Republic of Turkey Ministry of Environment and Urbanisation
General Directorate of EIA, Permit and Inspection
Department of Environmental Inventory and Information Management

REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT
AND URBANISATION

ENVIRONMENTAL INDICATORS

2011

Republic of Turkey Ministry of Environment and Urbanisation
General Directorate of EIA, Permit and Inspection
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REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT
AND URBANISATION

Ankara, 2012

IMPRINT

* **ISSUE NO: 12**
Ankara - 2012

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http://www.cedgm.gov.tr

* **ISBN**
978-605-5294-10-6

* **REPUBLIC OF TURKIYE MINISTRY OF ENVIRONMENT AND URBANISATION**
GENERAL DIRECTORATE OF EIA, PERMIT AND INSPECTION
Vekaletler Caddesi No: 1 Bakanlıklar/ANKARA

* **PRODUCTION**
WONDERPORT Public Relations Advertising Information Technology Company
www.harikaliman.com.tr

ENVIRONMENTAL INDICATORS 2011

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OTHER PUBLICATIONS

Publication No.1 : *"Environmental Status Report for Ankara Province"*, 1994

Publication No.2 : *"Provincial Environmental Problems and Priorities Inventory - 96"*, 1996

Publication No.3 : *"Various Industries Primarily Affecting the Environment and Fundamental Sector Activities"*, 1996

Publication No.4 : *"Environmental Atlas of Turkey"*, 1997

Publication No.5 : *"Environmental Status Report for Turkey"*, 2007

Publication No.6 : *"Environmental Problems and Priorities Inventory of Turkiye Assessment Report - (2005-2006)"*, 2008

Publication No.7 : *"Environmental Indicators Booklet"*, 2008

Publication No.8 : *"Environmental Indicators Booklet"*, 2009

Publication No.9 : *"Environmental Problems and Priorities Inventory of Turkiye Assessment Report - (2007-2008)"*, 2010

Publication No.10: *"Environmental Indicators Booklet - 2010"*, 2011

Publication No.11 : *"Environmental Status Report for Turkiye - 2011"*, 2012

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Environmental Indicators is an important tool that describes the situation of our environment in a simple and easy way. These indicators contribute to create an opinion on decision making process, increasing public awareness for environmental issues and monitoring results of environmental policies.

In Turkiye, Environmental Indicators booklet is prepared each year with the contributions of related public institutions and organizations under the coordinatorship of our Ministry and it's presented to the attention of beneficiaries. Environmental indicators booklets prepared in 2007, 2008, 2009 and 2010, guided us about the condition of our environment and environmental problems and also enlightened decision makers, researchers, users of statistical data and all relevant stakeholders about the trends of the environment. I hope the booklet of "Environmental Indicators 2011" will be a guide for decision making of environmental policies.

Erdoğan BAYRAKTAR
Minister of Environment and Urbanisation

CLASSIFICATION OF THE INDICATORS

There are different aspects implemented in order for developing environmental indicators in the world and indicator settings are created within these conceptual aspects. One of them is "Pressure-State-Response" aspect. Then it was enhanced by OECD (Organization of Economic Cooperation and Development) in 1994 to be the basis of environmental policies and report studies and a comprehensive indicator system is generated within this concept. The main understanding of this framework is based on the assessment of "pressure" of human activities on the environment, the impact of this pressure on quality and quantity of natural resources ("State") and how the society "Respond" to these changes environmentally-economically and also in terms of sectorial policies and social awareness.

Another model DPSIR was generated by EEA (European Environment Agency) in 2004 to identify the relation between society and environment. This model improved PSR concept. It enables us to evaluate the efficiencies of implemented policies. In other words, it makes possible to explain causal relationship between driving forces and impacts. This model includes 5 factors in the below:

D: Driving Force
P: Pressure
S: State
I: Impact
R: Response

CLASSIFICATION OF THE INDICATORS

The indicators in the booklet can be classified as in the below;

DRIVING FORCE INDICATORS	PRESSURE INDICATORS	STATE INDICATORS	IMPACT INDICATORS	RESPONSE INDICATORS
-Population Growth Rate	-Water Consumption	-Sectoral Distribution of Employment.	-Sea Surface Temperature	-Total Environmental Expenditures of Public Sector
-Urban Population	-Drinking and Potable Water Resources of Municipalities	-Greenhouse Gas Emissions	-Extreme Weather Events	-Municipalities Serving with Waste Water Treatment Facilities
-Total Energy Consumption by Sectors	-Chemical Fertilizer Consumption	-Total Greenhouse Gas Emissions by Sectors	-Natural Disasters	-Organic Agriculture
-Transportation of Passenger and Freight	-Pesticide Usage	-Precipitation		-Consumption of Renewable Energy
	-Fishery	-Temperature		-Energy Efficiency in Buildings
	-Road and Railway Network	-Air Quality		-Waste Collected by Municipalities or on Behalf of Municipalities
	-Number of Road Motor Vehicles	-Land Use		-Recycling and Disposal of Different Wastes
	-Wastes	-Agricultural Area per Capita		
	-Number of Foreign Tourists	-Forestry Areas		
		-Blue Flag Implementations		

INDICATORS SUMMARY CHART

POPULATION	
Population Growth Rate	↓
Urban Population	↑
ECONOMY	
Total Environmental Expenditures of Public Sector	↑
AIR ATMOSPHERE CLIMATE	
Greenhouse Gas Emissions	↑
Total Greenhouse Gas Emissions by Sectors	↑
Precipitation	→
Temperature	↑
Sea Surface Temperature	↑
Extreme Weather Events	↑
Natural Disasters by Types	→
AIR QUALITY	
Air Pollutants	↓

WATER-WASTE WATER	
Water Consumption	↑
Drinking and Potable Water Resources of Municipalities	↑
Municipalities Serving with Waste Water Treatment Plants	↑
LAND USE	
Artificial Areas	↑
Agricultural Areas	↓
Forest and Semi Natural Areas	↓
Only Forest Areas	↑
Wetlands	↓
AGRICULTURE	
Agricultural Area per Capita	↓
Chemical Fertilizer Consumption	→
Pesticide Usage	↓
Organic Agriculture	↑

INDICATORS SUMMARY CHART

FISHERY	
Sea Fishery	→
Aquaculture	↑
INFRASTRUCTURE AND TRANSPORT	
Road and Railway Network	→
Transportation of Passenger and Freight on Road	↑
Transportation of Passenger and Freight on Railway	→
Number of Road Motor Vehicles	↑
ENERGY	
Total Energy Consumption by Sectors	↑
Consumption of Renewable Energy Resources	↑
Energy Efficiency in Buildings	↑
WASTE	
Amount of Waste Collected by Municipalities or on Behalf of Municipalities	↓
Amount of Waste on Landfills	↑
Landfill of Waste	↑
Disposal of Medical Waste (Sterilization)	↑
Disposal of Medical Waste (Incineration)	↑
Waste Oils	▬
Amount of Recycling for Packaging Waste	↑
Disposal Amount of End-of-Life Tires	↑
End-of-Life Vehicles	▬
Amount of Waste Electrical and Electronic Equipments Collected	↑
Mining Wastes	▬
Amount of Hazardous Waste	↑
TOURISM	
Number of Foreign Tourists	↑
Blue Flag Implementations	↑

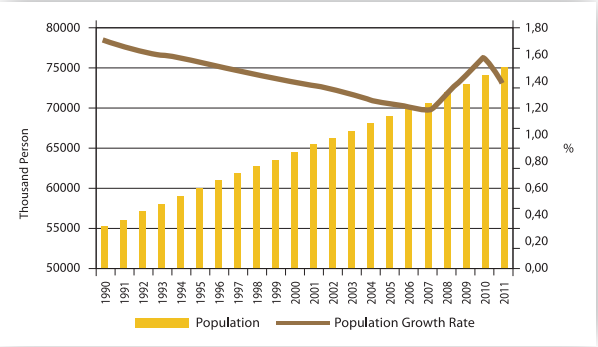
NEGATIVE DEVELOPMENTS ↑ Increasing Trend ↓ Decreasing Trend *NEUTRAL DEVELOPMENTS* →
POSITIVE DEVELOPMENTS ↑ Increasing Trend ↓ Decreasing Trend *NO COMPARATIVE DATA* ▬

1- POPULATION

1.1- Population Growth Rate

The data indicates that population growth rate during the period 1990-2008 has been decreasing regularly, but it demonstrates an increase between 2008 and 2011 while the number started going down in 2011

On the other hand the population increased constantly. According to 2011 data the total population is 74.724.269 people where the population growth rate is 1,35 % and population per km2 is 97. The total population has increased by 1.001.281 people considering the last year. The population of Turkiye is estimated to be 94,6 million people in 2050 according to Turkish Statistical Institute (TurkStat) presumptions.



Source: TurkStat Note: (1) Presented population growth rates are projections and estimations based on Address Based Population Registry System 2008 and Health Investigations. It was prepared in line with revised mid-year population estimations and projections. (2) Number and population of provinces, districts, municipalities and villages are determined by taking into account administrative attachment and legal entity changes recorded by the General Directorate of Population and Citizenship Affairs (GDPCA) in the National Address Database (NAD) in accordance with the related regulation and administrative registers.

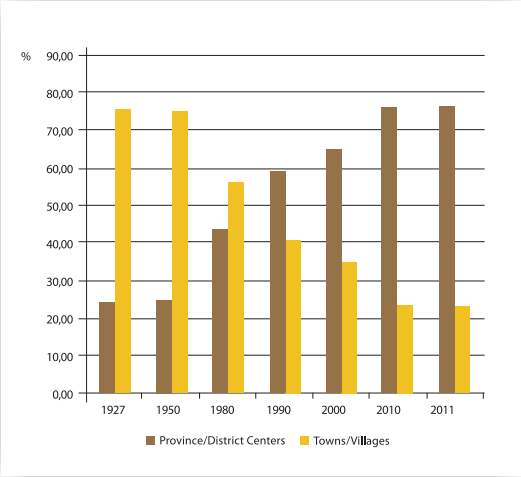
YEARS	1990	1992	1994	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Population (Thousand Person)	55.120	56.986	58.837	60.671	62.464	64.252	66.008	66.873	67.723	68.566	69.395	70.215	71.517	72.561	73.723	74.724
Population Growth Rate (%)	1,70	1,63	1,57	1,50	1,44	1,38	1,32	1,28	1,24	1,22	1,19	1,17	1,31	1,45	1,59	1,35

1.2- Urban Population

The first population census, which was carried out in 1927, identified the population of Turkiye as 13.648.270 people. According to the census results 76 % of the population lived in rural areas where 24 % lived in urban areas. But, after 1950 the increasing population of Turkiye began to live in urban areas. The general population census in 2011 showed that the rural population decreased to 17.338.563 people with 23% percentage.

The expansion of the urban areas as a result of the rapid increase in urban population, has raised some needs like infrastructure, transportation, residence, industrial areas, energy and has brought along some environmental problems like wastewater, noise and air pollution. "Environmental Plans" have been prepared to take urbanization and industrialization under control, make developments sustainable, protect environment and prevent environmental pollution before it occurs.

In Turkiye, 90% percent of environmental plans has been completed; 7% percent is on progress the rest 3% percent will be prepared.



Source: TurkStat. Note: 1927-2000 General Census of Population, 2008-2011 Address Based Population Register System.

