NATIONAL REPORTING TO THE EIGHTEENTH SESSION OF THE COMMISSION ON SUSTAINABLE DEVELOPMENT

TURKEY

WORKING THEMES

CHEMICALS

WASTE MANAGEMENT

MINING

SUSTAINABLE CONSUMPTION AND PRODUCTION

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The concept of sustainable development as coined initially with the Brutland Report has been endorsed by the global community at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992. Agenda 21, sets specific targets for the global community for integrating environmental concerns into economic and social development efforts. The World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002 provided an opportunity to review the 10 years following Rio and to set new targets.

Turkey's WSSD follow up and its national programme for EU accession provide a strong basis to build sustainable development goals for the future. Sustainable development is a priority area in which Turkey's global commitments through the UN system and its EU accession requirements converge.

The UN Commission on Sustainable Development (CSD) reviews progress in the implementation of Agenda 21 and the Rio Declaration on Environment and Development; and provides policy guidance to follow up the Johannesburg Plan of Implementation. The CSD meetings provide a formal setting for improved coordination among countries, increased flow of information, creation and institutionalization of SD networking mechanisms.

Turkey contributes to the fourth implementation cycle of CSD Multi-Year Programme of Work by providing up-to-date information about the progress in the thematic areas of Chemicals, Waste Management, Mining, and Sustainable Consumption and Production. The process of reporting is coordinated by the State Planning Organization, Turkey's National Focal Institution for Sustainable Development.

Chemicals and Waste Management sections were coordinated and prepared by the Ministry of Environment and Forestry. Mining section was prepared by the Ministry of Energy and Natural Resources and lastly, Sustainable Consumption and Production section was coordinated by State Planning Organization. Besides these thematic coordinators, Ministry of Interior, Ministry of Industry and Trade, Ministry of Transport and Communication, Ministry of Health, Ministry of Agriculture and Rural Affairs, Ministry of Education, Undersecretariat for Foreign Trade, Undersecretariat of Customs, Turkish Atomic Energy Authority, Ankara Metropolitan Municipality, Istanbul Metropolitan Municipality, Izmir Metropolitan Municipality, Bursa Metropolitan Municipality, Union of Chambers and Commodity Exchanges of Turkey, Union of Municipalities of Turkey, and Turkish Chemical Manufacturers Association provided input for this report.

CHEMICALS

CURRENT STATE OF CHEMICALS SECTOR

The development of chemicals sector in Turkey gained impetus in 1950s. Turkish chemicals industry includes petrochemical products, paints and pigments, soaps and detergents, raw materials used for textile, leather and polymer industries, organic and inorganic chemicals, plant protection chemicals, polymers and plastics, fertilizers, cosmetics, cement and industrial gases, among others..

While the chemicals sector in Turkey had a production volume of 5.2 billion USD in 1989[1], its production volume reached 17.7 billion USD in 2007[2]. During the same period, total demand[3] increased to 37.2 billion USD from 6.7 billion USD.

As against an export volume of approximately 5 billion USD in 2008, imports of chemicals and products amounted to 25 billion USD. In 2009, exports declined by 14 percent relative to the previous year and amounted to 4.3 billion USD, whereas imports declined by 21 percent and amounted to 21.3 billion USD.[4]

In the imports of chemicals, which account for 19 percent of manufacturing industry imports; synthetic rubber and plastic raw materials, products used in medicine and pharmaceuticals and primary chemicals hold the highest share.[5]

LEGAL AND INSTITUTIONAL FRAMEWORK

The responsible agencies in the field of Chemicals Management are Ministry of Environment and Forestry (MoEF), Ministry of Health, Ministry of Agriculture and Rural Affairs, Ministry of Labor and Social Security, Ministry of Transportation, Ministry of Industry and Trade, Undersecretariat of Foreign Trade and Undersecretariat of Customs, and their powers and responsibilities are outlined below.

Duties of the **Ministry of Environment and Forestry (MoEF)** with regard to chemicals management include collecting data regarding the chemicals supplied to the market; performing risk assessments; setting the classification, packaging and labeling rules; ensuring the preparation of safety datasheets; carrying out restriction and prohibition procedures; issuing regulations on the control of big industrial accidents involving chemicals; setting the environmental standards adapted to the circumstances of Turkey; monitoring the pollutants persistent in air, water and soil; establishing laboratories to perform all types of analyses, measurements and controls; and carrying out inspections.

The work on the international conventions and protocols regarding chemicals management is executed under the coordination of MoEF.

In line with the Environment Law, the initial regulations governing data collection, classification, labeling and packaging procedures and preparation of safety datasheets relating to

[1] : SPO 8th Five-Year Development Plan, Chemicals Industry Specialized Committee.
[2] : Provisional results of TURKSTAT's Annual Industry and Service Statistics survey.
[3] : Total Demand = Production + Imports – Exports.
[4] : TURSTAT's foreign trade statistics
[5] : Based on TURSTAT's 2009 foreign trade data.

industrial chemicals in Turkey are the Hazardous Chemicals Regulation (TKY) and Communiqué on the Principles and Procedures for Preparation of Safety Datasheets.

In order to ensure the updating of Hazardous Chemicals Regulation (TKY) so that it keeps up with the technical advancements, the following regulations have been published under the Project for Strengthening Institutional and Administrative Capacity in the Field of Chemicals in Turkey (TeACH):

- Regulation on the Classification, Packaging and Labeling of Hazardous Materials and Products (SAE),
- Regulation on the Preparation and Distribution of Safety Datasheet for Hazardous Materials and Products (GBF),
- Regulation on the Inventory and Control of Chemicals,
- Regulation on the Restrictions relating to the Production, Supply to the Market and Use of certain Hazardous Materials, Products and Goods (Restrictions)

Together with these regulations, a similar system has been introduced for plant protection products and biocidal products in addition to industrial chemicals.

Based on the EU Directive on the Major Accident Hazards of Certain Industrial Activities (SEVESO I) and the United Nations Environment Program / Awareness and Preparedness for Emergency at Local Level (UNEP/APELL) Manual, the Circular on Local Emergency Plan for Major Industrial Accidents was put into force on 29 July 1996.

Through the work carried out between 2004 and 2006, Draft Regulation on the Control of Major Industrial Accidents, and Safety Report and Emergency Action Plans, Public Information and Notification Guideline Documents and Supervision Communiqué for the implementation of the Regulation were prepared.

The first legislation issued in 1991 relating to the management of chemical wastes was followed by the Regulation on the Control of Hazardous Wastes, Regulation on General Principles Regarding Waste Management and Regulation on Control of Waste Batteries and Accumulators. Most recently, the Regulation on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Devices was put into force in 2008.

The issue of controlling the emission of chemicals to the air was addressed under the Regulation on the Protection of Air Quality in 1983, and in line with technical developments, the Regulation on the Control of Industrial Air Pollution was issued in 2004. In addition, the Regulation on Phasing Out Ozone Depleting Substances sets out the principles and procedures relating to the use and phase-out of certain substances controlled under the Montreal Protocol for Phasing Out Ozone Depleting Substances, to which Turkey is a party.

The "Regulation on the Control of Pollution Caused by Hazardous Substances in Water Bodies and Environs" issued in 2005 for the purpose of controlling the pollution caused by certain hazardous substances discharged to water bodies, was updated in March 2010. The prevention of the accumulation of hazardous substances in the soil was addressed in the Regulation on the Control of Soil Pollution issued in 2001.

The first legislation relating to environmental inspections was issued in 2001, and the updated Environmental Inspection Regulation aimed at increasing the efficiency of inspections was put into force in 2008. This regulation sets out the principles and procedures applicable to environmental

inspections from the start through end of operation of the facility or activity, for the protection of the environment.

With regard to chemicals management, **Ministry of Health (MoH)** executes activities relating to the market offer of biocidal products and detergents, provide services for the protection of public health as well as laboratory-based services.

In this context, MoH issued the Circular on Nitrogenous Colorants in 1994 and the Communiqué on the Specifications, Packaging and Labeling of Detergents in 2005.

With regard to chemicals management, **Ministry of Labor and Social Security (MoLSS)** is responsible for developing labor health and safety standards and norms for the workplaces where chemicals are used and identifying the vocational training needs. For the purpose of determining the threshold values of chemicals causing exposure in work environments, MoLSS issued the following Regulations under the Labor Law No. 4857 published in 2003:

- Regulation on Safety and Health Signs
- Regulation on Health and Safety Measures in Working with Chemicals
- Regulation on the Protection of Workers from the Hazards of Explosive Environments
- Regulation on Health and Safety Measures in Working with Carcinogenic and Mutagenic Substances
- Regulation on Health and Safety Measures in Working with Asbestos.

The main duty of **Ministry of Agriculture and Rural Affairs (MARA)** with regard to chemicals management is to control and inspect plant protection products and chemical fertilizers. The regulations issued by MARA relating to market offer and control of plant protection products are as follows;

- Plant Protection and Agricultural Quarantine Law No. 6968
- Regulation no. 11142 on Agricultural Pesticides and Plant Protection Instruments
- Regulation on the Licensing of Plant Protection Products
- Agricultural Pesticides Labeling Regulation
- Communiqué on the Prohibition of the Use and Market Offer of Plant Protection Products Containing Certain Agents
- Regulation on the Control of Agricultural Pesticides
- Regulation on the Wholesale, Retail Sale and Storage of Agricultural Pesticides
- Regulation on the Registration and Monitoring of Chemicals Used in Plant Production
- Regulation on Private Laboratories to Perform Quality Control Analyses for Plant Protection Products
- Regulation on the Principles and Procedures Applicable to Prescribed Sales of Plant Protection Products
- Regulation on the Control of Chemical Fertilizers
- Regulation on Chemical Fertilizers Used in Agriculture

Ministry of Industry and Trade (MoIT) is responsible for performing the necessary activities under the Chemical Weapons Convention and taking the necessary legal and administrative measures to protect consumer rights. Under the Chemical Weapons Convention and within the

framework of the Law No. 5564 on the Prohibition of the Development, Production, Storage and Use of Chemical Weapons, the "Regulation on Principles and Procedures Regarding the Implementation of Law on the Prohibition of the Development, Production, Storage and Use of Chemical Weapons and the Notification of Toxic Chemicals and Precursors and Other Chemicals" was issued in 2007.

Ministry of Transport and Communication (MoT) is regulating and implementing the principles and procedures governing the transportation of chemicals, within the framework of the management of chemicals. MoT has defined hazardous cargos including chemicals in the Overland Transportation Law, and based on this Law, has published the Overland Transportation Regulation, Regulation on Professional Qualifications and Training for Overland Transportation Activities, Regulation on Agricultural Protection Activities Performed by Airplanes and the Regulation on the Overland Transportation of Hazardous Substances.

The United Nations Economic Commission for Europe (UN/ECE)'s European Treaty on International Transportation of Dangerous Goods via Highways was signed in 2009 and Turkey became a party to the Treaty on 01 January 2010 through "Law No. 5434 on Ratification for European Treaty on International Transportation of Dangerous Goods via Highways". For the fulfillment of obligations arising from the Treaty, the Regulation on the Transportation of Dangerous Goods via Highways was issued in January 2010.

