsory Liability Insurance of Dangerous Substances and Hazardous Wastes" which entered into force on 11.03.2010 as a result of an accident which may occur due to the professional activities about the dangerous substances, the physical and material damages directly exposed by third parties will be compensated.

- [1] Presidency of Statistical Institute of Turkey, "Address-Based Population Registration System Results, 2012" News Bulletin, 28/01/2013, No: 13425 <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=13425>
- [2] Presidency of Statistical Institute of Turkey, "Population Projections, 2013-2075" News Bulletin, 14/02/2013, No: 15844, <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=15844>
- [3] Presidency of Statistical Institute of Turkey, "Environmental Employment and Expenditure in Public Sector, 2010" News Bulletin, 22/03/2012, No: 10778 <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=10778>
- [4] Ministry of Finance and Presidency of Strategy Development, "Annual Economic Report 2011", <http://www.maliye.gov.tr/YillikEkonomikRapor/Y%C4%B1ll%C4%B1k%20Ekonomik%20Rapor%202011.pdf>
- [5] Presidency of Statistical Institute of Turkey, Greenhouse Gas Emissions Inventory, 1990-2011" News Bulletin, 12/04/2013, No: 13482 <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=13482>
- [6] Grand National Assembly of Turkey, E-Parliamentary Research Commission Report numbered (10/1,4,5,7,9,10,11,13,14,15,16,17) on Effects of Global Warming and Sustainable Management of Water Resources, April 2008. <http://iklim.cob.gov.tr/iklim/AnaSayfa/RaporlarBelgeler.aspx?slang=tr>
- [7] <http://www.eea.europa.eu/data-and-maps/indicators/greenhouse-gas-emission-trends/greenhouse-gas-emission-trends-assessment-4> 22.05.2013
- [8] Ministry of Environment and Urbanization, Strategic Plan / 2013-2017, Presidency of Strategy 2013, Ankara.
- [9] The Ministry of Forestry and Water Affairs, General Directorate of Meteorology.
- [10] The Ministry of Forestry and Water Affairs, General Directorate of Meteorology, "2012 Precipitation Assessment", Presidency of Research Department, Hydro-meteorological Branch Office, March 2013, Ankara. <http://www.mgm.gov.tr/FILES/arastirma/2012-yagis-degerlendirmesi.pdf>
- [11] The Ministry of Forestry and Water Affairs, General Directorate of Meteorology, "2012 Climate Assessment", Presidency of Research Department, February 2013, Ankara. <http://www.mgm.gov.tr/FILES/iklim/2012-yili-iklim-degerlendirmesi.pdf>
- [12] NOAA, 2012, National Climatic Data Center, State of the Climate: Global Analysis for Annual 2012, published online December 2012, www.ncdc.noaa.gov/sotc/global/2012/13, 28 January 2013
- [13] Prime Ministry Disaster and Emergency Management Presidency, National Disaster Library of Turkey (TUA)
- [14] The Ministry of Environment and Urbanization General Directorate of Environmental Management, "2012 Air Quality" News Bulletin, 15/02/2013, No: 11, <http://www.csb.gov.tr/db/cygm/editor dosya/HKD2012Yillik.pdf>
- [15] Presidency of Statistical Institute of Turkey, "Municipal Water Statistics, 2010" News Bulletin, 24/02/2012; No: 10753, <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=10753>
- [16] (<http://www.eea.europa.eu/data-and-maps/indicators/urban-waste-water-treatment/urban-waste-water-treatment-assessment-3>)
- [17] Land Cover Statistics Data., http://aris.ormansu.gov.tr/index.php?q=tr/arazi_kullanım/arazi_kullanımı
- [18] Environment in Europe, 2010 Status and Overview Synthesis, European Environment Agency, Copenhagen, 2010, <http://www.eea.europa.eu/soer/synthesis/translations/avrupada-cvre-2014-2010-durum>
- [19] Prime Ministry State Planning Organization, Ninth Development Plan 2007-2013, Usage and Management of Land and Water Resources, Special Commission Report, Edition no: 2718- Ad hoc Committees: 671, Ankara, 2007 <http://www.kalkinma.gov.tr/PortalDesign/PortalControls/WebCeriKosterim.aspx?Enc=83D5A6FF03C7B4FCD72D946E04312EA3>
- [20] The Ministry of Food, Agriculture and Livestock, General Directorate of Agricultural Reform
- [21] The Ministry of Food, Agriculture and Livestock, General Directorate of Plant Production
- [22] The Ministry of Food, Agriculture and Livestock, General Directorate of Food and Control
- [23] Kuru, M., (2004), Last Systematic Status of Inland Water Fishes of Turkey, GU, Gazi University Faculty of Education. Magazine, Volume 24(3), 1-21