2- ECONOMY

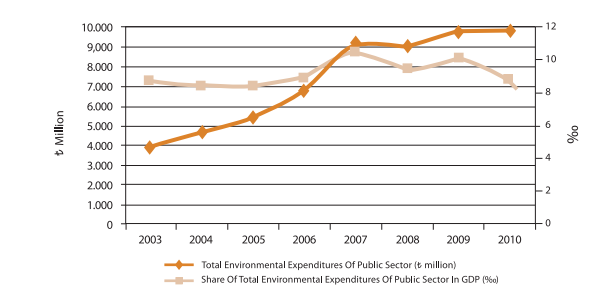
2.1- Total Environmental Expenditures of Public Sector

Total environmental expenditures of public sector were 9.86 ₺billion in 2010.

6,37 ₺billion is current expenditure and 3,48 ₺billion is investment expenditure of total environmental expenditures.

85 % of environmental expenditures belonged to municipalities, 2,3 % to Special Provincial Administrations and 12,7 % to the other public institutions and organizations.

The share of environmental expenditures of public sector in GDP (Gross Domestic Product) was 8,9 ‰ in 2010.



Source: TurkStat

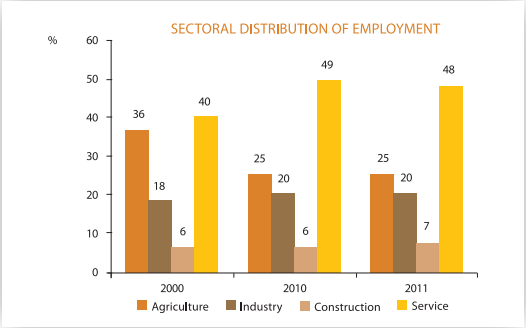
YEARS	2003	2004	2005	2006	2007	2008	2009	2010
Total Environmental Expenditures of Public Sector (₺Million)	3.970	4.716	5.437	6.771	9.155	9.043	9.712	9.857
Current Environmental Expenditures of Public Sector (₺Million)	2.431	2.925	3.400	3.860	4.741	5.546	6.481	6.375
Environmental Investment Expenditures of Public Sector (₺Million)	1.539	1.791	2.037	2.911	4.413	3.496	3.232	3.482
Share of Total Environmental Expenditures of Public Sector in GDP (‰)	8,7	8,4	8,4	8,9	10,6	9,5	10,2	8,9

2.2- Sectoral Distribution of Employment

Increasing by 1 million 513 thousands compared to the previous year, the number of employees raised to 24 million 109 thousands in 2011. Employees in agriculture sector has increased by 460 thousands when number of non-agricultural sector employees has increased by 1 million 53 thousands.

In sectorial distribution of employees during the period between 2000 and 2011, the share of agriculture decrease where the share of service and industry sectors increased and construction sector did not reveal a significant difference. Since the service sector reveals an increasing trend constantly; it's observed that the country is transforming itself to service-oriented structure from agricultural-oriented structure.

On the other hand the decrease of employment in agriculture sector is balanced with the increase in service sector. The economy's development and employment capacity has enhanced thanks to improvement of service sector. Service sector has become one of the most significant factors in Turkiye's economy considering both employment and economic contribution.



Source: TurkStat

YEARS	2000		2010		2011	
	Thousand People	%	Thousand People	%	Thousand People	%
TOTAL	21.580	100	22.596	100	24.109	100
Agriculture	7.769	36,00	5.683	25,15	6.143	25,48
Industry	3.810	17,66	4.496	19,90	4.704	19,51
Construction	1.364	6,32	1.431	6,33	1.676	6,95
Service	8.637	40,02	10.986	48,62	11.586	48,06

3- AIR-ATMOSPHERE-CLIMATE

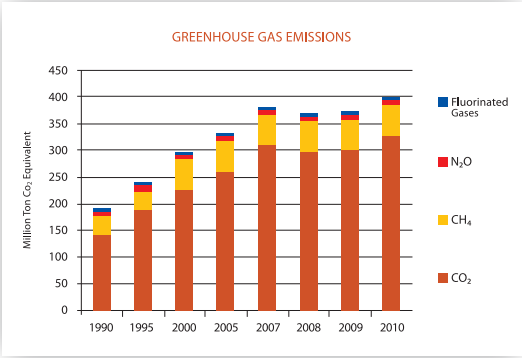
3.1- Greenhouse Gas Emissions

Greenhouse Gas emissions of Turkiye has increased from 187 Mtoe to 401,9 Mtoe CO_2 equivalent during the period 1990-2010 and revealed an increase by 115%. The highest share among Greenhouse Gases belongs to CO_2 with 80% percentage.

In 1990, CO_2 equivalent emission per person calculated as 3,39 tone/person while it turned out to be 5,51 ton/person in 2010.

Approximately 85% of total CO_2 emissions in 2010 was originated from energy and the rest was originated from industrial processes.

59% of CH_4 emissions were caused by waste disposal, 30% by agricultural activities and 10% by energy. 74% of N_2O emissions were caused by agricultural activities while percentage of 14% belonged to waste and 12% belonged to energy [1].



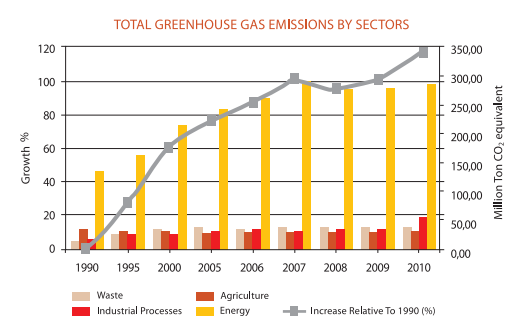
Source: TurkStat - Note: The figures put in the table reveal the total Greenhouse Gas Emissions and do not include the sink capacity.

3.2- Total Greenhouse Gas Emissions By Sectors

During the period between 1990 and 2010, Greenhouse Gas Emissions caused by energy sector have increased from 132 to 285 Mtoe CO_2 equivalents. After analyzing the development of Greenhouse Gas Emissions by sectors in years it's observed that the Greenhouse Gas Emissions increased constantly till 2007 except 2001 when the economic crisis occurred.

During the years 2008 and 2009 it's again observed that Greenhouse Gas Emissions decreased. It can be referred that global economic crisis is a factor in decreasing of Greenhouse Gas Emissions.

Comparing sectors starting with 2005 Greenhouse Gas Emissions caused by agricultural activities and waste were almost stable and the increase in total emissions has caused by energy generation and consumption and industrial processes. The biggest share in sectoral distribution of Greenhouse Gas Emissions belonged to energy sector with 71% percentage in 2010. These emissions include fuels burned by energy generation, industry, transportation and other sectors. When



Source: TurkStat. - Note: The figures displayed are rounded off.

energy-based CO_2 emission is examined in 2010, here are some statistics that show reasons of total energy-based CO_2 emission: 41% cycle and energy sector, 20% industry, 16% transportation sector, 23% other sectors.

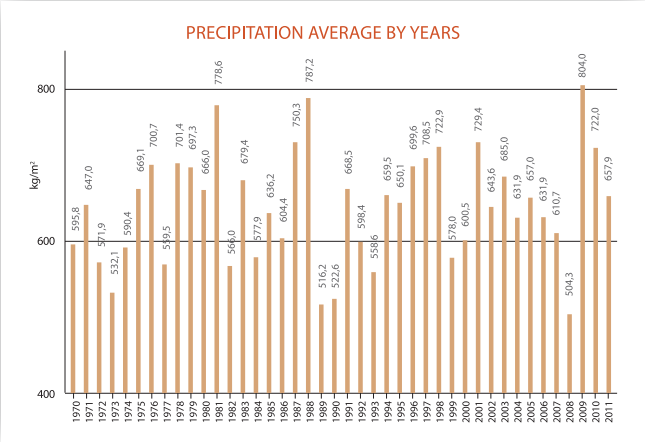
Energy sector is followed by industrial processes with 13%, waste with 9% and agriculture sector with 7% percentage [1].

3.3- Precipitation

Turkiye's mean annual precipitation in 2011 was 657,9 mm, normal amount (1970-2010) was 643 mm and it was also 772 mm in 2010. So it is observed that the precipitation increased by 2,3 percentage comparing to the normal amount but it decreased by 8,8% percentage comparing to 2010.

Comparing with the normal amounts, the highest increase rate belongs to Çankırı with 51% and the most remarkable decrease belongs to Yalova with 34% percentage. When precipitation in 2011 is examined, comparing with the previous year, the highest increase rate belongs to Batman with 79% and the most remarkable decrease belongs to Yalova with 62% percentage.

According to region based annual precipitation, comparing with the normal amounts, the highest increase rate belongs to Eastern Anatolia Region with 9,4% and the most remarkable decrease belongs to Marmara Region with 10,9% percentage.



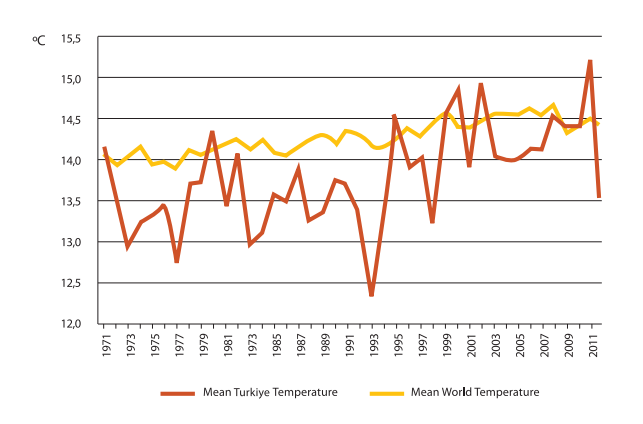
Source: Ministry of Forestry and Water Affairs, General Directorate of Meteorological, 2011

According to precipitation in 2010, the highest increase belongs to Southern East Region with 44,3% and the most remarkable decrease belongs to Marmara Region with 39,7% percentage [2].

3.4- Temperature

During 1970-2011 climate period the mean temperature of the world was 14,3°C and the mean temperature for Turkiye was 13,8°C. When the period between 1940 and 2011 is examined, the highest mean annual temperature in Turkiye could be listed as; 15,2°C in 2010, 15°C in 1966 and 14,9°C in 2001; and the lowest mean annual temperature was measured as 12,3°C in 1992.

According to World Meteorological Organization records, the world's hottest year is 2010 and 2011 is the 11th hottest year. Although there are some anomalies among months for Turkiye's mean temperature, the mean value is 13°C which is similar to 1971-2000 mean (13,2). There have been positive anomalies in Turkiye's mean temperature since 1994 (except 1997). The highest anomaly occurred in 2010 (2°C anomaly) [3].



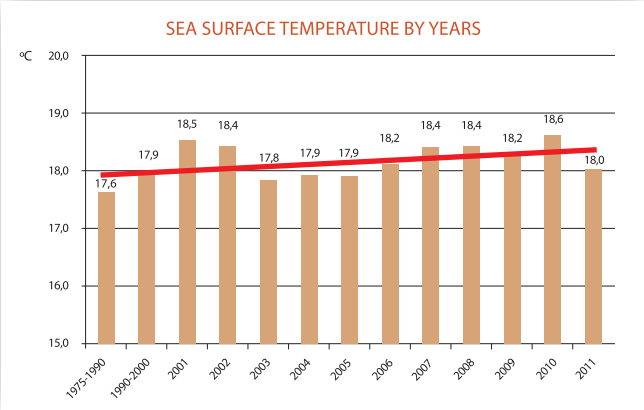
Source: Ministry of Forestry and Water Affairs, General Directorate of Meteorological, 2011

3.5- Sea Surface Temperature

Air temperature in the atmosphere has been increasing as a result of increasing rate of greenhouse gases in the atmosphere during the last years. This change in the atmosphere also affects the temperatures of sea surface. It causes dangerous situation for ecological life and tendsto raise the sea level.