The duty of **Undersecretariat of Foreign Trade (UoFT)** with regard to chemicals management is to establish the general principles and procedures governing the import/export of chemicals as well as market regulation and supervision. In this scope, the Regulation on the Market Regulation and Supervision of Products was issued in 2002.

The duty of **Undersecretariat of Customs (UoC)** with regard to chemicals management is to control the entry and exit of chemicals subject to customs procedures and to prevent their illegal trading.

ACTIVITIES REGARDING EFFICIENT MANAGEMENT OF CHEMICALS

Risk Assessment

In recent years, it has become important to make risk assessment by determining the usage amounts and hazard characteristics of chemicals in order to strengthen preventive measures in chemicals management. Following risk assessment, international efforts have intensified for the development of management measures, ensuring limited and controlled use of chemicals harmful for human and environmental health and prohibiting the chemicals whose risks cannot be controlled, and significant modifications have been introduced in existing management systems.

In this context, the Regulation on the Inventory and Control of Chemicals prepared by the MoEF includes provisions relating to the assessment of the risks of chemicals on human health and environment, together with legal arrangements on preparing an inventory of chemicals in Turkey.

Under the Regulation on the Control of Major Industrial Accidents, the enterprises operating in Turkey are categorized according to the characteristics and quantities of chemicals they keep at their facilities. Accordingly, risk analysis and risk assessment are mandatory for the facilities categorized as high-risk facilities.

In terms of the international efforts for risk assessment, Turkey participates in and contributes to the work of OECD's Environment Directorate Chemicals Committee and Chemicals, Pesticides

and Bio-Technology Joint Working Group meetings as well as the works carried out under the Environment, Health and Safety Program managed by thee referred group.

Furthermore, the MoH provides research and control services for all types of pharmaceuticals, cosmetics, hazardous substances and products produced in Turkey or imported. The MoH has specialized laboratories for air pollution, water quality, wastewater control, soil pollution control, environmental microbiology, noise control, cleaning products, lab or hygiene and disinfectant materials/products. In addition, MoH researches the effects of chemicals and products on human health and provides help desk services on this matter.

Through the effectiveness of the regulation drafted by the MoH regarding biocidal products, the establishment of notification/registration, efficient inspection, implementation/application and appropriate labeling systems for biocidal products are planned to be completed in 2010.

Pursuant to the Labor Inspection Regulation, the MoLSS identifies the hazardous substances and processes that pose risks at work places, identifies hazards and performs risk assessments to prevent these hazards, conducts scientific and technical researches regarding the hazardous finished and semi-finished goods as well as raw materials used in various branches of industry, and prepares data for workplace measurements. The air and dust samples taken from workplaces are analyzed at the analytical laboratories of MoLSS. These laboratories analyze paints, lacquer, thinner, glues, solvents, various organic dissolvents, silicium dioxide rate in dust; identify the types of filamentous dusts; count asbestos fiber; determine the quantity of heavy metals in the air, in blood and urine, the quantity of inorganic acids and ammoniac in the air, and the quantity of formaldehyde in the air.

MARA is working on the residues of plant protection products on agricultural crops, soil and water; researching the effects of plant production products on human health and environment; conducting physiological and toxicological researches on insects, fungi and bacteria as well as eco-toxicological researches; carrying out the physical and chemical analyses of agricultural pesticides subject to registration as well as compliance controls on the samples of these products collected from the market; analyzing the dangerous impurities in their formulations and making recommendations about the compounds which are not harmful to human health.

Classification-Labeling

In ensuring the safe use of chemicals, it is important to identify the dangerous characteristics of chemicals and classify them accordingly as well as to inform the users about their potential adverse impacts and safety warnings. To this effect, arrangements have been made regarding the classification, packaging and labeling of chemicals in Turkey. The most important one of these is the Regulation on the Classification, Packaging and Labeling of Hazardous Materials and Products (SAE) which has been prepared to set out and implement the principles and procedures for controlling the hazardous chemicals and products that mix into air, water and soil and distort the ecological balance in the short or long term and which are dangerous for human health and environment.

Between 2007 and 2009, Project for Improving the Management of Hazardous Wastes Originating from Industry in Turkey was implemented in cooperation with related international organizations and the industry. As part of the project activities, a manual was prepared to classify wastes according to the Global Harmonization System, and a trainers training program was implemented on the use of this manual and classification of wastes.

Exchange of Information on Hazardous Chemicals

In line with the information collected in the Chemicals Data Bank, a List of High Quantity Substances and a Priority List will be prepared and made public through web site (www.kimyasallar.cevreorman.gov.tr).

The producers and importers who supply to the market the products qualified as hazardous due to their health impacts and physico-chemical characteristics, are obliged to provide detailed information about the chemical composition and hazardous characteristics of the product to the National Toxin Center (UZEM) under the body of MoH.

The producers, importers and distributors supplying to the market the substances and products classified as hazardous are obliged to provide safety datasheets to the professional users of these substances and products.

In order to facilitate the enforcement of the legislation on this matter, guidelines on classification, labeling and inventory have been prepared and made available to industrialists on the internet.

An e-notification system (www.seveso.cevreorman.gov.tr) has been established for the facilities having hazardous chemicals to report these chemicals to MoEF. According to the Draft Regulation on the Control of Major Industrial Accidents, a draft legislation has been prepared to require entrepreneurs and local administrations to inform the individuals and entities which may be potentially affected from a major accident on safety measures and actions required to be taken in case of an accident.

Institutions report major accidents to MoEF using an Accident Notification/Reporting Form.

The Rotterdam Convention On the Prior Informed Consent (PIC) Procedure for Certain hazardous Chemicals and Pesticides in International Trade was signed by MoEF in 1998 but has not yet been ratified yet.

The Waste Information Forms explaining the waste compositions within the framework of the classification guidelines prepared for hazardous wastes are accessible via internet (www.atikyonetimi.cevreorman.gov.trhttp://www.atikyonetimi.cevreorman.gov.tr/).

MoLSS is distributing posters, brochures and promotional books relating to the use of chemicals and hazardous sectors, to the workplaces for the purpose of informing the workers.

The National Toxin Center (UZEM) under the body of MoH was established in 1986 and provides service on a 24-hour basis. UZEM provides advisory services for the healthcare staff, primarily including physicians, and the public regarding intoxications. The center prepares posters, brochures and similar promotional materials and distribute them to all parts of the society in order to create public awareness on intoxications.

Risk Mitigation Activities

The activities relating to classification, packaging and labeling of hazardous substances and products offered to the market as well as the preparation and distribution of safety datasheets, intended to ensure efficient control and effective supervision against the adverse impacts they may cause on human health and the environment, are regulated through legislation. Thus, it is targeted to mitigate the risks that may result from the use of chemicals. Similar arrangements have been introduced for plant protection products and biocidal products as well, besides industrial chemicals.

PCT, PCB and PBB have been completely prohibited and the use of asbestos has been restricted. In Turkey, the use of asbestos has been prohibited except for the production off white asbestos (chrysotile) and production of cement pipes. Work is underway to completely prohibit the use of white asbestos in Turkey.

The hazardous chemicals which have completed their lifetime and become a waste are regarded as hazardous wastes and they must be disposed of according to the provisions of Regulation on the Control of Hazardous Wastes.

Turkey became a party to the Stockholm Convention on Persistent Organic Pollutants on 12 January 2010. Work is underway on the National Implementation Plan which must be prepared within the framework of the provisions of the Convention.

Some of the substances covered by the Montreal Protocol on the Phase-Out of Ozone Depleting Substances have been prohibited, quotas have been imposed on some of them in accordance with the phase-out timetable, and the imports of currently usable substances have been taken under control.

MoLSS is working towards improving the work environments by performing risk assessments and ambient measurements at workplaces in order to prevent occupational diseases and accidents before they occur; obtaining necessary information for the protection of health by performing labor health observations on workers; and creating awareness among employees and employers in order to create an appropriate work environment in terms of labor health and safety.

In order to create a safe work environment and protect the workers from the hazards of chemicals and explosives kept, used or otherwise processed at workplaces using general warning signs at the storages sites of hazardous substances and products at workplaces, required conditions have been stipulated in the applicable legislation.

In order to protect workers from exposure to carcinogenic and mutagenic substances and asbestos, the required health and safety measures have been regulated in the legislation, including the prevention of exposure to these substances.

It is forbidden to disperse from the air the substances harmful to human health and environment; to use the agricultural pesticides other than those specified by MARA and to apply pesticides by airplanes over urban and rural settlement areas.

Furthermore, the conditions for transporting the hazardous substances through highways in a safe and proper manner without harming human health and environment as well as the responsibilities, obligations and working conditions for those who send, receive, fill, load, unload, package, transport such substances and the operators or drivers of vehicles carrying them have been established .

Prevention of International Illegal Trafficking of Hazardous Chemicals

Commodities and vehicles are controlled and inspected within the framework of the organization and coordination of customs services and fighting smuggling.

Furthermore, imprisonments and/or fines with duration and amount specified in the applicable law are imposed on those who import the commodities whose import is prohibited by law; or who import, through fraudulent acts and transactions, the commodities whose import is subject to a license, a condition, a permit, a restriction or an eligibility or qualification certificate to be issued by certain institutions; or those who export the commodities whose export is forbidden by law or by general regulatory and administrative procedures.

WASTE MANAGEMENT

DEVELOPMENT AND CURRENT STATE OF WASTE SECTOR

Municipal Waste

In accordance with Law on Environment, Solid Waste Management Regulation, Metropolitan Municipalities Law and Municipal Law; Metropolitan municipalities and municipalities out of adjacent zones and the highest civilian authority out of these zones are responsible for ensuring the disposal of domestic and domestic-type industrial solid waste while avoiding environmental damage, ensuring the maximal use of the landfills and ensuring the classification and seperation of recyclable solid waste to contribute to the economy and taking relevant measures to ensure these.

Municipalities, while fulfilling their duties in collecting and transporting the solid waste to a great extent, can not show the required level of activity and attention in disposal within solid waste management. The great majority of the solid waste in the country are still not being disposed in accordance with the legislation. There exist many administrative, financial and technical reasons contributing to this existing situtation. Especially unsanitary disposal, errors in selection of the disposal sites and the drawbacks in administration are causing ever increasing problems.

In solid waste production, primarily the amount of waste produced should be reduced. Moreover, the need for awareness raising in households for seperation of waste at the source, to make it ready for collection, is ongoing.

Existence of many local administrative units in the same region makes it compulsory to have cooperation and coordination in solid waste services like in other infrastructural services. Local administrative union model applications, as promoted by the new legislation, come up as a facilitating bodies for realization of local-level environmental services. Within this framework, it is observed that the number of solid waste projects implemented by local administrative unions are increasing.

Solid waste in Turkey is generally discharged to unsanitary landfill sites in an uncontrolled manner.