- [24] Küçük, F, (2006). Assessment of Some Endemic Inland Water Fishes in Turkey according to the criteria of the World Conservation Union (IUCN), 1st Fishery and Reservoir Management Symposium, 7-9 February 2006, Antalya.
- [25] The Ministry of Forestry and Water Affairs, Forestry and Water Council, 2013, 21-23 March 2013, Sustainable Biodiversity Management Working Group Report, Working Group: 5, Ankara, 2012
- [26] Ozyanık, A. 2012. "Biodiversity Conservation in Turkey" Strengthening Project of Forest Protected Areas Management, Final Meeting Presentation, Ankara
- [27] <http://www.iucn.org/about/work/programmes/pa>, 2010, Lockwood et al. 2006
- [28] The Ministry of Forestry and Water Affairs, Forestry and Water Council, 2013, 21-23 March 2013, Protected Areas and Wildlife Management Working Group Report, Working Group: 6, Ankara, 2012,
- [29] The Ministry of Forestry and Water Affairs, General Directorate of Forestry, Forest Management and Planning Department, Existence of Forest in Turkey 2012, Ankara, 2012, (http://web.ogm.gov.tr/Resimler/sanalkutuphane/orman_varligi2012.pdf)
- [30] The Ministry of Forestry and Water Affairs, General Directorate of Forestry,
- [31] The Ministry of Forestry and Water Affairs, Forestry and Water Council, 2013, 21-23 March 2013, Forests Protection Council Working Document, Working Group: 8, Ankara, 2013
- [32] Presidency of Statistical Institute of Turkey, "Water Products, 2012" News Bulletin, 18/07/2013, No: 13551, <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=13551>
- [33] The Ministry of Food, Agriculture and Livestock, General Directorate of Fisheries and Aquaculture,
- [34] The Ministry of Transport, Maritime Affairs and Communication, Statistical Yearbook of the State Railways 2008-2012, <http://www.tcdd.gov.tr/Upload/Files/ContentFiles/2010/istatistik/20082012yillik.pdf>
- [35] The Ministry of Transport, Maritime Affairs and Communication, Turkey Transport and Communication Strategy Target 2023, http://www.ubak.gov.tr/BLSM_WIYS/UBAK/tr/dokuman_sag_menu/20110323_142238_204_1_64.pdf
- [36] The Ministry of Transport, Maritime Affairs and Communication, Department of Strategy Development.
- [37] The Ministry of Transport, Maritime Affairs and Communication, General Directorate of Highways, Directorate of Traffic Safety Agency, Road Transportation Statistics (2011).
- [38] EU Energy and Transport in Figures, Statistical Pocketbook, 2011
- [39] The Ministry of Energy and Natural Resources
- [40] The Ministry of Environment and Urbanization, General Directorate of Professional Services, Department of Energy Efficiency
- [41] Presidency of Statistical Institute of Turkey, "Municipal Waste Statistics 2010" News Bulletin, 22/02/2012, No: 10750, <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=10750>
- [42] Presidency of Statistical Institute of Turkey, "Environment in Statistics, 2010" News Bulletin, 05/06/2012, No: 13134, <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=13134>
- [43] The Ministry of Environment and Urbanization, General Directorate of Environment Management"
- [44] The Ministry of Interior, General Directorate of Security
- [45] The Ministry of Environment and Urbanization, General Directorate of Environment Management Waste Management Symposium, April 2013, Antalya
- [46] Presidency of Statistical Institute of Turkey, "Mining Enterprises Water Wastewater and Waste Statistics 2010" News Bulletin, 20/04/2012, No: 10799, <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=10799>
- [47] <http://www.ktbayatinimisletmeler.gov.tr/TR,51430/19062013---turizm-istatistikleri-revizyon-duyurusu.html>
- [48] <http://sgb.kulturturizm.gov.tr/Eklenti/5866,mavi-bayrak-istatistikleri.pdf?0>
- [49] Prime Ministry Undersecretariat of Treasury
- [50] Turkish Accreditation Agency
- [51] Presidency of Statistical Institute of Turkey, "Sectoral Water and Wastewater Statistics 2010" News Bulletin, 25/05/2012, No: 10824, <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=10824>

REPUBLIC OF TURKEY MINISTRY OF ENVIRONMENT AND URBANIZATION
GENERAL DIRECTORATE OF ENVIRONMENTAL IMPACT ASSESSMENT,
PERMIT AND INSPECTION
Environmental Inventory and Information Management Department