According to General Directorate of Meteorology data, it reveals that sea surface temperature is increasing due to the general global warming after examination of the long-term average sea surface temperature of Turkiye. With no doubt, this situation will affect ecological balance of our seas and coasts, social-economical life in coastal cities and so the whole country.

Therefore identifying the changes of sea surface temperature is significant for ports, sea transportation, economy and tourism sectors as well as for the future of available ecological life and cycle.

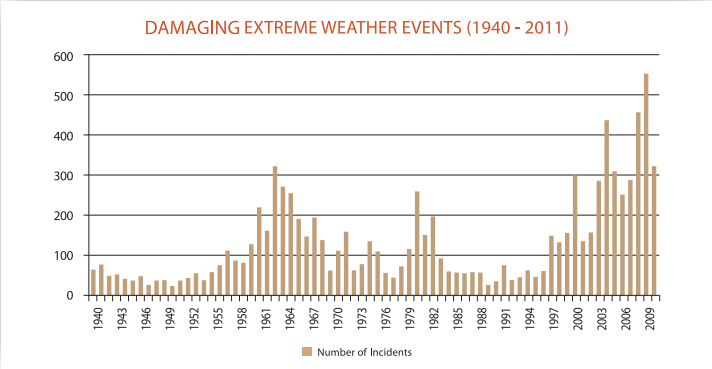


Source: Ministry of Forestry and Water Affairs, General Directorate of Meteorology, 2011

3.6- Extreme Weather Events

Increase in the number of extreme weather events in Turkiye attracts attention when compared with the previous years. The highest numbers of events have occurred in 2010 since 1940 (555 events). Almost half of these events consisted of storms (46%). Flood is the second (29%) and hail is the third one (14%).

324 extreme weather events were reported in 2011 in Turkiye. Some of the meteorological extreme events occurred in 2011 were hail (36%), flood (28%) and storm (20%). There is an increasing trend of extreme weather events as 263 events/100 years. The most frequent and harmful events are storm, flood, drought and hail in Turkiye. Even though the numbers are rare, thunderstorm, hurricane, landslide and avalanche cause loss of life and asset.



Source: Climate Evaluation of Turkey in 2011, Ministry of Forestry and Water Affairs, General Directorate of Meteorology Department of Research, Climatology Division

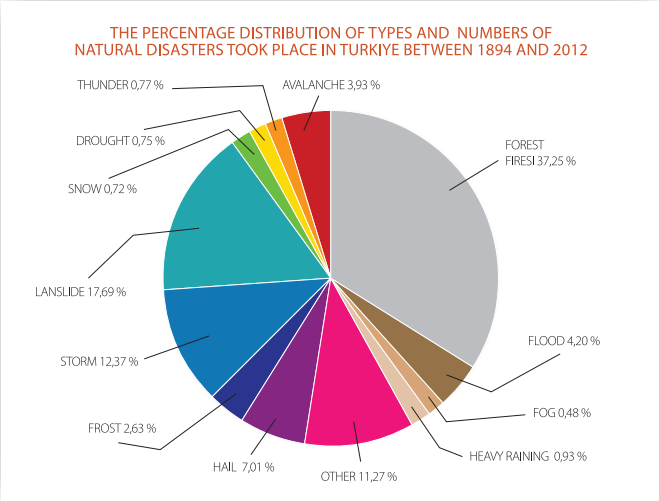
According to scientific studies and climate model predictions; due to global climate changes there will be remarkable increase in frequency, intensity and impact area of the extreme weather events such as: hurricane, storm, heavy rainfall (meteorological-oriented), as a result of them flood and freshet (hydrological-oriented), long term drought and desertification (climatological-oriented) [3].

3.7- Natural Disasters by Types

When the numbers of natural disasters are examined between 1894 and 2012, forest fire is on the top of the list (2081 incidents). The forest fire is followed by landslide (988), storm (691) and hail (392).

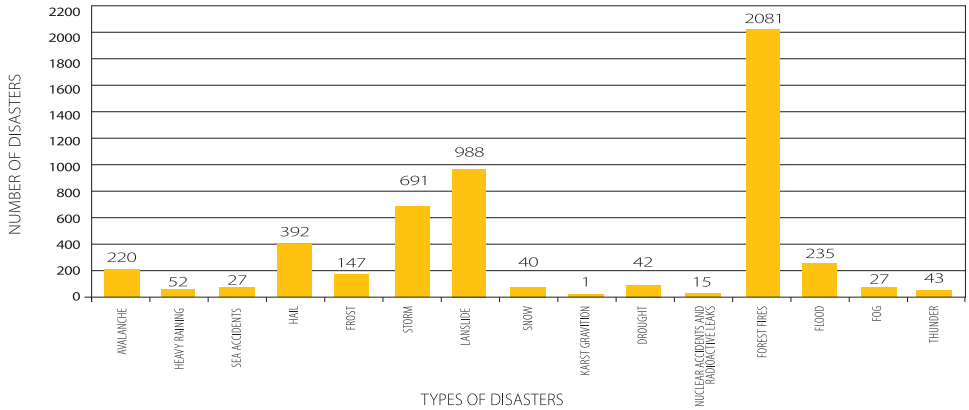
The rates of natural disasters are 38% forest fire, 18% land-slide, 12% storm and 7% hail.

Natural disasters are expected to occur more often because of the fact that the world is experiencing climate change.



Source: Prime Ministry Disaster and Emergency Management Presidency, Turkiye National Disaster Archive (TNDA)

THE GRAPHIC OF TYPES AND NUMBERS OF NATURAL DISASTERS TOOK PLACE IN TURKIYE BETWEEN 1894 AND 2012



Source: Prime Ministry Disaster and Emergency Management Presidency, Turkiye National Disaster Archive (TNDA)

4- AIR QUALITY
4.1- Air Pollutants

Ministry of Environment and Urbanisation have 123 Air Quality Measurement Centers and data obtained from these centers is shared with public on *www.havaizleme.gov.tr.*

When the annual averages in 2011are evaluated, taking into account the per hour data that is 90% percent and over and validated from Air Quality Monitoring Centers, Long Term Maximum Value (LTMV) has been exceeded in only three stations. According to BLAQAM, Long Term Maximum Value for PM_{10} parameter is 96 µg/m3 in 2011. These stations are Afyonkarahisar, Siirt and Gaziantep. There are no available stations exceeding LTMV which is 150 µg/m3 for SO_2 parameter.

The air quality monitoring centers having the highest PM_{10} rates are respectively Afyonkarahisar, Siirt, Gaziantep, Aydın, Sakarya, Düzce, Ankara (Sıhhiye), Burdur, Kayseri 3 (Hürriyet) and Kütahya. The stations having the highest SO_2 rates are Edirne, Muğla 1, Aydın, Çorum, Isparta, Malatya, Kars, Amasya, Konya (Selçuklu), and Karaman [4].

AIR QUALITY MONITORING STATIONS
THAT HAVE HIGHEST RATES OF PM_{10} AND SO_2 IN 2011

Station Name*1	PM_{10} (µg/m³)*2
AFYONKARAHİSAR	115
SİİRT	102
GAZİANTEP	101
AYDIN	96
SAKARYA	94
DÜZCE	93
ANKARA (SIHHİYE)	90
BURDUR	86
KAYSERİ 3 (HÜRRİYET)	80
KÜTAHYA	79

Station Name*1	SO_2 (µg/m³)*2
EDİRNE	57
MUĞLA 1	52
AYDIN	41
ÇORUM	33
ISPARTA	33
MALATYA	30
KARS	29
AMASYA	26
KONYA (SELÇUKLU)	26
KARAMAN	24

**1: 2011 SO_2 ve PM_{10} averages are figured considering air quality monitoring stations related to National Air Quality Monitoring Network .*

**2: The evaluation has been made by taking into account the per hour data that is 90% percent and over and validated from Air Quality Monitoring Centers.*

BLAQAM: By Law on Air Quality Evaluation and Management published in official gazette, numbered 26898 dated 06/06/2008 BLAQAM.

Source: *General Directorate of Environment Management , 2012*

STATIONS EXCEEDING SHORT TERM LIMITATION VALUE IN DAILY PM_{10} AND SO_2 RATES, 2011

Station Name	PM_{10} KVS Number of Exceeding*3
AFYONKARAHİSAR	48
DÜZCE	47
ISPARTA	45
BATMAN	44
AYDIN	40
DENİZLİ 1	35
BOLU	34
GAZİANTEP	33
ANKARA (SIHHİYE)	31
IĞDIR	31

Station Name	SO_2 KVS Number of Exceeding*3
ŞIRNAK	50
HAKKARİ	45
TEKİRDAĞ	26
MUĞLA 2 (YATAĞAN)	2
ÇANAKKALE	1
HATAY2 (İSKENDERUN)	1

*3: *For PM_{10} parameters, 180 µg/m3 is the limit value and 310 µg/m3 is the limit value for SO_2 parameters according to BLAQAM results of limit exceeding value, per hour, in 2011.*

Source: *General Directorate of Environment Management , 2012*

CHANGE RATES OF PM_{10} AND SO_2 AROUND TURKIYE

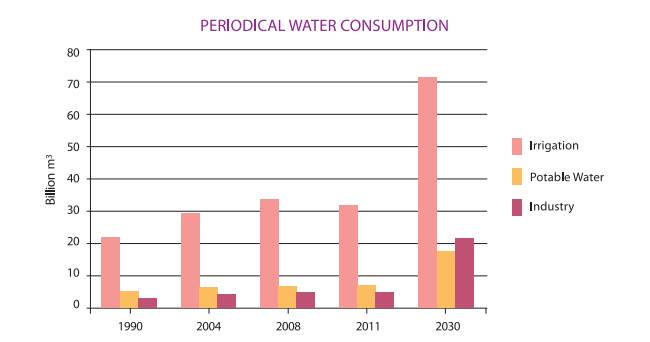
Source: *General Directorate of Environmental Impact Assessment, Permitting and Inspection, 2012*

Air pollution caused by particle substance has reduced 29% percentage since 2007 according to air quality measurement results around Turkiye and sulphur dioxide has recruited with 43% percent.

5- WATER - WASTE WATER
5.1-Water Consumption

Water consumption analysis of Turkiye for the year 1990 indicated that; consumption figures were 22 billion m^3 for irrigation sector, 5,1 billion m^3 for fresh water sector, 3,4 billion m^3 for industry sector where the total fresh water consumption was 30,5 billion m^3.

For the same sectors these figures turned into 32 billion m^3, 7 billion m^3 and 5 billion m^3 respectivelyin 2011 and the total consumption was 44 billion m^3. Considering the population growth, rapid urbanization and industrialization, total water consumption for 2030 is assumed to be 112 billion m^3 in total where 64% will be used for irrigation, 16% for fresh water and 20% will be used by industry sector.