Medical institutions are paying due attention on seperation of medical waste from other solid waste at its source, transportation and temporary storage. Equally, municipalities as well have made progress in proper disposal of the medical waste. Yet bearing these in mind, many municipalities could not establish disposal sites adequate in number and technical aspects to date.

Studies on establishment of a nation-wide effective solid waste management system have been initiated. In this regard, Solid Waste Master Plan for the domestic-type waste is completed and further studies are ongoing for development of the National and Regional Waste Management Plan for other waste types.

“Solid Waste Master Plan Project”, implemented under coordination of Ministry of Environment and Forestry (MOEF) and Undersecretariat of State Planning Organization in 2006, has aimed at establishment of unions between municipalities for solid waste disposal across Turkey, development of economically sustainable Regional Solid Waste Facilities and

ensuring the implementation of the projects within a plan. As foreseen by the relevant legislation, plans are developed for the establishment of sanitary landfill sites, reduction of amount of produced solid waste, ensuring recycling, reduction of solid waste transport costs and use of transport sites equipped with appropriate technologies where deemed necessary; 16 type of projects are developed in this regard so as to provide guidance to municipalities.

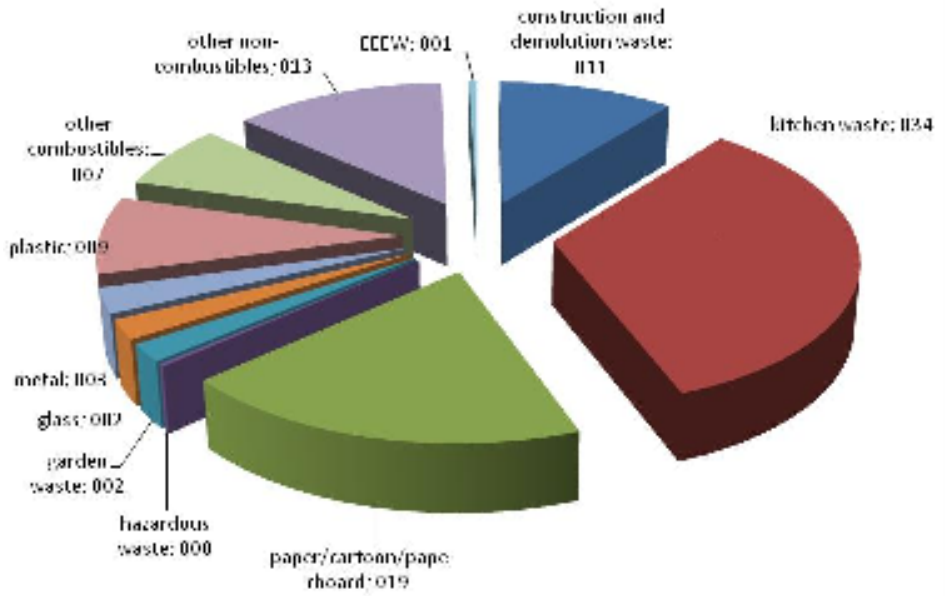
MOEF's estimation of domestic solid waste production in 2008, calculated through per capita waste estimates, is 26,8 million tons. 13,3 million tons of these wastes are disposed in sanitary landfills while 0,3 million tons are processed in compost facilities.

The number of sanitary landfill sites in operation have risen to 41 by 2009.

MOEF have carried out various regional fieldwork in 2006 in order to determine the domestic waste composition of households in Turkey in addition to solid waste surveys sent to cities that are representative of Turkey, including 16 metropolitan municipalities. In the light of the fieldwork and declared information on composition, solid waste projections are calculated for the use of all municipalities.

The outcome of these studies as 2008 municipal waste composition is shown in Figure 1.

Figure 1: Composition of domestic waste (2008)



Packaging Waste

Necessary legal and technical arrangements are established in order to reduce the environmental pollution caused by the packaging waste as an important component in the solid waste in the country and to recover these as economical assets.

In accordance with the Control of Packaging Waste Regulation, packaging material producers are obliged to submit "Packaging Material Producer Application Form" and the market providers are obliged to submit "Market Provider Application Form" to the Ministry

annually. Within the system defined under the regulation, since municipalities are responsible for waste collection as defined in Law on Metropolitan Municipalities and Law on Municipalities, responsibility of seperation of the packaging waste at the source and its transportation are also given to province and district municipalities.

Seperate collection of packaging waste at the source can be done through service procurement as well as being able to be carried out by the province and district municipalities themselves. In accordance with the regulation; collection, transportation and recycling of the packaging waste is prohibited for those except the licensed enterprises. Municipalities are responsible for developing packaging waste management plans which define how, when and in which way packaging waste will be collected and are obliged to carry out their work in this scope. Approval of the plans, prepared within the scope of packaging waste management plans format and submitted to MOEF, has started for the first time in 2008.

Medical Wastes

Wastes produced in medical institutions are classified as medical wastes, hazardous wastes, domestic-type and packaging wastes; these are seperated without mixing at the source and collected with special bags and boxes. In compliance with the regulation; medical wastes must be collected at the source in red-colored special bags with signs of "International Biohazard" and "Caution! Medical Waste" seperately. Cutting and perforating wastes, as a sub-group of medical wastes, must be collected seperately from other medical wastes in special boxes with the same caution signs made out of special plastic or laminated cardboard.

Wastes collected in medical institutions must be stored in temporary waste storage or containers until they are collected by the municipality.

Transportation of medical wastes from temporary storage sites and containers as well as small sources to disposal sites are being carried out by entities and enterprises as authorized by the municipalities.

According to 2006 data of Ministry of Health, the total number of hospitals in Turkey is 1.204 with a total number of available beds in these hospitals being 173.421. Calculations made taking into consideration of the occupancy rates according to cities reveal a daily estimate of 250 tons and an annual estimate of 91.323 tons of medical waste produced in ambulatory treatment and inpatient treatment institutions.

Medical Waste Control Regulation paved the path for implementation of alternative disposal technologies for the disposal of medical waste in Turkey. In this framework, MOEF has instructed the municipalities to handle domestic solid waste and medical waste disposal in an integrated manner, to consider the medical waste disposal as a component and to prioritize sterilization as the best means of intermediate processing method as per country's circumstances. 12.681 tons of medical waste, corresponding to 14% of the total medical waste is sterilized and made innocuous by September 2008. Medical waste sterilization facilities taken into operation in 2008 is presented. Project design and licensing works are ongoing in many cities except these forementioned facilities.

Waste oils

An approximate amount of 1,5 million tons of vegetable oil is consumed in Turkey annually. It is estimated that 150-300 thousand tons of fried waste vegetable oil is produced especially after frying processes. Used waste vegetable oils are causing 25% of the domestic wastewater pollution. Municipalities are given the responsibility for the collection of used frying oil from the residences as of 2008 in compliance with the regulations and in order to

prevent contraction and clogging in wastewater collection systems (sewerage, collectors, etc.) caused by waste oils.

Currently, works on establishment of a system for collecting and processing waste oils are already ongoing. These works carried out under the provisions of Waste Oil Control Regulation are performing registration of waste oil producers, determination of waste oil types and quantities produced in various sectors in Turkey, transportation of waste oils, licensing of recycling and disposal facilities as well as control of the activities of these facilities and determination of illegal practices.

There are 21 enterprises licensed by MOEF to recycle waste oils. These enterprises' monthly activity reports and collected waste oil quantities as well as the quantity of sales of the products reclaimed through recycling, efficiency of recycling and wastes incurring as a result of recycling processes are evaluated and registered by MOEF.

Production of biodiesels from waste vegetable oils are predicated on with the regulation and licensing was made in this direction.

As the quantity of collected waste oils increase, illegal waste oil markets and uncontrolled use of these waste oils will be forestalled.

An environmentally-aware use of waste oils for energy recovery as an additional fuel in cement factories is encouraged. However refinement and regeneration of waste oils are more prioritized. Thus the aim is set at increasing the number of recycling and regeneration facilities and improvement of the conditions of 21 currently operating facilities.

Waste Oils Management Project is aimed at collecting and waste engine oil used in motor vehicles by licensed and authorized crews in proper manners in car service stations, oil stations and public vehicle maintenance stations; and ensuring processing of these with avoiding harm to nature or humans and establishment of appropriate collection system, determination of oil producing sources and awareness raising. The amount of collected waste engine oil and collection points have increased gradually since the initiation of the work in May 2004 and expanded to whole country.

Within the scope of these studies, 65.299 tons of waste engine oil is collected from 6.426 waste oil producers in a total of 79 provinces by paying 48.416 visits in 5 year timespan including October 2009 and these are recycled in licensed facilities either as product or energy. The number of enterprises contributing to organization is 85 and the quantity of engine oil served to market by these enterprises in 2008 is 199.835 tons.

63% of the waste oil collected in 5 years was collected from car service stations while 15% from industrial car parks, 11% from public institutions, 4% from municipalities, 5% from oil production facilities and 1% from the oil stations.

Waste Batteries and Accumulators

The responsibility of collection, transportation, recycling and disposal of waste batteries and accumulators lies with the producers. In order to ensure seperate collection of waste batteries from the domestic solid waste, a waste battery collection obligation is introduced for battery producers and exporters as per their quotas. An obligation is introduced for accumulator producer and exporters to collect waste accumulators as per defined deposit rates.

The responsibility for seperate disposal of waste batteries from domestic wastes lies with the municipalities. Allocation of land for waste battery storage sites with impervious

conditions, of which the establishment and operational costs will be born by battery producers, is also among the role and responsibility of the municipalities.

Annual amount of batteries supplied to market in Turkey is approximately 10.000 tons while annual amount of accumulators is 74.000 tons. Within the scope of inventory studies realized under the framework of regulation, total amount of registered waste batteries equals 200 tons, total amount of waste accumulators equals to 45.476 tons in 2007. Total amount of waste accumulator collected in accordance with the regulation corresponds to 67% of the accumulators supplied to the market in 2007, total amount of collected waste batteries corresponds to 2% of the batteries supplied to the market in 2007.

Hazardous Waste

Due to the priority given in the current state to production, product quality and costs given in production industry in Turkey, waste reduction and recycling maintained a secondary role. However developing environmental protection awareness over time, legal sanctions, difficulties faced in waste disposal and most importantly increasing significance of environmental protection measures in production in international trade have placed use of clean technologies and waste reduction in an important position.

Efforts for reuse and recycling of hazardous wastes often focus on wastes that require simple technologies for collection and disposal. The most striking example of this could be recycling of barrels and silver. Waste markets are established under the chambers of commerce, by Union of Chambers of Commerce and Commodity Exchanges of Turkey (TOBB) with the support of MOEF, in order to reduce the amount of industrial waste and allow their reuse.

As of 2008, there are 3 disposal facilities in Turkey for hazardous waste through incineration. Capacities of these facilities are inadequate in meeting the needs of industry. Except these, a pilot scale facility which received license for recycling hazardous wastes through gassification with a capacity of 29.000 tons/year is put into operation in İstanbul Kemerburgaz. Moreover some cement factories are accepting hazardous wastes as alternative fuels for purposes of energy recovery. Due to technological inadequacy of stack gas treatment systems in cement factories in eliminating stack gases that are produced as a result of hazardous waste incineration, these factories are only able to accept certain types of wastes. Among these are used tyres, I. and II. category waste oils, paint sludge, solvents, plastic wastes etc. Energy recovery license is being distributed to allow the use of hazardous waste in cement kilns as an alternative fuel with 24 facilities already in possession of this license. Some of the hazardous wastes are also exported to be disposed in incineration facilities abroad.

Production industry in Turkey is annually producing more than 20 million tons of waste. Approximately 1.12 million tons of this amount is made up of hazardous wastes. 8% of this amount is being recovered, 47% is being disposed and 45% is being reused.

Approximately 80% of the established capacity of 6 facility licensed by MOEF for the disposal of industrial waste is currently in use. 5.586 tons of ash and slag coming from incineration facilities are disposed in sanitary landfills.

Provision of services by hazardous waste facilities in regions of high population density and high industrialization rates in Turkey is advantageous both in terms of costs, utility and to keep the environmental loads at minimum.

INSTITUTIONAL FRAMEWORK

According to the constitution of Republic of Turkey; improving environment, preventing environmental pollution and protecting environment is a duty of all public institutions and citizens.

Institutions responsible for waste management as per their fields of work are as follows.

1. **Ministry of Environment and Forestry (MOEF):** The main duty of MOEF is to define policies and principles in most general terms aiming at protecting the environment, preventing and reducing pollution, organizing the relevant legislation and ensuring its implementation.

   Responsibilities of MOEF in terms of waste management: These can be summarized in terms of preparation of by-laws and national regulations, producing policy and strategy for waste management, organization of nation-wide actions on waste management, research, coordination of waste management plan preparation, taking precautionary measures, defining technical standards, licensing, monitoring, regulation, keeping track of given licenses, data collection, exportation of wastes, release of permits regulating hazardous waste import and transportation of these wastes over Turkey and ensuring the continuation of trainings.

2. **State Planning Organization (SPO):** Undersecretariat of SPO under Prime Ministry is responsible for preparing Development Plans, medium-term and annual programmes and annual investment plans. In this regard, SPO is developing macro policies for waste management and taking relevant measures to ensure coherence of legal and institutional arrangements with these policies. Moreover, the projects of central administrative institutions and the projects of municipalities that need foreign loan are appraised by SPO and the feasible one are included into public investment portfolio.

3. **Undersecretariat of Treasury:** It has a role in following up and finalizing credit negotiations where external financing is provided for the waste related projects.

4. **Ministry of Health:** It has a role in monitoring and ensuring coherence with respect to its mandate on public health.

5. **Ministry of Interior:** It is responsible in the process with respect to its mandate in developing, monitoring and controlling policies regarding local authorities.

6. **Ministry of Finance:** Ministry of Finance is responsible for tax arrangements, tax collection and follow-up. As regards this, it is responsible for preparing the legal arrangements for financing the waste management.

7. **Ministry of Industry and Trade:** It is responsible for supporting and controlling establishment of large and small scale industries, preparing standards for industrial products or publishing prepared standards, controlling the quality of industrial assets or to get this control done.

8. **Directorate-General of Bank of Provinces:** It is providing technical support to municipalities for the solid waste projects run by municipalities. It provides financing for solid waste management projects on municipality's request and be a credit guarantor.

9. **Ministry of Transport:** It is responsible for establishment and development of transport and communication systems and services as per country's needs. Authorization documents for waste transportation is given by Ministry of Transport and Communication.

10. **Turkish Standards Institution:** Among other responsibilities, it is responsible for preparing standards for waste management services.
11. **Local Authorities:** The most important task on protection of environmental quality is given to local authorities. Local authorities, also entrusted with the task of waste management within the framework of laws and regulations, are obliged to ensure the implementation of legal arrangements and take appropriate measures for ensuring a healthy environment for citizens to live within their territories of responsibility.
12. **Sectoral Unions:** Union of Chamber of Commerce and Commodity Exchanges of Turkey, Union of Chambers of Turkish Engineers and Architects, Chambers of Commerce, Chambers of Trade and sectorally established bodies like Turkish Cement Manufacturers' Association, Union of Lime Producers are responsible for delivering information and carrying out studies on enforcement and control on issues like sectoral approaches to implementation of the legislation.

LEGAL FRAMEWORK

The most important aspects of provisions of laws related to waste is summarized below:

Law on Environment no. 2872: Article 8 - "It is prohibited to discharge all sorts of waste and residue directly or indirectly into receiving environment, storing them or being engaged in a similar activity."

Law on Amendments in Law on Environment no. 5491: Amendment in Article 11 - "Metropolitan municipalities and municipalities are responsible for establishing domestic solid waste disposal facilities, ensuring their establishment, operating them or ensuring their operation.

Those who benefit or will benefit from this service are liable for sharing the costs of investment, operation, maintenance and improvement to be carried out by responsible authorities.

Municipality collects solid waste collection, transportation and disposal fees from those who benefit from this service in accordance with the tariffs to be decided upon by the municipal council.

The fees collected in relation to this clause can not be used for services other than those related to solid waste"

Law on Metropolitan Municipalities no. 5216: Article 7 - "...planning solid waste management, ensuring its planning; providing services for revalorizing, storage and disposal of the solid wastes and excavation residues other than seperation of solid waste at the source and its transportation until transfer station and to establish facilities for their fulfillment..."

Municipal Law no. 5393: Articles 14 and 15 - "...carrying out or ensuring accomplishment of collection of solid wastes, their transportation, seperation, recycling, disposal and storage..."

Law on Municipal Revenues no. 2464 (ÇTV): Article 97 - "Waste producers' participation to waste management services is ensured with polluter-pays principle."

Turkish Penal Code no. 5237 : With articles 181 and 182, penalties are established regarding polluting the environment with intent or negligence, penal sanctions up to jail sentences are foreseen for the responsibles.

SIGNIFICANT SECTORAL POLICIES

Waste problem is accepted as a priority for Turkey and policies are being developed to overcome this problem.

Development plans are the main tools for coordination of public policy in Turkey. In this regard, plans are one among the main policy documents on solid waste.

Significant policies regarding solid waste management, as they are reflected in 9th Development Plan, are given below:

"In domestic type solid waste management, seperation, collection, transportation, recycling and disposal phases will be considered as a whole in technical and financial terms; sanitary landfill method with low investment and operational costs as the most suitable solid waste disposal technology will be preferred.

Production of non-domestic wastes will be reduced, collection relevant to waste type and country's circumstances, transportation, recycling and disposal systems will be established.

In order to identify the urban infrastructure needs regarding environmental protection across the country, urban infrastructure master plan and financing strategy will be prepared to define the municipalities' needs for infrastructure like drinking water system, sewerage, wastewater treatment plant and solid waste disposal.

Capacities of the municipalities will be developed in terms of planning, project design, implementation and operation of environmental infrastructure services.

Technologies and systems that are most suitable to country's circumstances will be preferred in establishment, maintenance and operation of water, wastewater and solid waste infrastructure aiming at environmental protection.

Financial and technical consultancy services that will be provided to municipalities for urban infrastructure investments will be activated.

Through using environmentally friendly techniques in the industry, more efficient production will be achieved by increased efficacy of raw material use and thus wastes will be reduced."

RELATION OF THE SECTOR WITH SUSTAINABLE DEVELOPMENT

Increase in production followed by increase in consumption brought an increase in life standards of the society along with an increased amount and changed composition of solid waste. Elimination of generated solid waste with least damage to environment especially became a major problem for the big cities. Solid waste management which covers control of urban solid waste and works regarding introducing healthy and economical solutions to this issue have taken its place among development priorities as regards providing services with international standards to urban citizens and protection of environmental quality.

Policies aiming at preventing and reducing hazardous waste

Considering the waste management hierarchy, it is evident that waste reduction and prevention will enhance the lifetime of sanitary landfills. Thus there are ongoing works to reduce the amount of materials that give waste a hazardous waste character. For example; works on reducing the carbon amount existent in electronic wastes are proceeding. On the other hand, some restrictions are introduced with regulations on use of heavy metals in

batteries. Additionally, in a booklet published on domestic hazardous waste, hazardous materials used in households are defined and their non-hazardous substitutes are presented to the general public.

Environmental protection awareness which actively developed after 1993, legal sanctions, difficulties in waste disposal and most importantly increased importance of the production related environmental protections measures in international trade have placed use of clean technologies and waste reduction in an important position.

Efforts in reuse and recycling of hazardous waste are concentrating on wastes that require simpler technologies for their collection and use. Waste markets established in the country, which are enabling recycling, need to be improved.

Especially in chemicals sector in Turkey, there are trainings open to everyone as organized by trade associations and chambers of commerce. These trainings specifically focus on transmitting knowledge and applications of waste management systems, development of waste management plans and waste reduction for small and medium-sized enterprises.

Recycling and Recovery Facilities

Licensing of enterprises for seperation and recycling of packaging material waste was first initiated in 2003. In the four year period between 2003 to 2007, the number of licenses given to seperation facilities by MOEF reached 81 and that of recycling facilities reached 56. Among the licensed recycling facilities, 18 are paper, 6 are glass, 55 are plastic, 3 are metal and 2 are composite wastes recycling facilities.

According to 2007 data, there are 52 facilities which recover hazardous wastes especially through recovery of energy and solvents. Total capacity of hazardous waste recovery facilities are approximately 800.000 tons/year and their existing used capacities are approximately 121.000 tons/year.

There is a total of 13 facilities that carry out recovery of lead from waste accumulators dispersed in 10 cities.

Ankara, İstanbul and Bursa are the cities that have ongoing works regarding the use of landfill gas from sanitary landfills in Turkey. Gaziantep Metropolitan Municipality has also started studies in this regard.

Radioactive Wastes and Environmentally Conscious Management

The only low-level radioactive waste processing facility in Turkey was established in 1989. Primarily, equipment containing radioactive components are supposed to be sent to country of origin for disposal however in the case of unavailability of this transfer, equipments are required to be handed in to the forementioned facility. In such a case, transportation process should be realized through companies with radioactive waste transfer license or under the liability of the responsible staff for protection from radiation, working for companies which hold license to use and maintain radioactive equipment in full compliance with the relevant regulation.

Transfer responsible of the companies with radioactive waste transfer license or the responsible staff for protection from radiation of the companies with radioactive equipment use and maintanance license are liable for transport safety and security of the transferred material during each radioactive waste transport, packaging, loading, unloading and during the transfer of radioactive waste.

MINING

CURRENT STATE OF MINING SECTOR

Turkey, with respect to geological structure on which it rests, is one of the few countries in the world which can satisfy an important share of its raw material demand thanks to its diversity of mine ores.With respect to mine ore diversity and reserves, it is enlisted in 28th position in terms of total mining production and 10th positionin terms of mine ore diversity out of 132 significant countries known for mining throughout the world.