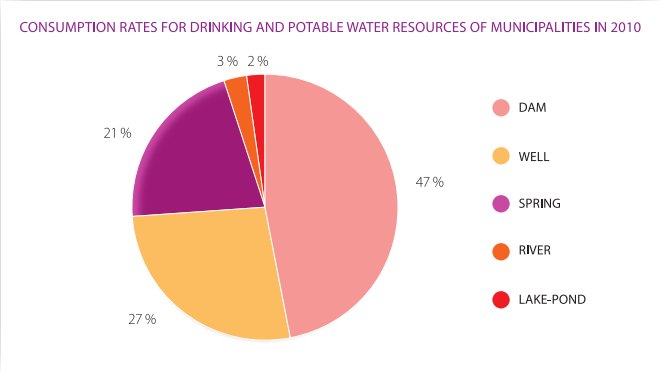
Source: Ministry of Forestry and Water Affairs, General Directorate of State Hydraulic Works, 2012

YEARS	1990		2004		2008		2011		2030	
	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	112	100
Irrigation	22	72	29,6	74	34	74	32	73	72	64
Potable water	5,1	17	6,2	15	7	15	7	16	18	16
Industry	3,4	11	4,3	11	5	11	5	11	22	20

5.2- Drinking and Potable Water Resources of Municipalities

4,80 billion m³ water has been abstracted by municipalities to distribute by drinking and potable water networks in 2010. 47% of this water was provided from dams, 27% from wells, 21% from springs, 3% from rivers and 2% from lakes and ponds.

Comparing last two periods indicated in the table above it's observed that; the rate of water abstracted from dams has increased to 47% from 40%, where the abstracting amount from springs has decreased to 21% from 23%. The water amount abstracted from wells has decreased to 27% from 28%, the amount abstracted from rivers has decreased to 3% from 4% and the water abstracted from lakes and ponds has decreased to 2% from 5%.



Source: TurkStat.

Consumption Rates For Drinking And Potable Water Resources Of Municipalities (%)					
YEARS	Dam	Well	Spring	River	Lake-Pond
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	40,0	28,0	23,3	3,8	5,0
2010	47,2	26,6	21,2	3,3	1,7

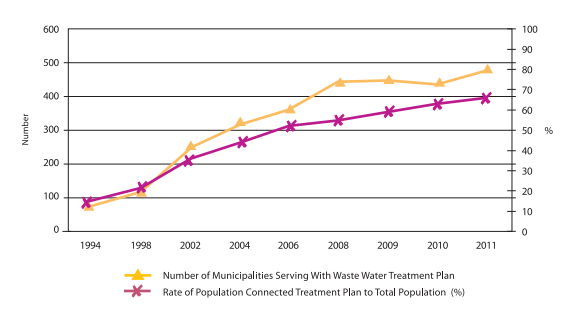
5.3- Municipalities Serving with Waste Water Treatment Plants

According to 2010 TurkStat municipality waste water statistics report, 76% of waste water is refined and there are 326 waste water treatment plants consisting of 39 physical, 199 biological, 53 developed and 35 natural ones. These facilities serve to the 438 municipalities.

3,58 billion m^3 was discharged from sewerage system and 2,72 m^3 of that waste water was treated in waste water treatment plants.

34,3% of the treated waste water was subjected to the biological treatment method, 37,9% developed method, 27,6% physical method and 0,2 % natural method.

The number of municipalities with treatment plants was 71 in 1994 while in 2011 this figure increased to 470, by growing more than 6 times. The rate of population of municipalities with treatment plants reached the 66% percentage of total population of municipalities.



Source: *General Directorate of Environmental Management, 2012*

YEARS	1994	1998	2002	2004	2006	2008	2009	2010	2011
Number of Municipalities Having Wastewater Treatment Facility	71	115	248	319	362	442	452	438	470
Rate of Population Served with Wastewater Treatment Plant to Total Population (%)	13	22	35	45	51	56	59	62	66

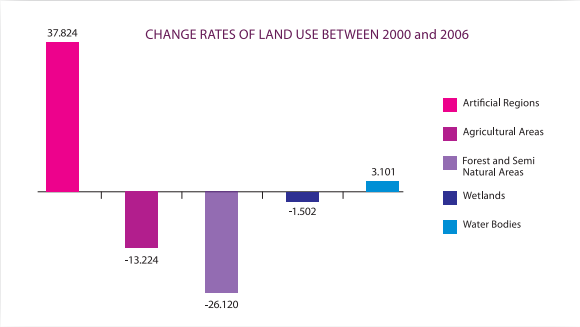
Source: *General Directorate of Environmental Management, 2012*
Note: The number Municipalities having wastewater treatment facilities decreased at the same time in 2010 as the number of municipalities decreased.

6- LAND USE
6.1- Land Use

CORINE, one of the European Union Land Management Projects, (Coordination of Information on the Environment – Environmental Information Order) within the scope of the land cover program in Turkiye CORINE 2000 and CORINE 2006 projects studies are available.

According to CORINE data in 2006; 42,34% of Turkiye is agricultural area, 54,04% percent is forest and semi-natural areas, 1,65% percent is artificial areas, 1,64% percent is water bodies and 0,36 % percent is wetlands. When 2000 and 2006 data is compared, the increase in artificial areas and water bodies; the decrease in agricultural areas, forest and semi-natural areas and wetlands can be seen obviously.

The artificial areas covered 1,56% percent of the total country land in 2000 and its rate (settlements, industry and transportation areas etc.) increased to 1,61% in 2006. However, 13.224 ha decrease in agricultural area, 26.120 ha decrease in forest area



and 1.502 ha decrease in wetlands are observed. Increasing population, urbanization, industrialization, cause decrease in agriculture and forest areas and also generates pressure on these fields. Water bodies increase mainly thanks to new built dams.

Protection of natural environment and ecological balance, providing convenient support planning can minimize the environmental troubles in increasing artificial areas.

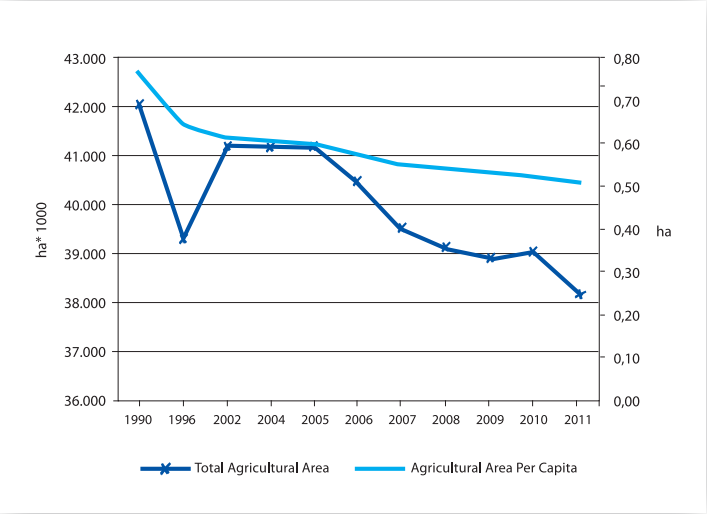
7- AGRICULTURE

7.1- Agricultural Area per Capita

The amount of agricultural areas per capita decreases because of the population growth and reduction in total amount of agricultural areas.

The amount of farmland per capita was 0,75 ha in 1990 and this figure reduced to 0,51 ha area in 2011.

Turkiye's population between 1990 and 2011 has been increased by approximately 35,6% , contraction of farmland per capita in the same period was calculated as 32,8% in agricultural areas.

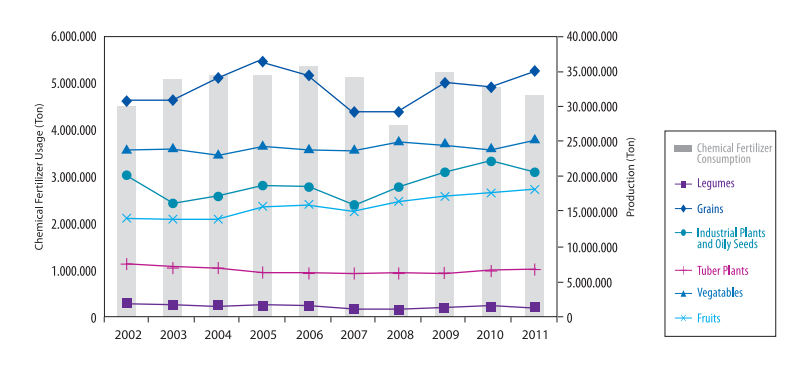


Source: *TurkStat.*

7.2- Chemical Fertilizer Consumption

When total amount of chemical fertilizer consumption between 1998 and 2011 is examined in Turkiye, unstable consumption rate can be seen clearly. Total amount of chemical fertilizer consumption was 5.464.908 tons in 1998 and it turned out to be 4.766.356 tons in 2011.

It's seen that the tendency of chemical fertilizer consumption hasn't changed much when the period between 2002 and 2011 is evaluated. According to ISIC-REV.3 product classifications which were used in international level at the same time; the production of grains (field product group) and industrial plants-oily seeds have been in increasing trend, the production tuber plants and legumes have been in decreasing trend, the production value of fruit and vegetable product group have been in increasing trend.

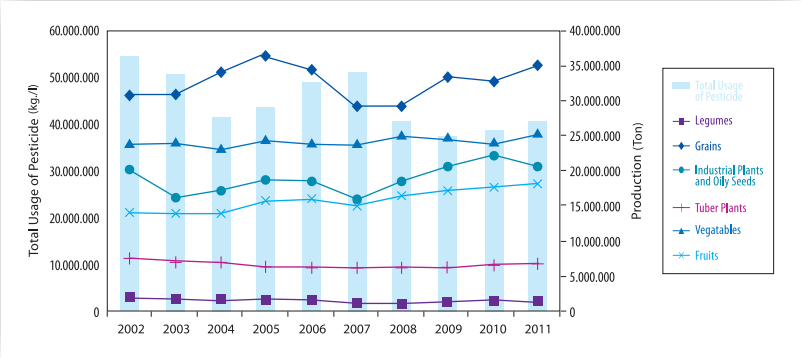


Source: Chemical Fertilizer Consumption Data, Ministry of Food, Agriculture and Livestock,Plant Production Data, TurkStat.
Note: ISIC-REV. 3 product classifications are the basis of plant production data. Field Production Group is detailed as industrial plants and oily seeds, tuber plants but fruits and vegetables are used as total number without being detailed. The numbers of 2011 are temporary.

7.3- Pesticide Usage

Pesticide usage in Turkiye between 2002 and 2011 was 54.296.437 kg/l in 2002 while it turned into an unstable trend in the following years and reduced to 40.110.958 kg/l in 2011.

When the pesticide usage rate of cities is examined in 2005, almost 70% percent of the total is used by coastal cities in Marmara, Mediterranean and Aegean regions as the intensive farming is implemented in those cities. [6].



Source: Ministry of Food, Agriculture and Livestock, data of Vegetal Production TurkStat.
NOT: Vegetal production data is based on ISIC-REV 3 product-classification. Field products are detailed as legumes, grains, industrial plants and oily seeds, tuber plant. Fruits and vegetables are not detailed and used as numbers. 2011 data (numbers) is temporary.

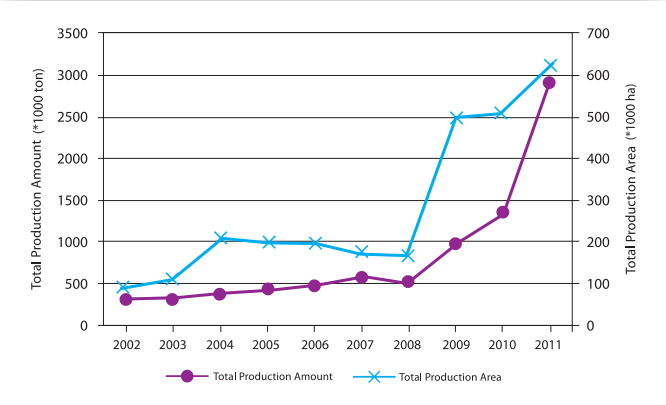
Pesticide usage in Turkiye decreased between 2002 and 2011. According to ISIC-REV. 3 product classification used in international level at the same time; production of grains, industrial plants-oily seeds (field product group) increases just as the production rate of fruits and vegetables while production of tuber plants and legumes decreases.

7.4- Organic Agriculture

Organic Agriculture starting in 1985 due to the export demands had 8 production varieties. It reached 225 production varieties in 2011 within increasing demand of organic agriculture implementation. There were 12.428 producers and 310.000 tones (production amount) in 90.000 ha area in 2002. The numbers increased to 42.460 producers and 2.906.000 tones (production amount) in 615.000 ha area in 2011.

Farming land increased nearly 20 % and 116 % increase occurred for production in 2011, comparing to the previous year.

According to 2009 data, 0,9 % percent of world farming land was used for organic agriculture. The organic agriculture was implemented on 1,9% of whole farming land in Europe continentand 4,7 % of whole farming land in European Union countries, according to 2009 data [7].

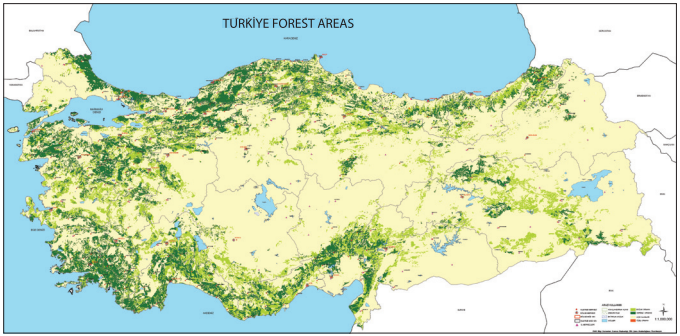


Source: Ministry of Food, Agriculture and Livestock. Not: Transitional Period is included.

The average of organic farming lands to the whole farming lands was 1,3 % in 2009, 1,58 % in 2010 and 1,81 % in 2011.

8- FORESTRY
8.1- Forest Areas

The total area of forests in Turkiye was 21.669.999 hectares in 2011. This rate equals to 27,6% percent of Turkiye's the national territory. After the examination of last 37-year period, 1 million hectares increase of total forest areas has been achieved. 48% percent of Turkiye's forests is bad-qualified. The tree species that occupy places most are Oak, pine, larch, juniper, beech and yellow pine of which constitute 80% percent of total forest areas. There are 150 forest trees more apart from these species. 11,2 million hectares of forests in Turkiye are normal (between 11% and 100% closed) areas, 10,4 million hectares are bad (between 0% and 10% closed) qualified areas.



YEARS	1973	1999	2004	2008	2010	2011
Forest Area (ha)	20.199.296	20.763.247	21.188.747	21.363.215	21.537.091	21.669.999

Source: *Ministry of Forestry and Water Affairs General Directorate of Forestry, 2012*

2010-2014 Action Plan of General Directorate of Forestry aims to increase the available forest capacity to 30% percent of Turkiye's total territory.

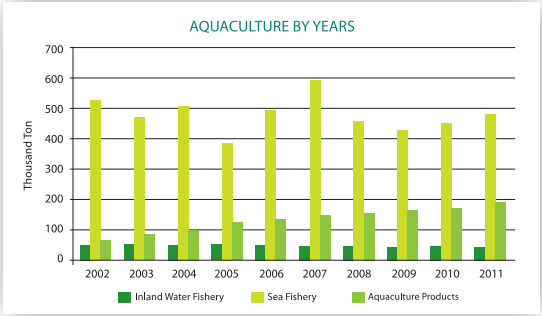
9- FISHERY

9.1- Fishery

In Turkiye; 8.483 km-long coastline, 24 million ha of marine area and about 1 million ha of inland water territory are available. Production of fishery products in 2011 increasing by 7,73% over the previous year was approximately 703.545 tones. 61,44% percent of production is obtained from sea fishes, 6,5% from other sea species, 5,27% from in inland waterspecies and 26,83% from aquaculture.

The most important species grown in inland waters are; trout with 53,10%, sea bass with 24,90% in seas, sea bream with 17,05%. The amount of sea species production (fishing species) increased by 7,18% over the previous year and it turned out to be 478.000 tones approximately. Eastern Black Sea Region is the first for the production of sea species via fishing with 62,43% percentage, it's followed by Western Black Sea Region with 15,49% percentage, Marmara Region with 8,20%, Aegean Region with 6,95% and Mediterranean Region with 6,93%.

There are some important implementations and restrictions on fishing; place, time, height, specie, distance, depth and equipment in order to protect and sustain the resource of sea species. It's targeted to implement "Environment Friendly" techniques for aquaculture and make the sector be environmentally, economically and socially sustainable. Monitoring fish stocks, protecting the species in danger, increasing the stock by breeding, monitoring water sources for pollution and taking precautions are the actions in the progress.



Source: *Ministry of Food, Agriculture and Livestock*

10- INFRASTRUCTURE AND TRANSPORT
10.1- Road and Railway Network

The length of the road network in Turkiye reached 65.049 km in 2011. As of the end of 2011 in Turkiye, there are 11.112 km of conventional line and 888 km high-speed rail line, total of which equals to 12.000 km railway line.

As a result of road oriented policies after 1950's, the length of highway increased by 80% between 1950 and 2002 while railway's just increased by 11%.

Environmental pollution and climate change that occurred because of the human activities affect both human and natural life badly. Transportation and energy sectors are two of the main reasons causing this pollution.

Compared to roads, railways release less greenhouse gas to the atmosphere as it consumes energy more effectively and it also plays an important role in protecting environment as the less land is used for instruction. In addition, railway helps to reduce respirations disorders and other illnesses caused by air pollution. According to 2009 emission inventory data, 84% of CO_2 emission was originated by road, 11% by air transport, 3% by maritime transport and 1% by railways. The length of road is expected to reach 70.000 km and railway is expected to reach 30.000 km in 2023.

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

Source: *Ministry of Transport, Maritime Affairs and Communications, 2012*

10.2- Amount of Passenger 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 policies after 1950's road turned into a leading sector in transportation services with 90% freight and 95% passenger percentage. Although maritime transportation dominating this field with 87,3% percentage is the leading sector for international freight transportation, its rate is much lower in domestic freight transport. This situation decreases its rate on total transportations. In other words, the balance among types in transportation system totally became unstable [8].

Transport Share Ton-Km (Domestic-Freight)	Today	Objective at the end of 2023
Road	%80,63	%60
Railway	%4,76	%15
Airway	%0,44	%1
Maritime	%2,66	%10
Pipelines	%11,51	%14
Transport Share Passenger-Km (Domestic-Passenger)	**Today**	**Objective at the end of 2023**
Road	%89,59	%72
Railway	%2,22	%10
Airway	%7,82	%14
Maritime	%0,37	%4

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 to one kilometer away.*

Source: *Ministry of Transport, Maritime Affairs and Communications*

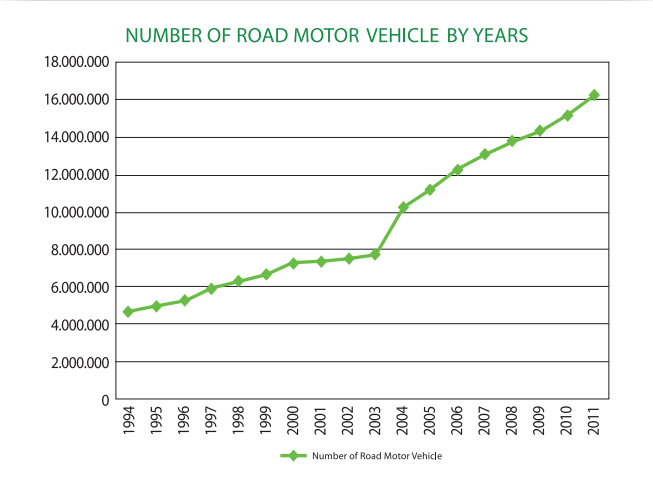
Source: *Ministry of Transport, Maritime Affairs and Communications, Turkiye Transport and Communication Strategy, Vision 2023*

10.3- Number of Road Motor Vehicles

In 2011, number of road motor vehicles increased by 16.089.528 especially after 2004. It was 4.711.206 in 1994, though.

The rates of total road motor vehicles number in 1994 were 60,7% automobile, 16,7% motorcycle, 7,9% van, 6,7% truck, 3,5% minibus, 1,9% autobus while they were 50,4% automobile, 16,2% van, 15,7% motorcycle, 9,1% tractor, 4,5% truck, 2,4% minibus, 1,4% bus in 2011.

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



Source: *TurkStat. Not: Off-road vehicle is included.*

11- ENERGY

11.1- Total Energy Consumption By Sectors

Looking at the amount of energy consumption in 2010, it reveals that housing sector and industrial sector have the highest consumption rate. In Turkiye, the energy consumption in industrial sector has increased since 2002. However, production declined due to the global economic crisis in 2008 and 2009, which led a decrease in energy consumption rate of industrial sector. It increased again in 2010. Compared to 2002, the energy consumption in houses increased 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 list. In Turkiye, most of the energy is used road transportation as road is the dominant preference for both passenger transportation and freight transportation.

It can be concluded that Turkiye'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 due to the climate conditions and mainly southern regions are in need of cooling in summer.

YEARS	2002	2003	2004	2005	2006	2007	2008	2009	2010
TOTAL (Thousand TEP)	78.331	83.826	87.818	91.074	99.641	107.627	106.421	109.138	109.266
Household	18.463	19.634	20.952	22.923	23.677	24.623	28.323	29.466	28.868
Industry	24.782	27.777	28.789	28.084	30.996	32.466	26.906	25.966	30.628
Transport	11.405	12.395	13.775	13.849	14.994	17.284	15.996	15.916	15.328
Agriculture	3.030	3.086	3.314	3.359	3.610	3.945	5.174	5.073	5.089
Not Energy	1.806	2.098	2.174	3.296	4.163	4.430	3.244	4.153	3.459
Conversion Sector	18.845	18.836	18.814	19.564	22.201	24.879	26.779	25.565	25.894

Source: *Ministry of Energy and Natural Resources, 2012*

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.

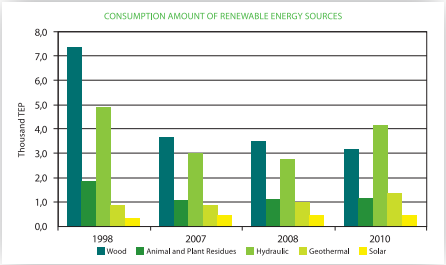
11.2- Consumption of Renewable Energy Sources

Renewable energy sources are really significant because they are known as environment-friendly and have much lower CO_2 emission values (per energy unit generated). Supply of renewable energy is mainly consisted of hydraulic sources and biomass (wood, animal and plant residues). Consumption amount of renewable source (wood, animal and plant residues, hydraulic, geothermal heath, sun) in 1998 was 15,3 thousands TOE (Ton of oil equivalent) and 9,9 thousands TOE in 2010.