The share of mining sector in Turkey's GDP was 1.4% as of 2008. Inclusion of glass, ceramics, cement and iron-steel industries in GDP calculation increases the estimates for the real value of mining sector as share in GDP to 9-11%.

The share of fixed capital investments of mining sector in total fixed capital investments were at 1.89% in 2004, 1.80% in 2005, 1.81% in 2006, 1.77% in 2007 and 1.70% in 2008. In 2008, 2.6 billion Turkish Liras (TRY) worth of total fixed capital investment in mining was realized by private sector while 646 million TRY was realized by public sector.

With about 20 national companies with foreign shareholders in mining, which is a labor-intensive sector, a total of 137.726 people are employed in 9137 facilities including the subsidiary industries, mine pit operations, facilities and subsidiary facilities, workshops and seasonal workers in 2008. The most important contribution of foreign capital based companies in mining is incoming technology as well as providing sufficient risk capital investedin the country for mineprospecting activities.

Table 1: Main Indicators on Mining

	2007	**2008**
% Share in GDP	1,2	1,4
% Increase in Production (2005=100)	8,3	7,5
Exports(million $) (with spot rates)	1.661	2.155
% Increase in exports	45	29,7
% Share in total exports	1,5	1,6
Imports (million $) (with spot rates) (*)	3530	4.541
% Increase in imports (*)	25	29
% Share in total exports (*)	2	2
Import of crude oil-natural gas (million $) (with spot rates)	21.784	31.109
% Share in fixed capital investments	2,87	1,76 (1)
Public investment (million TRY)	651	928 (1)
Private sector investment (million TRY)	2.470	2.842 (1)
Number of established enterprises	1.198	953
Number of closed enterprises	85	105
Number of license applications	17.669	17.297
Prospecting	11.720	11.075
Operation	1.565	1.967
Total number of license distributed	13.285	13.042

Resource: Programme for 2010, (1)Estimated, (*) Excluding crude oil and natural gas

LEGAL AND INSTITUTIONAL FRAMEWORK

As regards Article 168 of Constitution of Republic of Turkey and Article 4 of Mining Law; mines are under the authority and disposition of the state and are not subject to

landownership. Right to prospect and operate rests with the state.State may transfer this right toreal and legal entities for defined periods of time.

As regards Article 6 of Mining Law; mining licenses are given to Turkish citizens who are able to practice their civil rights, companies with legal entities established in compliance with the laws andwhose registered status includes mining activities, public economic enterprises and their companies, their related partnerships and associates, other public institutions and administrative bodies and real or legal persons.

Companies established under foreign law are not able to receive license under this provision, yet companies with foreign capital can either establish a new company under Turkish Trade Law or can get license through purchasing the shares of an existing company.

All mining rights regarding mining operations and compliance, control and supervision are given to Ministry of Energy and Natural Resources (MENR) with Mining Law. Moreover responsibilities regarding prospecting for operation, licensing, supervision and evaluation of the projects for mines,which areunder the authority and disposition of state rest with MENR. Additionally, licenses for some mining activities are given by special provincial administrations and by municipalities in adjacent regions.

INCENTIVES

As regards Article 9 of Mining Law, mining activities are entitled to incentives as defined by the Council of Ministers, for those who create an additional value by processing the extracted mine in their own facilities in the country, State gives up 50% of its share of mine produced in such facilities.

The total amount of investment incentives for agriculture, mining, production, energy and services sector has been 164.99 billion TRY for 2002-2008 periodwith 4.30 billion TRY of investment incentives going to mining sector in the same period.Thus the share of mining sector in total amount of incentives for the period 2002-2008 was realized at 2.6%.

SIGNIFICANT SECTORAL POLICIES

Ninth 5-Year Development Plan includes policies on introducing mining to general public, improving environmental awareness and sustainable development approach, improving R&D infrastructure and increasing efficiency, improving the quality of labor force in the sector,increasing the enterprise and facility sizes and promoting mining operations abroad.

MINING AND THE ENVIRONMENT

Mining works cause a little or a significant impact on the environment starting from its mine prospecting until the end of the process regarding the characters of natural and cultural environment,type of mine and mining pit and mining technique applied. Unless appropriate measures are taken, impacts of mining activities may remain through mine drainage even after the mine pits are closed and abandoned. Regardless of the production method, mine drainage causes environmental pollution both during and after the operation.

The most important aspect in planning mining activities with a sustainable development approach should be to minimize the environmental impact while reaching the maximum production capacity. In the current state in Turkey, environmental protection activities are made legal obligations other than voluntary measures.

Regulation on Recovery of Natural Sites Degraded due to Mining Activity, which was put in force in 2007 and prepared as foreseen by Law on Environment no. 2872, was prepared to ensure the use of natural resources by maintaining protection-use balance and take appropriate measures on environmental degradation that might happen during mining activities.

As regards Mining Law, in proceeding to operation, license holders need to submit "Environmental Compliance Plan" with their projects. Following this, activities carried out in licensed sitesare supervised and controlled by MENR's technical staff periodically as per project and mining working type and rules. These controls, realized from the initiation until the end of mining activity, ensure that sustainable mining activity in harmony with the environment is being undertaken.In case negative impacts in environment or human health are identified, operations are halted immidiately and legal sanctions are imposed as regards relevant legislation.

In case of exhaustion of mine ore reserve, expiry of license or abandoning of the mining site due to any other reason, license holder is obliged to take relevant safety measures and make the operation site environmentally-sound according tooperational project document. Otherwise relevant works for necessary safety measures and environmental restoration of the site are undertaken by the provincial governorships and expenses related to these works are billed to the license holders.

During and after mining activities, surface water, groundwater, air quality, land use, flora, fauna, human capital, archeology, natural and visual landscape may be affected depending on the activity.

Mining projects undergo an environmental impact assessment (EIA) procedure before they are put into operation in order to reduce and prevent their environmental impacts.

Evaluation of the EIAs for mining activities are carried out by Ministry of Environment and Forestry (MOEF). In addition to this, controls are done on a frequent-basis in mining operationsaccording to thecomplaints received.

Mining wastes are considered as wastes which require special treatment as per Regulation on Control of Hazardous Wastes. Wastes from mining activities are identified and classified as "Wastes occuring from mine prospecting, extraction, operation, physical and chemical processing".

Regulation on Mining Activity Permits which came into force in 2005 states that "Mine wastes are among the wastes that require special treatment. Regulation regarding management of mining wastes will be jointly produced by MOEF and MENR."

OCCUPATIONAL HEALTH AND SAFETY IN MINING SECTOR

Occupational health and safety related to mining activitiesisorganized under Labor Law.In addition to Labor Law, Mining Law no. 3213 and other related sub-legislation arealso supporting occupational health and safety measures.

Supervision and control of occupational health and safety related matter in mining facilities are undertaken by Ministry of Labor and Social Security while technical, financial and occupational safety controls of mine pits are undertaken by MENR.

Mining sector, by its nature, has a specific character with respect torisks it entails and is among the heavy and dangerous sectors which require knowledge, experience, expertise and continuous supervision. This sector is among the most risky sectors in terms of occupational accidents and diseases.Thus variousstudies are ongoing in this respect.A leading

one among theseis the Occupational Health and Safety Campaign in Mining Sector realized in 2007-2008 with collaboration of Chamber of Mining Engineers. Within the scope of the campaign,seminars were organized in regions with high frequency of occupational accidents in the country. Seminars especially focused on topics like mining legislation, responsibilities of the employers, occupational inspection in mines, safety culture, risk assessment, presentation of sample occupational accidents in mining sector and preventative measures, accident statistics, relation of efficiency with occupational health and safety, pneumoconiosis disease, work-place doctorship, dust problem in mines and personal protective equipment used in mines.

SUSTAINABLE CONSUMPTION AND PRODUCTION

INTRODUCTION

The production and consumption which is becoming increasingly unsustainable with the accelerated globalization and raised living standards are leading to consequences such as climate change, degradation of natural resources, extinction risk of species and environmental damages stemming from emissions/wastes.

One of the most important elements of sustainable development approach which balances economic, social and environmental factors and which is among the key development priorities of our country is sustainable consumption and production (SCP). The SCP approach aims at adopting policies and measures such as using and promoting clean technologies, increasing environmental awareness in production and consumption and increasing efficiency in the use of resources, and ensuring a balanced economic and social development as well as mitigating environmental damages by changing the patterns of production and consumption of goods and services.

This report discusses the current state regarding SCP in Turkey, national policy priorities and legal arrangements, measures taken and progress in implementation.

SUSTAINABLE CONSUMPTION AND PRODUCTION IN NATIONAL POLICIES, PLANS AND STRATEGIES

Principles relating to SCP are addressed in many policy documents at different levels and forms.

SCP in the Ninth Development Plan (2007-2013)

Development Plans, which are normative for the public sector and guiding for the private sector have a strategic structure that lays down a macro framework, increases predictability, emphasizes the institutional and structural arrangements that will enable more efficient functioning of the system and focuses more on basic objectives and priorities. The multi-sectoral and integral structure of Ninth Development Plan, which has been prepared through a wide participation of public agencies and organizations as well as various sectors of the society including the NGOs, constitutes the main basis for the planning and programming work on many topics in the country.

The Plan is a key policy document that lays down the transformations Turkey will undertake in economic, social and cultural areas with an integrated approach. In this respect, the Development Plan ahs a guiding function in the policy development and implementation process. In this context, the key objectives included in the development plan regarding SCP are outlined below:

i. The conditions for protection and utilization of natural resources will be determined by taking the needs of future generations into consideration. Environment management systems will be established in order to ensure equitable utilization of natural resources by everyone.

ii. Fulfillment of international obligations will be realized in the framework of the principle of sustainable development and the principle of common but differentiated responsibility.

iii. In the sectors sensitive to environment, especially agriculture and tourism, ecological potential will be utilized and protection-utilization balance will be considered.

iv. More efficient production and less waste will be achieved by increasing the effectiveness in raw material use with the implementation of environment friendly techniques in industry.

v. Efficient use of water resources of the country will be ensured by reducing losses and illegal uses in existing water supply facilities.

vi. The works, which were started to make regulations and establish an administrative structure in Turkey related to the allocation, use and improvement of water resources as well as protection against pollution will be completed.
vii. Protection of ground and surface water resources from pollution will be ensured and use of treated wastewater in agriculture and industry will be encouraged.
viii. The technical and financial assessment of separation at the source, collection, transportation, recycling and disposal stages will be done as a whole in domestic solid waste management. Landfills, which are solid waste disposal technology that have low investment and operation costs and is most suitable for the conditions of the country, will be preferred.
ix. Production of non-domestic wastes will be reduced and collection, transportation, recycling and disposal systems that are suitable for the type of the waste and conditions of the country will be established.
x. Achieving food security and safety and sustainable use of natural resources will be taken into account in creating an agricultural structure that is highly organized and competitive.
xi. The main principles to be adhered in fisheries policies include determination of fisheries policies on the basis of establishing resource utilization balance in fishery production by conducting stock assessment studies in line with the EU acquis, ensuring environmental sustainability in agriculture activities in parallel with the increasing demand and the recently provided supports, and establishing the required administrative structure in compliance with these goals.
xii. Sustainability of growth will be ensured by considering the consistency of the industrial and environmental policies. In industry, production will be in compliance with human health and environmental rules and importance will be given to social responsibility standards.
xiii. Poverty and inequality in income distribution will be reduced permanently through sustainable growth and policies regarding employment, education, health and working life. Individuals and groups, who are under the risk of poverty and social exclusion, will be included in the economic and social life and their life quality will be improved.
xiv. It will be ensured that the operation and management of irrigation infrastructure is realized with participatory mechanisms, programs targeting producers will be implemented for efficient and sustainable utilization of soil and water resources.