Hydraulic is the most common renewable energy source in Turkiye. Consumption rate of wood in renewable energy source was 48% in 1998 but it decreased by 31% in 2010. Usage rate of animal and plant residues decreased to 12% from 11% between 1998 and 2010. On the other hand, usage of hydraulic, geothermal heat and solar energy showed an increasing trend and energy consumption obtained from these sources increased by 58% percentage of whole renewable energy consumption rate.

Despite of the fact that the numbers of power stations (geothermal, wind, biomass) are increasing, the rate of these power stations' in established (available) power system is limited.

Investments of renewable energy sources such as hydraulic, wind, solar, geothermal, biomass, and biogas are expected to expand and it is planned to boost its capacity in electricity generating at least 30% percentage in 2023.



YEARS	1998	2007	2008	2010
TOTAL (Thousand TEP)	15,3	8,9	8,6	9,9
Wood	7,4	3,6	3,5	3,1
Animal and Plant Residues	2,0	1,0	1,1	1,1
Hydraulic	4,9	3,0	2,7	4,1
Geothermal	0,8	0,9	1,0	1,3
Solar	0,3	0,4	0,4	0,4

Source: *Ministry of Energy and Natural Resources, 2011*

11.3- Energy Efficiency in Buildings

The energy need is constantly rising in Turkiye like other developing countries. 75% of our energy need is supplied by importation. As it happens in other countries the buildings are at the top when the energy consumption rate is examined. The energy consumption rate is 40% of total energy consumption in the buildings of office, health, education and residence.

As the population increases rapidly, number of the buildings increases at the same time and the problems break out because of the lack of legislation and standard. Also the lack of implementation and inspection cause constructing energy –sufficient buildings.

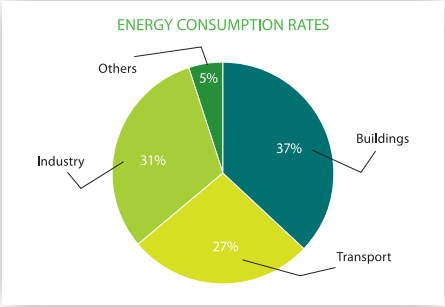
These buildings having 40% of energy consumption need to be recruited urgently. By Law on Energy Efficiency in Buildings and By Law on Central Heating and Sanitary Hot Water Strain Sharing were published and put into practice by The Ministry within the scope of Energy Efficiency Law.

The buildings that had construction permit before 01/01/2011 are needed to get Energy Identity Document (EID) till 2017. Getting construction permit after 01/01/2011 the buildings are needed to submit Energy Identity Document to the Related Institution During Habitation Process. New buildings must have "C" class energy efficiency and greenhouse gas emission.

The studies have been started to create a database with National Software for preparation of Energy Identity Document. 25000 EID certifications have been prepared by Bep-Tr software. Training programs have been prepared for the authorization of training organizations. 101 training organizations and 230 EID experts have been authorized upon trainings. Also 8000 EID experts have been authorized after completing their trainings in these organizations.

The buildings constructed before 2000 consume two times more energy compared to today's available standard and legislation.

According to researches it reveals that the potential of energy efficiency in our buildings is 35%. It is expected to cover 10 million buildings with heat insulation till 2023. Upon implementation of By Law on Energy Performance our buildings will have 45-50% of energy saving and greenhouse gas emission will be reduced considerably.



Source: *General Directorate of Profession Services, Department of Energy Efficiency. (Conversion sector and losses are not included when the rate is calculated.)*

12- WASTE

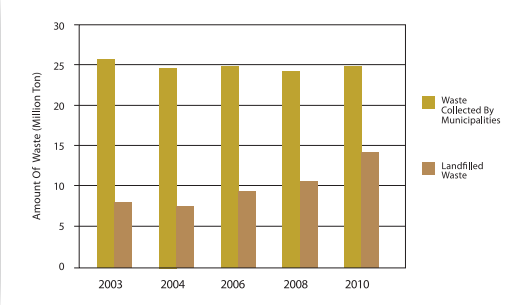
12.1- Waste Collected by Municipalities or on behalf of Municipalities and Its Disposal

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 landfill of waste in Turkiye, 2010.

In Turkiye there's a transition process from predominantly wild storage of waste disposal to landfill. 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 while that rate increased by 54,4% in 2010. 43,5% of total waste was taken to municipalities' dumpsites and 0,8% to compost facilities, 1,3% also destroyed by other techniques.

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.

In 2010, the population rate served with the landfill disposals and recycling facilities is 47% compared to total population. The number of solid waste landfill is 52, composite facilities is 5 and incineration facilities is 2.



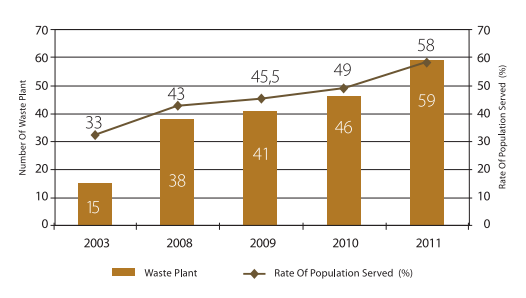
YEARS	2003	2004	2006	2008	2010
Waste Collected By Municipalities (Million Ton)	26,11	25,01	25,28	24,36	25,28
Landfilled Waste (Million Ton)	7,43	7,00	9,43	10,95	13,75

Source: TurkStat

12.2- Landfill of Waste

As provided in the relevant legislation, creation of inter-regional management associations of municipalities, developing capable of sustainable economic "Regional Waste Plant" and creating plans in order for implementation of the projects within the plan for waste disposal across Turkiye are some of the significant environment issues within this concept. Plans are created to establish the landfill of waste, reduce the amount of waste, provide recycling facilities, reduce cost of waste transportation and use transfer stations with appropriate technology when necessary. There were 15 landfills of waste available across Turkiye in 2003, it increased by 38 in 2008 and finally there were 59 landfills in 2011 within the scope of The Ministry legislation's implementations. Also there are 39 projects in contract process and 41 projects in planning process.

29 million people were being served in 2008 but this increased by 41 million people via 756 municipalities in Turkiye. In 2010 54,4% percent of 25,28 million ton waste that was collected from municipalities having waste collection and transportation services was disposed in landfills of waste, according to TurkStat data.



YEARS	2003	2008	2009	2010	2011
Waste Plant	15	38	41	46	59
Number of Municipality	150	450	581	616	756
Served Population (million)	23	29	32	36,5	41
Rate Of Population Served (%)	33	43	45,5	49	58

Source: *General Directorate of Environmental Management, 2012*

12.3- Medical Waste

Generally health care institutions are responsible of collecting medical waste separately from others and storing them temporarily and the municipalities are responsible of transferring temporary stores, exposing them to sterilization process and incineration.

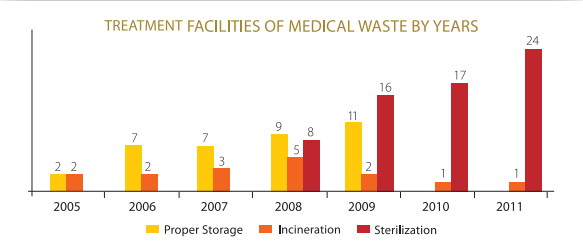
Ministry of Environment and Urbanisation considered 2010 as a solution year for medical waste. 73 cities' medical waste problems were solved and 40% of available medical waste was turned into harmless waste by sterilization method. There are now 35 million people served all around Turkiye.

According to 2010 TurkStat data, there are 1.439 hospitals and 199.950 patient beds.

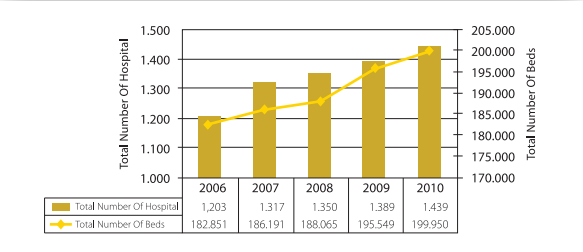
AMOUNT OF MEDICAL WASTE BY YEARS

YEARS	2006	2007	2008	2009	2010
Amount of Medical Waste (Thousand Tonnes)	83	87	92	97	100

Source: *General Directorate of Environmental Management, 2012*



Source: *General Directorate of Environmental Management, 2012*



Source: *TurkStat, Statistic Annual of Turkiye, 2011*

12.4- Waste Oils

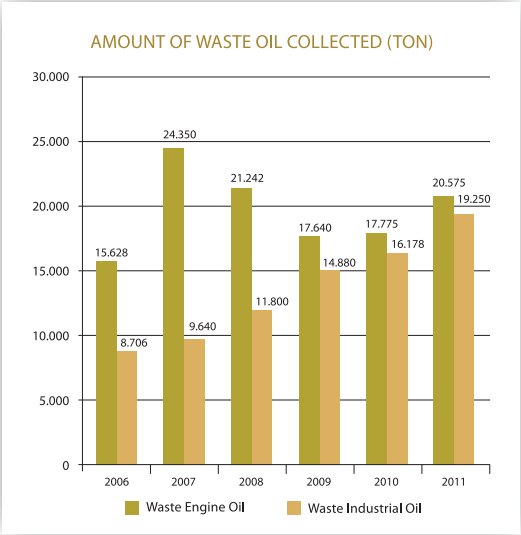
The amount of collected waste oil was 40.000 ton in 2011. The graphic shows the rates of collected waste oil.

38 facilities that have 210.000 ton/year capacity on recycling waste oil are given -Temporary Operation Document- and license.

Mineral oil with TSE (Turkish Standards Institution) license is produced in these facilities and also they need to get a license from EMRA (Energy Market Regulatory Authority) to sell their products. Within the context of our ministry's planning, there are ongoing works to build refinery facilities that have high technology on recycling waste oil and can produce base oil from waste oils in Turkiye.

SHARE OF WASTE OILS BY DISPOSAL METHODS			
YEARS	RECYCLING (TON)	ADDITIONAL FUEL (TON)	FINAL DISPOSAL (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

Source: *General Directorate of Environmental Management, 2012*



12.5- Packaging Waste

Ministry of Environment and Urbanisation created a statistical database for packaging and packaging waste in 2005 and from then on it became possible to release the official statistics of packaging waste.

The graphic shows recycled rate of packaging waste according to its types in 2005, 2006, 2007, 2008 and 2009. The rate of paper and carton is so high although the composite's rate is under estimations. Recycling waste should be collected separately from domestic waste and recycled properly for a healthy and sustainable waste management system. So the amount of wastes which will be taken to landfill can be reduced and these recycled wastes will be a benefit for economy. A system has been established for separate collection. The municipalities in this system prepare packaging waste management plans and The Ministry has approved those plans since 2008.

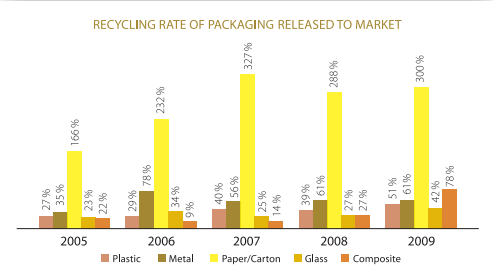
The number of registered packaging manufacturers and sellers is 15.121 while it was just 350 in 2003.

The number of licensed facilities increased by 562 in 2011 but it was 28 in 2003.

STATISTIC RESULT OF PACKAGING AND PACKAGING WASTE IN 2009

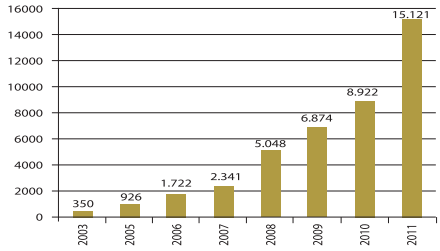
TYPES OF PACKAGING	The Amount of Packaging Produced (t)	The Amount of Packaging in the Market (t)	Objective Rates of Recycling (%)	The Amount Needed to be Recycled (t)	The Amount Recycled (t)	The Rate of Recycling Occured (%)
PLASTIC	723.436	478.112	36	162.354	229.084	51
METAL	248.093	115.759	36	35.384	59.775	61
COMPOSITE	90.285	60.107	36	21.727	47.103	78
PAPER CARTON	1.437.906	762.955	36	243.884	2.033.240	300
GLASS	403.540	428.724	36	130.677	151.513	42
TOTAL	2.903.262	1.845.657	36	594.027	2.520.715	153

Source: *General Directorate of Environmental Management, 2012*

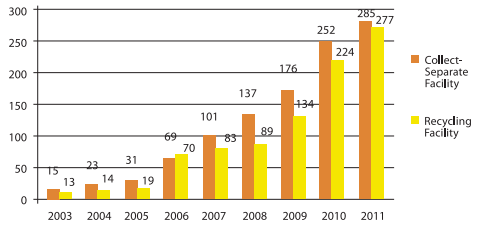


Source: *General Directorate of Environmental Management, 2012*

NUMBER OF REGISTERED ECONOMICAL FACILITIES



NUMBER OF LICENSED FACILITIES BETWEEN 2003 AND 2011



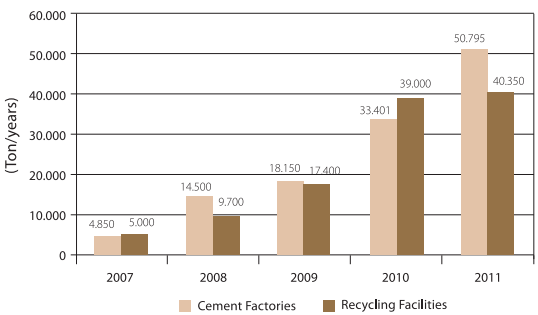
Source: *General Directorate of Environmental Management, 2012*

12.6- End-of-Life Tires

Tires that cannot be used anymore or removed as functioning no more, damaged badly, have technical problem during manufacturingand are considered as end-of-life tires (ELT).

By Law on End-of-Life Tires Control was published in Official Gazette 26357 dated 25/11/2006 and put into practice in 2007 January 1st. There are objectives for this legislation: recycling of End-of-Life tires, establishing collecting and transferring system for final disposing, preparing management plan, legal restriction and responsibilities of export and import of these tires. The legislation doesn't include carcass tires and prohibits the import of End-of-Life tires.

THE AMOUNT OF END-OF-LIFE TIRES USED AS ADDITIONAL FUEL IN RECYCLING FACILITIES AND CEMENT FACTORIES



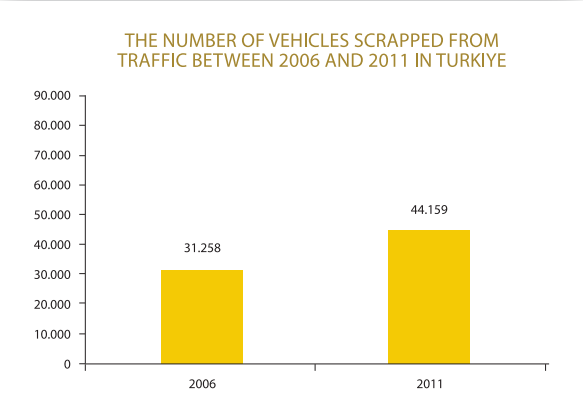
Source: *General Directorate of Environmental Management, 2012*

12.7- End-of-Life Vehicles

By Law on End-of-Life Vehicle Control was published in Official Gazette, numbered 27448 dated 30/12/2009. The legislation indicates some principals on collecting, storing and recycling of these (wreck) vehicles via economic operators.

By Law on End-of-Life Vehicle Control includes M1 (vehicles for transportation with maximum 8 seats), N1 (vehicle for freight age with maximum 3.500 kg) vehicles, tricycles (except motorcycles) and their spares. Deregistration of End-of-Life vehicles and disposal form can be obtained from End-of-Life Vehicles database developed by our ministry and processes end.

Deregistration of End-of-Life vehicles and disposal form can be put into process via End-of-Life Vehicles Database developed by Ministry of Environment and Urbanisation on 15th March 2012. After completing these procedures the process ends.



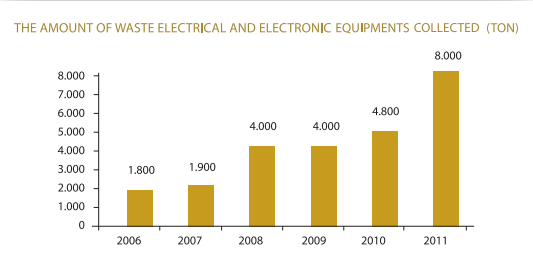
Source: *General Directorate of Environmental Management, 2012*

12.8- Waste Electrical and Electronic Equipments

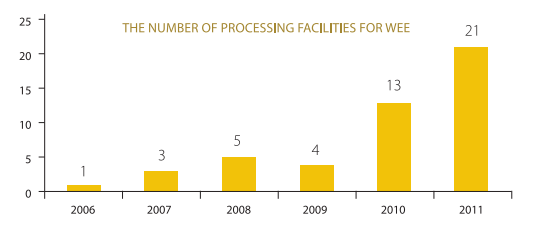
By Law on Waste Electrical and Electronic Equipments Control, prepared by Ministry of Environment and Urbanisation, was published in Official Gazette, numbered 28300 dated 22/05/2012 and put into action to properly recycle the electrical and electronic equipments like computer, television, refrigerator, mobile phone that contain hazardous substance for human health and environmentin recycling facilities (environment licensed) and dispose the ones that cannot be recycled under proper conditions.

According to legislation, electrical and electronic equipments manufacturers are responsible for not adding some certain components such as lead (Pb), mercury (Hg), chrome (Cr^{+6}), polibrhomule biphenyl (PBB), polibrhomulediphenyl ether (PBDE) and cadmium (Cd). The collection, processing, recycling and disposing of waste electrical and electronic equipments will be carried out under the manufacturer's control.

Before the legislation put into practice between 2006 and 2011 The Ministry gave compliance letter to the related facilities to implement collecting and recycling processes. The number of Waste Electrical and Electronic Equipments (WEEE) collected by these facilities is 8.000 ton in 2011.



Source: *General Directorate of Environmental Management, 2012*



Source: *General Directorate of Environmental Management, 2012*

12.9- Mine Wastes

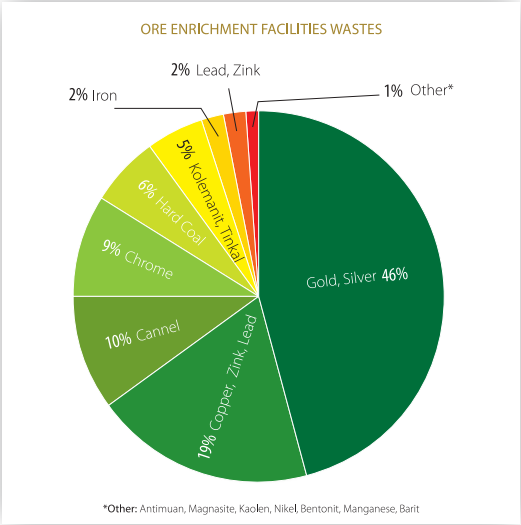
For the production of 29 mine types, Turkiye is the 10th country among 152 countries on mining resource diversities. According to General Directorate of Mining Affairs 2011 data, 33.780 mining license were given as search, prior processing and processing, 13.128 of them are processing.

There are 91 Ore enrichment and preparation facilities available in Turkiye according to 2008 data. According to processed ore, when the distribution of enrichment facilities is examined it reveals that chrome facility with 38 facilities is at the top of the list.

26.481.505 ton waste comes out from 91 enrichment facilities per year. According to processed ore, the maximum waste generates from the process of gold and silver facilities with 46% percentage.

ORE ENRICHMENT BY ORE TYPES					
ORE TYPE	NUMBER	ORE TYPE	NUMBER	ORE TYPE	NUMBER
CHROME	38	IRON	3	KAOLEN	1
HARD COAL	11	MANGANESE	3	KOLEMANİT, TİNKAL	2
LEAD-ZINK	8	GOLD, SILVER	2	MAGNASITE	1
CANNEL	9	ANTİMUAN	2	NİKEL	1
COPPER., ZINK, LEAD	6	BARİT	1	BENTONİT	1

Source: *General Directorate of Environmental Management, 2012*



Source: *General Directorate of Environmental Management, 2012*

12.10- Hazardous Waste

Recovery and disposal of hazardous waste is implemented by facilities given licenses by The Ministry. The number of licensed facilities constantly has been increasing since 2003. There are 33 final-disposing facilities, 4 hazardous waste landfills (First class) and 192 hazardous waste recovery facilities

Waste Declaration System was established to specify the quantity of hazardous waste and its recovery/dispose in accordance with types. These wastes are inspected via By Law on Hazardous Waste Control and statements are taken from waste manufacturers.

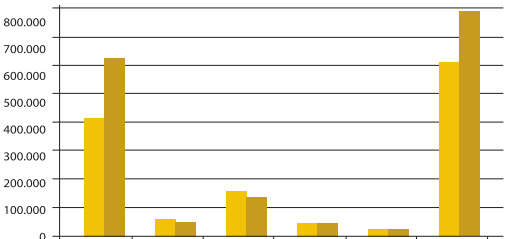
Users of Waste Declaration System are the industrial facilities generating hazardous waste.

The system records the general information, capacity and employees' number of these facilities.

Total amounts of waste processed around Turkiye are 629.030 ton in 2009 and 786.417 ton in 2010. (This amount of waste excludes mine waste.)

Regarding years there has been an increase on the declared waste amount and most of these wastes intend to recycling process. Wastes are to be reduced first at the source, recycled, used for energy generation and disposed finally, according to waste management principles.