National Program of Turkey for the Adoption of the EU Acquis (2008)

The most important project that will help Turkey attain the level of modern civilization is full membership to the European Union (EU). Turkey's aspiration of integration with the EU is a social transformation project. It is a reform movement that requires radical changes in all parts of life from production to consumption, health to education, agriculture to industry, energy to environment and justice to security and will elevate the country to universal standards and practices.

The accession process that has been started within the framework of integration with the EU involves efforts to harmonize Turkey's national legislation with the EU acquis in 33 chapters.

National Program of Turkey for the Adoption of EU Acquis (National Program) covers the steps planned to be taken in the process of Turkey's accession to the EU in the short and medium terms. The National Program has been prepared to establish the key principles and elements of works to be carried out in this field.

The National Program includes a timetable for harmonization with the legislation outlined below with regard to SCP:

- ***By-Law on Control of The Waste Electric and Electronic Equipment***

Ensuring recycling, recovery and disposal of the waste electric and electronic equipment.

- ***By-Law Amending the By-Law on Control of Used Batteries and Accumulators***

Establishing the principles, policies and programs; to ensure the production of batteries and accumulators having properties which do not harm the environment and human health, to prevent the discharge of these products directly or indirectly to any receiving media, to establish collection systems for the disposal or recovery of waste batteries and accumulators and to prepare the respective management plans. Introducing provisions on the marking and labeling of batteries and

accumulators, restriction and prohibition on their production and export, separate collection, transport, recycling and disposal of waste batteries and accumulators from household wastes.

- ***By-Law on the Control of Pollution from the Volatile Organic Compounds***

Determination of principles and procedures for the control of pollution from the Volatile Organic Compounds.

- ***Legislations regarding Voluntary Participation of Organizations in Community Eco-Management and Audit Scheme (EMAS)***

Establishment and implementation of Environmental Management Systems by organizations.
Evaluation and improvement of the environmental performances of the organizations.

- ***By-Law on the Classification, Packaging and Labeling of Dangerous Substances and Preparations***

The scope of this By-law is to regulate the detailed rules and principles for classification, labeling and packaging of dangerous substances and preparations placed on the market for effective control and efficient surveillance in order to protect the man and the environment against their negative effects.

- ***Legislation on Import and Export of Dangerous Chemicals***

Development of detailed rules and principles on import and export of dangerous chemicals.

- ***By-Law on Biocidal Products***

Before placing on the market, assessment of risks of biocidal products on human, animal and environment, determination of implementation procedures and principles on production of biocidal products, custom manufacturing, import, classification, placing on the market, private usage methods and inspection of biocidal products, determination of procedures relating to authorized products.

- ***Legislation on Persistent Organic Pollutants***

Raising public awareness on persistent organic pollutants and elimination and disposal of persistent organic pollutants and contaminated equipments.

- ***By-Law on Integrated Pollution Prevention and Control (Integrated Environmental Permit)***

Control of the pollution from major industrial plants with an integrated approach at the source.

- ***By-Law on Eco-label***

To promote environmentally friendly products to contribute to the efficient use of resources, and by giving guidance to provide accurate, non-deceptive and scientific information to consumers on such products.

- ***Framework Water Law***

Fulfillment of legislative gaps and correction of complications occurred during implementation.

- ***By-Law Amending the Implementing Regulation on the Protection of Waters Against Pollution Caused by Nitrates from Agricultural Sources***

Determination and reduction of the pollution in surface and ground waters caused by Nitrates from Agricultural Sources and preventing probable future pollution risk.

- ***Law on Nature and Biodiversity Protection***

Conservation of natural values, biodiversity and genetic resources of Turkey and ensuring their sustainable use on a plan basis considering the balance between the conservation and use ; contributing to sustainable development of Turkey for present and future generations; providing a system of protected areas network, with designation criteria and management responsibilities for the protection of Turkey's biological diversity; ensuring continuity of ecosystems, species and their habitats and biological functionality; ensuring protection of the characteristics and beauty of nature and biodiversity and recreational resources; ensuring protection of non-living natural assets and assets along with cultural values and landscape of the Country.

- ***Bio-safety Law***

Establishing, developing, implementing and managing the bio-safety system as an entire system to address bio-safety issues to ensure the advance determination, inhibition and/or minimizing, and controlling unforeseen possible adverse effects of GMOs and products thereof that are developed by using modern biotechnology, consistent with the Cartagena Protocol on Bio-safety and EU legislation.

- ***By-Law on Strategic Environmental Assessment (SEA)***

In order to provide protection and sustainable use of environment, sustainable development principles have to be integrated at the preparation phase of plans and programs which may have possible important effects on environment.

- ***Law on Environmental Liability***

According to polluter pays principle, the facilities whose activities cause environmental damage, to be liable for preventing and remedying this damage financially, related with this subject, bringing together various articles already existing in our legislation and setting new articles.

- ***Legislation on the Eco-design Requirements for Energy-Using Products***

Integration of certain criteria which contribute to the protection of the environment at the design stage of products within the scope of the related EU Directive.

- ***Law on the Extension of Use of Bio-fuels***

Aims at promotion of the use of bio-fuels produced from domestic agricultural products within the perspective of full membership to the EU.

SUSTAINABLE PRODUCTION AND CONSUMPTION IN SECTORAL STRATEGIES

National Environment Strategy and Action Plan

The vision of National Environment Strategy is defined as "With the development of National Environment Strategy, Turkey will become a country where the basic needs of today's and future's generations will be met, the quality of life is raised, bio-diversity is preserved, natural resources are managed rationally through sustainable development approach, and the right to live in a healthy and balanced environment is observed."

The principles of National Environment Strategy include; a) taking into consideration environmental protection concerns in sectoral policies like industry, agriculture, energy, transportation and energy, b) performing activities in a manner that causes minimum change in the environment, creates minimum risk for human health and environment, pollutes the air to the minimum extent and recycles the used products, c) using natural resources in a sustainable manner.

The strategy's most important sub-objectives include; achieving an environmental management that ensures equitable and healthy access to natural resources by observing the needs of future generations and establishing the projection/usage conditions of natural resources; ensuring the integration of environmental policies with economic and social policies; utilizing the economic instruments for environmental protection; providing necessary incentives and improving financing facilities; carrying out infrastructure and other investments; and observing environmental protection in all processes from production through consumption.

Turkish Industrial Policy (Towards EU Membership) (2003)

The basic goals of the Turkish Industrial Policy document prepared in 2003 include creating an industrial structure that mobilizes local resources to the extent possible; produces in compliance with environmental norms; observes consumer health and preferences; uses highly qualified labor force; applies the strategic management approach; attaches importance to R&D; produces technology; creates original design and brands and takes its place in international markets.

In the document's section regarding sustainable development, it is stated that the fundamental objective is to ensure economic and social development by protecting human health, ecological balance, cultural, historical and aesthetic values, and emphasis is put on the goal of prioritizing environment friendly technologies in the formulation of industrial policies and new industrial investments as well as of informing and incentivizing local manufacturers regarding such technologies.

SME Strategy and Action Plan (2007-2009)

The SME Strategy and Action Plan states that the public opinion has become more sensitive regarding the prevention of environmental pollution and protection of natural resources all around the world, leading to the preference of enterprises producing and products produced without harming the environment, and in this direction, SMEs have to integrate an operational culture based on environment friendly production in order to preserve their competitiveness. Furthermore, the strategy suggests that the ability of enterprises to fulfill their environmental obligations requires the adoption of policies for environmental protection, production activities compliant with environmental standards and legislation and minimization of environmental impacts by using environmental friendly technologies.

LEGAL FRAMEWORK

The list of legislation that includes important provisions regarding SCP in Turkey is presented below:

- Environment Law
- By-Law on Water Pollution Control
- By-Law on the Control of Pollution Caused by Hazardous Substances in Water and Environment
- By-Law on General Principles of Waste Management
- By-Law on Control of Solid Wastes
- By-Law on Control of Hazardous Wastes
- By-Law on Control of Waste Oils
- By-Law on Control of Waste Vegetable Oils
- By-Law on Control of Used Batteries and Accumulators
- By-Law on Control of Package and Packaging Wastes
- By-Law on Hazardous Chemicals
- By-Law on the Restrictions relating to the Production, Supply to the Market and Use of certain Hazardous Materials, Preparations and Goods
- By-Law on the Inventory and Control of Chemicals
- By-Law on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Devices
- By-Law on the Phase-Out of Ozone Depleting Substances
- By-Law on the Reduction of Sulfur Rate in Certain Fuel Types
- By-Law on Environmental Inspection
- Energy Efficiency Law No. 5627
- By-Law on Increasing Efficiency in the Use of Energy Resources and Energy,
- Law on the Use of Renewable Energy Resources for Electricity Generation Purposes,
- By-Law on the Energy Labeling of Home Appliances,
- By-Law on Energy Performance in Buildings
- By-Law on Heat Isolation in Buildings
- By-Law on the Implementation Principles for the Introductory and User Manuals of Home Type Electrical Refrigerators, Freezers and Their Combinations
- Communiqué regarding the Energy Labeling of Home Type Electrical Refrigerators, Freezers and Their Combinations (94/2/AT)
- By-Law on the Energy Labeling of Home Type Air Conditioners (2002/31/AT)
- Communiqué regarding the Energy Labeling of Home Type Dish Machines (97/17/AT)
- Communiqué regarding the Energy Labeling of Home Type Washing Machines (95/12/AT)
- Communiqué regarding the Energy Labeling of Home Type Laundry Drying Machines (95/13/AT)
- Communiqué regarding the Energy Labeling of Home Type Washing Machines with Drying Function (96/60/AT)
- Communiqué regarding the Energy Labeling of Home Type Electrical Ovens (2002/40/AT)
- Communiqué regarding the Energy Labeling of Home Type Bubs (98/11/AT)

- Communiqué regarding the Ambient Noise Caused by Home Appliances (86/594/AT)
- By-Law on the Energy Efficiency of Fluorescent Lighting Ballasts
- By-Law on the Information of Consumers regarding the Fuel Economy and CO2 Emissions of New Passenger Cars
- By-Law on the Control of Tires that have Completed their Lifetime
- By-Law on the Principles and Procedures for Increasing Energy Efficiency in Transportation

INSTRUMENTS FOR PROMOTING SUSTAINABLE CONSUMPTION AND PRODUCTION

Sustainable Procurement Policies

As part of the EU membership process, work continues for harmonizing the public procurement procedures with the EU Acquis. In this framework, it will be ensured that environmental concerns will be taken into consideration in procurement procedures in tune with the EU Acquis.

Article 6 of Public Procurement Law No. 4734 provides that pursuant to the applicable legislation, Environmental Impact Assessment (EIA)-Positive certificate must be obtained in order to start a public procurement procedure for works requiring EIA, except for the civil works contracts which must be awarded urgently due to natural disasters.

Incentives Provided by the Ministry of Environment and Forestry (MoEF)

Within the framework of the By-Law on the Follow-Up and Collection of Environmental Revenues and the Use of Collected Funds, the MoEF provides loans or financial assistance for the supervision, feasibility, consultancy, design and civil works of wastewater treatment, waste disposal and waste recovery facilities upon request.

Incentives Provided by the Small and Medium Industry Development and Support Administration (KOSGEB)

A subsidy program has been prepared to provide KOSGEB's support for the training, study and consultancy services to be received by SMEs regarding energy efficiency. Pursuant to the Energy Efficiency Law No. 5627 and within the framework of the By-law on KOSGEB Subsidies; a subsidy of maximum 2,000 TL is provided for preliminary energy study service fees, maximum 20,000 TL for detailed energy study service fees, and maximum 10,000 TL for the consultancy services received for Efficiency Increasing Project (EIP) preparation, realization and/or operation for the first two years to SMEs.

Incentives Provided by Turkish Scientific and Technical Research Institute (TÜBİTAK)

The Environment, Atmosphere, Ground and Sea Sciences Research Group (ÇAYDAG) and the Basic Sciences Research Group (TBAG) under TÜBİTAK provide support on sustainable production within the framework of various support programs. These programs include; the Program for Supporting Scientific and Technologic Research Projects, Fast Support Program, Program for Supporting the Research and Development Projects of Public Agencies, Patent Application Incentive and Subsidy Program, Universal Researcher Program, Program for Participation in International Scientific Research Projects, Program for Supporting the Initiatives for Establishing Scientific and Technologic Cooperation Networks and Platforms and the National Young Researcher Career Development Program.

Furthermore, TÜBİTAK's Technology and Innovation Support Programs Department (TEYDEB) is executing support programs for increasing the research-technology development skills and innovation culture as well as competitive power. The rate of support can be increased by 20 percent in case of projects themed environment friendly technologies.

Incentives Provided by Technology Development Foundation of Turkey (TTGV)

TTGV provides repaid financing support for the R&D activities at technology development level, by which products with commercial value are developed. The support covers R&D projects in the fields of environment friendly products, sustainable production technologies, renewable energy, etc.

The Environmental Supports financed by TTGV provide repayable funding support to the "implementation projects" of industrialists in the fields of environmental technologies, energy efficiency and renewable energy.

In addition, TTGV provides support for both the technologic innovation projects in our country and the initiatives for the protection of ecology.

Incentives Provided by the Undersecretariat for Foreign Trade

Within the framework of the Program for Supporting Environmental Costs being executed by the Undersecretariat for Foreign Trade, the costs of companies for ISO 9000 series quality assurance system certificates, ISO 14000 environmental management system certificates, CE mark and other international quality and environmental certificates are covered by the Undersecretariat for Foreign Trade.

Incentives for Sustainable Production and Consumption under Legal Arrangements

Energy Efficiency Law No. 5627

The energy efficiency projects with a budget of maximum 500,000 TL and recovery period of maximum 5 years are subsidized at the rate of 20 percent, with maximum subsidy level of 100,000 TL per project.

Industrial facilities can sign "voluntary agreement" with Electricity Affairs Survey Administration (EIE) by committing to reduce their energy intensities by minimum 10 percent within a period of 3 years. For the entities which fulfill their commitment, 20 percent (maximum 100,000 TL) of their energy expenditures in the year when the agreement is signed is subsidized.

The energy efficiency projects to be implemented at industrial facilities (with investment size above the amount determined by the Council of Ministers) and cogeneration investments (depending on fuel and technology) are entitled to benefit from the incentives provided by the Undersecretariat of Treasury.

Law No.5346 on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy

The Law guarantees that the electricity generated from renewable energy resources will be purchased by the electricity distribution companies at the price of 5-5,5 Euro Cent/kWh for a period of 10 years and the generation companies are given the right to sell their electricity above the threshold of 5,5 Euro Cent/kWh in the free market. Through Council of Ministers decree, incentives are also provided for energy generation facility investments, procurement of domestically manufactured electromechanical systems, R&D and manufacturing investments to be made within the framework of electricity generation systems using solar cells and focusing units, and R&D and facility investments for electricity or fuel production using biomass resources.

In case of utilization of all sorts of property which is under the possession of Directorate General for Forestry or Treasury or under the rule and disposition of the State for the purpose of generating electrical energy from the renewable energy resources; the Ministry of Environment and

Forestry or the Ministry of Finance grant a permit, lease, establish easement right or usage permission in exchange for their fee for the lands to be used for the facility, access roads and energy transmission lines up to network connection point.

An 85 percent discount shall be applied for permission, lease, easement right and usage permission in the first 10 year of investment and operation periods of facilities, access roads and energy transmission lines up to network connection point, which will be commissioned by the end of 2012.

PRACTICES REGARDING SUSTAINABLE CONSUMPTION AND PRODUCTION IN AREAS OF NATIONAL PRIORITY

Energy Efficiency

Energy Efficiency Law No. 5627 was published on 02 May 2007 for the purpose of increasing efficiency in the use of energy and energy resources in order to efficiently use energy, prevent extravagance, alleviate the burden of energy costs on the economy and protect the environment.

The Law covers the principles and procedures applicable to increasing and supporting energy efficiency, developing a public awareness about energy and to the use of renewable energy resources in the energy generation, transmission, distribution and consumption stages, at industrial facilities, buildings, electricity generation facilities, transmission and distribution grids, and in transportation.

Measures intended to ensure efficient and effective use of energy at public agencies and institutions have been established through the Prime Ministry Circular No. 2008/2. The Circular has started a National Energy Efficiency Movement, declared the year 2008 as Energy Efficiency Year and served a Joint Movement Declaration to signature.

Prime Ministry Circular No. 2008/19 required all public agencies and institutions, municipalities and professional chambers having the status of public legal entity to replace the incandescent light bulbs at the places under the responsibility with energy saving bulbs in a period of one month. Among the measures that may be implemented for rapidly and effectively increasing energy efficiency, priority is given to the replacement of incandescent light bulbs with the energy saving compact fluorescent lamps which are approximately 5 times more energy saving.

Under the "Hand-in-Hand ENVER (Energy Efficiency) Movement", a step of National Energy Efficiency Movement, energy saving lamps have been distributed and awareness raising activities have been performed at primary schools; 2,800,000 lamps were distributed in 23 provinces between December 2008 and January 2009. Distribution of 2,000,000 million more lamps started in April 2009.

As part of the efforts relating to Energy Efficiency, the Ministry of Energy and Natural Resources and the Ministry of Industry and Trade, Ministry of Justice and Ministry of Education have signed cooperation protocols involving joint action plans for the purpose of ensuring efficient and effective use of energy resources and energy, preventing extravagance, alleviating the burden of energy costs on the economy and protecting the environment. Within the framework of the cooperation plan and the action plan executed with the Ministry of Industry and Trade, efforts have been started for supporting SMEs regarding Energy Efficiency in the industry.

Works Relating to Energy Efficiency in Buildings

The By-law on Energy Efficiency in Buildings, published by the Ministry of Public Works and Settlement, provides that permits shall not be issued for the new buildings which do not satisfy the standards and minimum performance criteria regarding architecture, heat isolation, heating and cooling systems and electrification and that the practice of Energy Identity Certificate shall be introduced for buildings. Furthermore, some banks have started to provide loans with attractive conditions to expand the application of heat isolation in existing buildings.

The TS 825 standard, establishing the rules of heat isolation in buildings, has been revised and made compulsory as from 14 June 2000. Thus, it is possible to reduce the annual heat losses from building envelopes in the newly constructed buildings by one half. In line with the revised TS 825 Standard, the Regulation on Heat Isolation in Buildings has been amended and put into force in June 2000.

Transportation Sector

The By-law on Principles and Procedures Regarding Energy Efficiency in Transportation was published on 9 June 2008. Practices intended for reducing the unit fuel consumption of domestically produced transport vehicles, increasing efficiency standards in vehicles, expanding the use of public transportation vehicles and establishment of advanced traffic signalization systems have been launched under the regulation issued by the Ministry of Transport.

Under the leadership of Ministry of Transport Directorate General of Civil Aviation (SHGM), a new project named "Green Airport" has been started. In case airport operators and service providers satisfy certain requirements, that airport will be qualified as Green Airport and the Directorate General of Civil Aviation will offer discounts in its Service Tariffs for the institutions and entities satisfying these requirements.

In order to ensure that navigation assistants can be operated with cleaner, more reasonable cost and environment friendly systems, steps are being taken to benefit from renewable energy resources to the extent possible. The signalization systems running on old systems (with acetylene-butane gas, etc.) are converted into systems running on solar energy, and wind generators were started to be used for the first time in history in 2003. While the rate of using renewable energy resources was 25% in 1997, it has reached 65% today.

Railway transportation is an environment friendly mode of transportation in that it uses less energy relative to overland and airway transportation and that electrical energy can be used in railway vehicles. Therefore, every improvement and investment made in railways supports SCP.

In order to increase passenger and cargo transportation by railways, efforts are underway for railroad rehabilitation works and signalization and telecommunication systems that will increase line capacities and modernize lines; installation of electrification facilities that will increase line capacities and reduce the expenditures of diesel fuel which hold an important share in fuel costs; construction of high-speed railways and rehabilitation of commuter trains that will increase the capacity of passenger transportation; improvement of combined transportation and establishment of logistic villages that will boost cargo transportation; construction of railway connection roads to centers with high cargo potential, primarily including organized industrial zones; construction of double-line railways on the bottlenecked line sections; manufacturing off new cargo and passenger wagons to respond to the increased capacity and demand; and procurement of more efficient new locomotives.

Directorate General of State Railways Administration supports SCP for energy efficiency through the practices of Block Train by which locomotives and wagons are not changed from the station of loading till the station of unloading; the Boden Lubrication System which reduces corrosion and saves fuel by decreasing the friction between the wheels and rail; improvement of the fuel regulator systems of certain locomotives; enhancement of maintenance quality and replacement of battery groups with more efficient ones in order to reduce the idle running of locomotives; training of operators about efficient operation techniques; the use of APU (Auxiliary Power Unit), which has a smaller engine, to supply the energy need of locomotives during idle running; and production and use of locomotives with generators instead of generator wagons used for heating purposes.

Furthermore, the practice of power supply from solar panels and wind turbines has been introduced in regions where climatic conditions are suitable.