AMOUNT OF HAZARDOUS WASTE BETWEEN 2009 AND 2010 (TON)



	Recycling	Disposal	In Facility	Stock	Export	Total
2009	430.727	35.013	139.228	21.288	2.773	629.029
2010	610.770	30.135	121.730	22.971	631	786.417

Source: *General Directorate of Environmental Management, 2012*

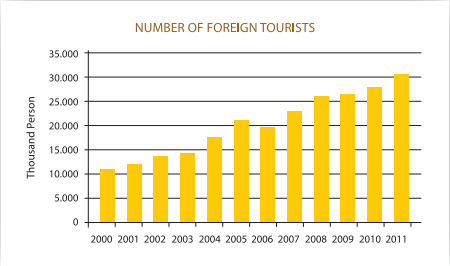
13- TOURISM

13.1- Number of Foreign Tourists

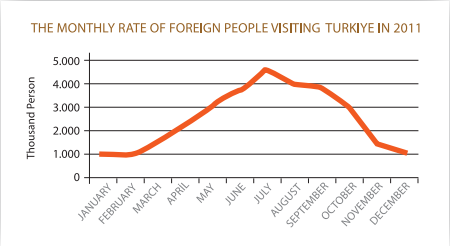
Turkiye is one of the leading tourism centre in the world, according to World Tourism Organization's data. Turkiye is 17th country in the world for incoming tourists in 2002 and then it became 6th country in 2011. Turkiye's rank (12th) didn't change regarding tourism incomes for the same years.

While the tourist number was 10.428.153 in 2000, it has been reached to 31.456.076 in 2011. Regarding the rate of coming tourists by months Turkiye is mostly visited in summer. Water consumption increases in hotels over the standards and this consumption takes place in summer months where water resources diminish. This situation causes environmental problems about water.

Wastewater, solid waste, energy consumption, natural resource usage and noise-related environmental problems are the main problems experienced in touristic places. However, in Turkiye all the investments in the tourism sector should be in natural, historical and social- environment preventive, protective and improving manner. Maximum care is given to these issues. There are 23 "Environment Friendly Hotels" within this context.



Source: *Ministry of Culture and Tourism, 2012*



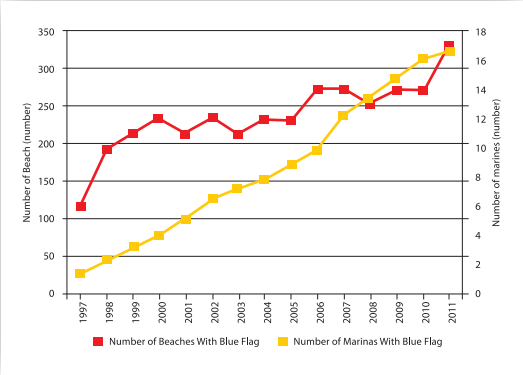
13.2- Blue Flag Implementations

Blue flag is an international environment award for beaches and marines that meet necessary requirements. The implementations of the Blue Flag started in 1978 in Europe and in 1993 in Turkiye. The implementations aim to establish high standards in beaches and marinas.

Beaches have 32 and marinas have 24 criteria to be evaluated by the national jury and international jury. Within the approval of then for a period of one year is entitled to receive the Blue Flag. In Turkiye 324 beaches, 17 marinas and 12 yachts had blue flags in 2011.

Considering tourism capacity and length of coastline of Turkiye, it is seen that number of current flag is not sufficient. But there is a notably increasing in the number of waste water treatment plant and sampling/control points for determination of the quality of coastal waters, it is also expected a significantly increase in the number of blue flag.

Currently, Turkiye ranks at number 4, in the application of blue flag out of the 49 countries, after Spain, Greece and France.



Source: *Ministry of Culture and Tourism, 2012*

DEFINITIONS

POPULATION

Population Growth Rate

This indicator is a specific period or year, the average annual increase in population size. Annually for every 100 population is expressed as the growing population.

Urban Population

Provincial and district centers of population within municipal limits, be expressed as a percent of the total population in the show.

ECONOMICS

Total Energy Expenditure of Public Sector

Environmental protection expenditures are production process and the prevention of pollution from the consumption of goods and services, for the reduction and elimination of the expenses for the activities. In the public sector, management, monitoring and costs incurred for the implementation of legislation are also included. To define the scope of environmental protection expenditure, the United Nations Economic Commission for Europe and the European Statistics Office prepared by Environmental Protection Activities (EPA) is used. Public sector environmental expenditures: government agencies, municipalities, special provincial administrations and covers of the environmental expenditures.

Sectorial Distribution of Employment

This indicator is agricultural, industrial, construction and service sectors in each of the active population indicates that the ratio of the total active population.

AIR, ATMOSPHERE, CLIMATE

Greenhouse Gas Emissions

Energy, industrial processes, agricultural activities and emissions caused by waste disposal, direct greenhouse carbon dioxide (CO_2), methane(CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC_s) and sulfurhexafluoride (SF_6) and indirect GHG nitrogen oxides (NO_x), non-methane volatile organic compounds ($NMVOC_s$) and carbonmonoxide (CO) emissions. National Greenhouse Gas Emissions 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines was used for the calculation.

Greenhouse Gas Emissions by Sectors

The amount of CO_2 equivalent greenhouse gas emissions from different sectors represent.

Precipitation
Express the average amount of rainfall per unit area.
Temperature
Monitoring refers to the average surface temperature in time series.
Sea Surface Temperature
Express the sea surface temperature changes during year.
Extreme Weather Conditions
Express violent and harmful weather conditions.
Natural Disasters
Express hydrologic (flood, landslide), meteorological (storm, avalanche), and climatically (temperature anomalies, drought, fires) natural disasters' periodical numbers.

AIR QUALITY

Air Pollutants
This indicator shows the amount of SO_2 and PM_{10} concentrations in the air. SO_2 sulphuris pollutant, suffocating, colorless and acidic gas compounding during combustion. Particulate matter is formed by chemical transformation of gaseous emissions and as a stack shaping. Particulate diameter of 5-10 micrometres, defined as suspended particles. In general, contain heterogeneous mixtures, and important characteristics vary from one place to another place. Particulate matter fewer than 10 micrometers in diameter called PM_{10}.

WATER-WASTE WATER

Water Consumption
This indicator displays the amount of total water abstracted for municipal, irrigation, drinking and using on a sectorial basis to industry sources.
Municipal Drinking Water Sources
Express the rates water sources such as dams, wells, natural resources, rivers, lakes and ponds abstracted by municipalities.
Municipal Wastewater Treatment Plant
This indicator is the number of municipal wastewater treatment plant serving the population and shows the advantage of this service.

LAND USE

Land Use

Environmental Data Coordination Project (Coordination of Information on the Environment-CORINE) is divided into two types according to the user.

1 - Land Cover: Refers to the land covered with biological or physical items. For example, areas of natural scrub, natural rocks, natural meadows and so on.

2 - Land Use: Express land useupon human impact.

This indicator Environmental Data Coordination Project (Coordination of Information on the Environment-CORINE) land use determined by the species refers to a comparison of relative changes in land use and display.

The land-use types determined by CORINE:

1. Artificial Areas (Surfaces): Most of these fields are covered with buildings and transportation network.

2. Agricultural Areas:, Both agriculture and pasture areas are taken partin under this title.

3. Forest and Semi-Natural Areas: The forest, shrubs, herbaceous plants and open areas with no vegetation or less planted areas.

4. Wetlands: Natural or artificial, permanent or temporary, stagnant or flowing water, fresh, brackish or salt, sea, including six meters deep during sea tidal movements, all waters that are habitat for all living thingsespecially waterfowls, water, marsh, reed, turbaryand ecologically water bodies from coastal edgesto the main land.

5. Water Bodies: Express the water structuresincluding continental waters (river surfaces) and sea waters (lagoons, estuaries, seas and oceans).

AGRICULTURE

Agricultural Area Per Capita

The total arable area is defined as the ratio of the total population.

Chemical Fertilizer Consumption

Express annual usage of total chemical fertilizer

Pesticide Usage
Express annual usage of total pesticide
Organic Agriculture
It's a type of agricultural production implemented via using non-chemical products that are convenient for the legislation. The whole process, from production to consumption, is controlled and certificated. This indicator expresses the amount and area of agricultural products grown with organic farming methods.

FORESTRY

Forest Areas
This indicator expresses the change of natural and sown / planted forests in the total surface area at any other period.

FISHERY

It shows the amount of fish, shellfish and mollusc caught in inland waters and freshwater aquaculture products. Data regarding the production is represented by its (fish) live weight.

INFRASTRUCTURE AND TRANSPORT

Road and Railway Network
Express total length and expand of road (highways, state roads, provincial roads) and railway.
The Amount of Freight and Passengers Transported by Transportation Types
This implication shows the rate of freight and passenger among transportation types.
Number of Road Motor Vehicles
Express the number of automobile (including off-road vehicle), bus, truck, motorcycle, private purposed vehicle, caterpillars and tractor.

ENERGY

Total Energy Consumption by Sectors
This indicator shows the total energy consumption Residential, Industrial, Transportation, Agriculture, Excluding Energy and Conversion Sectors of oil equivalent.

Consumption of Renewable Energy Sources

This indicator shows the total energy consumption generated from renewable energy sources (wood, animal and plant residues, hydraulic, geothermal heat and solar). Renewable energy sources correspond to energy generated from the current external environment, energy flows or the materials' energy (derived from these elements).

WASTE

Waste Collected by Municipalities or on behalf Municipalities and Its Disposal

This indicator expresses the amount of solid waste collected by or on behalf of municipalities and shows the amount of solid waste regularly taken to landfill. The most significant amount of municipal waste was generated by households. In addition, it includes wastes of trading and commercial establishments, office buildings, institutions and small companies.

Landfill of Solid Waste

It refers to technical standards and specific areas where waste is disposed underground or onthe surface. It doesn't include the landfills where waste is temporarily stored less than 3 years to be sent to pre-treatment or recycling units and stored less than 1 year to be disposed. This indicator expresses the number of landfills of solid waste and rate of the population served.

Medical Waste

It states the amount of medical waste collected separately on an annual basis and proportionately expresses disposal methods of medical waste collected.

Waste Oil

This indicator expresses the amount of oil products of gasoline engine, diesel engine, gearbox and differential, transmission, hydraulic oils, grease, and other special vehicle system, turbine and compressor, slide, open-closed gear, circulation, metal cutting and processing, metal extraction, textiles, heat treatment, heat, transfer, insulation and protection, insulation, transformers, mold, steam cylinders, pneumatic system protection, food and pharmaceutical industries, paper machine, beds and other special industrial oils and industrial greases, used thickener, protective, cleansing and similar special preparations and non-oil products are unsuitable for use .

Packaging Waste

Package is a way presentation of the products for customers during transportation and delivering process. These packages are considered as packaging waste upon consumer's use. Packaging waste also includes packages thrown or left to the environment. This indicator expresses the information of amount of packaging and recycling.

End-of-life Tires

Express the amount of end-of-life tires used as additional fuel in recycling facilities and cement factories.

End-of-life Vehicles

Express the number of wrecked vehicles by years.

Waste Electrical and Electronic Equipments

Express the amount of waste electrical and electronic equipments collected and the number of recycling facilities.

Mine Wastes

Express the number of ore enrichment facilities and the rate of ore enrichment process wastes.

Hazardous Waste

Express hazardous waste amount and recovey information. Hazardous wastes are explosive, flammable, and suitable for spontaneous combustion, flammable gases in case of contact with water, oxidizer, organic peroxide content, toxic, corrosive, toxic gases in case of contact with air and water, eco-toxic waste.

TOURISM

Number of Foreign Tourists

This indicator expresses the change in the number of foreign tourists by years.

Blue Flag Implementation

Blue flag is an international environment reward given to beaches and marinas that have the necessary qualifications. This indicator expresses the total number of beaches and marinas with blue flags in Turkiye since 1997.

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General Directorate of EIA, Permit and Inspection
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