Industry

Under the UNIDO Eco-Efficiency Program which is being executed within the framework of the United Nations Joint Program; capacity improvement for clean production and eco-efficiency in industry is being piloted and efforts are being made to expand these practices at the national level. The focus of the program is "reducing water consumption in production". Under the pilot project, the priority industrial sectors have been determined as food and beverage, textile and leather, chemicals and products, metal coating and mechanical parts manufacturing, in line with economic and environmental criteria at the basin level. Under the program, training courses are organized towards related agencies, entities, sector representatives and project stakeholders, on the topics of "clean production" and "eco-efficiency".

Under the Project for Parallel Improvement of Industrial Efficiency and Environmental Performance at SME Level, which was implemented between 2007 and 2009 for the purposes of spreading eco-efficiency practices, understanding the relationship between environment and efficiency and undertaking model works for enterprises, by bringing the concept of eco-efficiency on the agenda of enterprises and explaining the worldwide practices to the enterprises; an Eco-Efficiency Guide was prepared to help the enterprises minimize the materials, water and energy they use as well as the wastes they generate, through low-investment and easily applicable eco-efficiency practices. As part of this project, low-cost and easily applicable eco-efficiency opportunities that increase environmental performance and efficiency have been identified and implemented at 5 pilot enterprises.

At certain universities, the topics of clean production, pollution prevention and integrated pollution prevention and control have been included in the curricula.

Under the Project for Integration of Eco-Efficiency into Production Industry, the Sustainable Development and Clean Production Application and Research Center was established under Bosporus University in 2007. The objective of the center is to evaluate the technical, environmental and economic aspects of clean production and products; the natural resources used at the raw material, production and consumption stages of processes and their environmental impacts, within the framework of eco-efficiency in national and international cooperation environment, to perform interdisciplinary applied research and development activities in management, product and process categories, and to develop policies, action plans and recommendations on these matters.

Waste Management

The work carried out across the country to ensure that package wastes are collected separately at source are being supported and incentivized by the MoEF. Educational materials, indoor boxes, accumulation bags and boxes, containers and similar equipment are distributed to encourage citizens to participate in the separate collection efforts.

The shops, markets, supermarkets, hypermarket and similar shopping places which engage in the wholesale and/or retail sale of packaged products and have an area of larger than 200 m^2 are responsible for establishing packaging wastes collection points to ensure the separate collection of packaging wastes and inform the consumers; give the packaging wastes to the licensed collection and separation facility with which they have signed a contract in line with the municipality's packaging wastes collection plan; and take necessary measures to minimize the use of plastic bags. Incentives are provided in order to ensure that the activities in this framework are carried out efficiently. The efforts for the recycling and recovery of hazardous wastes mainly focus on the wastes which require simple technologies for collection and recovery.

Producers of packages are required to provide annual data about the quantities of packages produced, imported and exported for each type of material as well as the companies to which these packages are sold. The companies which offer products to the market are required to provide annual

data about the quantities of packages used during the market offer, import and export of products, for each type of material. Since 2005, all data collected from the producers of packages, those who offered packaged products to the market and licensed enterprises regarding the quantities of production, sales and recovery are recorded it this program.

With the support of MoEF, the Union of Chambers and Commodity Exchanges of Turkey (TOBB) has established waste exchanges under chambers of industry in order to minimize the quantity of industrial wastes to be disposed of and ensure the recycling of wastes. Waste Recycling Exchange is an intermediation system which ensures that the wastes generated as a result of production processes at enterprises are recycled and re-used as secondary raw material more commonly and the quantity of wastes to be finally disposed off is reduced. In the Waste Exchange, the process wastes of the industry, auxiliary products, residues or materials which do not meet the required conditions are announced to other enterprises which can use them as inputs for other processes.

Integrated Waste Management (IWM) has been developed to incentivize the sustainable use of resources and change in the producer-consumer attitudes. IWM can be defined as the election and application of appropriate methodologies, technologies and management programs necessary to achieve a specific waste management goal. IWM also covers the compliance with the requirements in the applicable legislation. These arrangements include waste prevention, waste reduction, waste recycling, waste recovery and disposal principles for IWM.

For the preparation of waste inventory in our country, it has been targeted to identify production-waste relationship for each industrial activity. In lien with this goal, the production, waste and hazardous waste data have been evaluated and inventories have been prepared in regions where industry activities and waste generation are intensive. In order to determine the hazardous waste potential from thee provinces with heavy industry and production, the existing inventories already prepared in our country have been compiled, and the quantities of hazardous wastes generated in provinces have been identified as against the registered industries. Using the hazardous waste/total waste ratios in these provinces, the statements of industrialists and the data reported by provinces within the framework of the waste management plans, inventory information have been produced. Currently, there is no reliable hazardous waste inventory in our country.

It is now possible to fill in the Hazardous Waste Declaration Form on the internet within the framework of the protocol signed between MoEF and Turkish Statistics Institute (TURKSTAT) in order to establish a sound waste inventory across the country. In 2008, pilot implementation of internet-based waste declaration system was launched across the country and real data are targeted to be collected in 2010.

It is also necessary to establish a strong-based data registry system in order to ensure sustainable management of package wastes. To this end, a web-based computer program is being used. The program users consist of the Ministry, market suppliers, package producers and licensed enterprises. Since 2008, the program has been open to 81 Provincial Environment and Forestry Directorates. Thus, the program will be implemented more efficiently, faster and in a decentralized manner, and the provincial directorates will be actively involved in implementation.

Training courses regarding the reduction at source, recycling and disposal of wastes are being implemented by the MoEF Waste Management Department within the framework of annually prepared training programs. Furthermore, training programs are also executed under the projects being implemented:

The Principle of "Polluter Pays"

The Environment Law updated in 2006 puts particular emphasis on the principle of "polluter pays" in environmental management. According to the Law, the expenditures made for preventing,

limiting and elimination of pollution and degradation and the improvement of the environment are paid by the party who leads to pollution or degradation. The costs incurred in cases where the polluter fails to take necessary measures for stopping, eliminating or reducing the pollution or degradation or these measures are directly taken by the authorized bodies, shall be collected from the polluter.

AWARENESS RAISING ACTIVITIES FOR SUSTAINABLE CONSUMPTION AND PRODUCTION

Pursuant to the Energy Efficiency Law, EIE is responsible for carrying out theoretical and applied training and awareness raising activities in order to increase the effectiveness of energy efficiency services as well as energy awareness. The Law provides that in order to provide theoretical and practical information about the basic concepts of energy and energy efficiency, the energy outlook of Turkey, energy resources, energy generation techniques, efficient use of energy in daily life, and the importance of energy efficiency in climate changes and environmental protection, the Ministry of National Defense shall organize course and training programs at military schools and soldier training centers; the Ministry of National Education shall incorporate the necessary arrangements in the curricula of formal and extensive educational institutions; and the related public agencies and enterprises shall incorporate the necessary arrangements in their in-service training programs.

According to the Energy Efficiency Law, the public awareness raising activities to be performed for expanding the efficient use of energy are as follows:

- national and/or local televisions and radios shall broadcast, between 07:00 and 23:00 hours, educational programs, competitions, short films and/or cartoon films prepared by the EIE or another agency hired by EIE to promote efficient use of energy, with the total broadcast period of such films not being less than thirty minutes per month, within the framework of information and awareness raising training programs.
- Manufacturers and importers shall include, in the instructions of the energy consuming goods which are required to be accompanied by Turkish manuals and instructions as determined and announced by the Ministry of Industry and Trade, a separate section providing information on the efficient use of energy in using respective products. The Ministry of Industry and Trade shall supervise the enforcement of this provision.
- In cooperation with the Ministry of National Education, Turkish Scientific and Technologic Research Institution, professional chambers, and Turkish Union of Chambers and Stock Exchanges, activities in the context of "Energy Efficiency Week" shall be organized in the second week of January every year.

The activities under the National Energy Efficiency Movement launched through the Prime Ministry Circular No. 2008/2 are planned to be continued with the cooperation of public and private sectors and NGOs under the coordination of EIE. In this context, it is envisaged to;

- increase public communication activities via the visual media;
- implement energy efficiency action plans in provinces;
- include the subjects of energy culture, awareness about efficiency and environment in the curricula;
- reduce energy intensity in the industry, and organize prized competitions in cooperation with TOBB, sector players and banks regarding ecological structures and heat isolation.

Within the framework of Energy Efficiency Training Bus Program, factory staff is provided with on-site and comprehensive training on subjects related to energy efficiency (energy management, increasing energy efficiency in boilers, steam systems, isolation, energy and mass equivalences at factories, pressurized air, efficient use of electricity, focal points of energy saving at factories). Factories are visited for 1-2 days with a bus equipped like a classroom with television, video player,

projection device, slide machine and data display, to train staff members at all levels without leaving their workplaces.

In the courses organized at the Energy Efficiency Training Factory under EIE; the engineers and energy managers coming from industrial enterprises are given applied energy efficiency training, using equipment that intensively consume energy, which can all be found at industrial enterprises.

Pursuant to the Regulation on the Implementation Principles of Introductory and User Manuals, information about the energy-efficient use of products is included in a separate section of Instructions and User Manuals for energy-consuming goods.

EIE is organizing seminars to raise awareness level among students about energy efficiency and various documents are distributed to students and teachers. Furthermore, energy efficiency seminars are organized at public agencies and organizations within the framework of in-service training.

The Energy Efficiency Coordination Council organizes events within the framework of "Energy Efficiency Week" in the second week of every January. As part of these events, painting and story competitions themed energy efficiency are organized among primary education students and project competitions are organized among secondary education students, in cooperation with the Ministry of National Education and TÜBİTAK.

EIE is preparing various brochures and booklets regarding energy efficiency at buildings and in transportation, and distributing them to public agencies, universities, municipalities, governorates and participants of energy efficiency events .

Sectoral environmental issues, air pollution, water pollution, soil pollution and energy headings are covered in the Environmental Protection Module of Personal Development Course prepared by the MoNE for inclusion in the curriculum of grade 10. Furthermore, competitions, panels, conferences and similar events were organized at schools after the declaration of the year 2008 as "Energy Efficiency Year"

MoNE Circulars no. 2008/32 and 2009/12 require that due care be given to raising the awareness level of students on keeping the seas, lakes, rivers and the environment clean.

In the Southeastern Anatolia Region, GAP Regional Development Administration is executing a training program on the effective and efficient use of water. The objective of the project is to replace the existing water usage methods with more economical methods, encourage compulsory and/or voluntary water saving in order to be able to meet the rising need for water; ensure that water is consciously used in agriculture, hygiene and urban areas, and furnish the future generations with awareness about the efficient and effective use of water.

At the Architecture Faculty of Istanbul Technical University, Eco-Design Meeting was held between 15 and 29 May 2009, as the first wide-scale platform for sharing eco-design approaches and practices in the educational and professional areas in Turkey. Under this event, Student Eco-Project Exhibition and Environment Friendly Art Exhibition were organized. During the sessions, ecological approaches in professional and academic spheres were discussed and the associations, foundations and initiatives working in this area had the opportunity to explain their activities.