Union of Municipalities of Turkey

- Founded in 1945
- Largest local authority union in Turkey with all 2951 municipalities as natural members
- Protects the interests of municipalities and helps them to develop
Content

- Turkey- EU membership progress
- Legal Framework of Waste Management
- National Waste Management Plan
- Current Status and Expected Progress
Republic of Turkey is Eurasian country, located in Western Asia and Eastern Thrace, in Southeastern Europe. The Sea of Marmara, the Bosphorus and the Dardanelles demarcate the boundary between Eastern Thrace and Anatolia; they also separate Europe and Asia.

**Population**
72,560,000

**Area**
783 562 km²

**Regions**
7 regions
81 provinces
Brief information of Turkey

- A population of over 72.5 million
- With an average age of 28, the youngest population among EU countries

- Qualified and cost effective labor force
- With over 24.7 million people, the 4th largest labor force in comparison to 27 European countries
Brief information of Turkey

Turkish economy ranks
- 15th in the world
- 6th among 27 EU countries
- 1st among new EU member countries
Turkey- EU membership progress

1959: First application to join EC
1963: Ankara Association Agreement
1987: Turkey applied for full membership
1995: Custom Union established between EU and Turkey
1999: European Council in Helsinki, Turkey become officially candidates
1999: Beginning of Accession process
2001: Partnership for the accession of Turkey signed, revision in 2003-2006
2004: Turkey sufficiently fulfilled the Copenhagen political criteria
2005: Start of accession negotiations Turkey and EU relation
2006: Negotiations
21 December 2009: Opening of Chapter 27 (Env)
• Turkey- EU environment chapter progress

- Screening meetings April- June 2006
- EU Commission Report for screening 3.10.2007
- Negotiating Position Paper of Turkey 3.11.2009
EU Environment legislation on sectoral Basis

- Horizontal Legislation
- Air Quality
- Waste Management
- Water Quality
- Nature Protection
- Industrial Pollution Control and Risk Management
- Chemicals Management
- Genetically Modified Organism
- Noise
### Investment Costs for Environment

<table>
<thead>
<tr>
<th>Sector</th>
<th>Investment Cost (2007-2023)</th>
<th>Billion Euro</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>33,969</td>
<td>57.95</td>
<td></td>
</tr>
<tr>
<td>Waste</td>
<td>9,560</td>
<td>16.31</td>
<td></td>
</tr>
<tr>
<td>Air</td>
<td>0.037</td>
<td>0.07</td>
<td></td>
</tr>
<tr>
<td>Industrial Pollution</td>
<td>14,785</td>
<td>25.22</td>
<td></td>
</tr>
<tr>
<td>Nature Protection</td>
<td>0.264</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>58,585</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

- Water Sector: 33,969 € - % 58
  - 18,083 € waste water
  - 12,743 € Drinking water
  - 3,143 € Other
- Industrial pollution: 14,785 € - % 25
- Waste: 9,560 € - % 16
- Air pollution: 428 € - % 1

**total: 58,585 €**
### FINANCIAL NEEDS ACCORDING TO NEAP (2007-2023)

<table>
<thead>
<tr>
<th>Waste Management</th>
<th>FINANCIAL NEED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Billion Euro</td>
</tr>
<tr>
<td>Landfill</td>
<td>7,574</td>
</tr>
<tr>
<td>Packaging</td>
<td>0,655</td>
</tr>
<tr>
<td>Incineration</td>
<td>1,257</td>
</tr>
<tr>
<td>Hazardous Waste</td>
<td>0,074</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,560</strong></td>
</tr>
</tbody>
</table>

EU Chapter 27  Waste Management Sector
EU Waste Management Legislation – TRANSPOSITION PROGRESS

Framework Legislation
- Waste Framework Directive
- Directive on Hazardous Waste

Management of Waste Streams
- Directive on Packaging and Packaging Waste
- Directive on Disposal of Waste Oils
- Directive on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
- Directive on Waste Electrical and Electronic Equipment
- Directive on Waste Batteries and Accumulators

Operation and Disposal
- Directive on the Landfill of Waste
- Directive on the Incineration of Waste

Transportation
- Regulation on Shipments of Waste

Additional Directives:
- Directive on Labeling of Batteries
- Directive on End-of-Life Vehicles
- Directive on the Management of Waste from Extractive Industries and Amending
- Directive on the Protection of the Environment, and in particular of the Soil, when Sewage Sludge is used in Agriculture
- Directive on the Disposal Of Polychlorinated Biphenyls And Polychlorinated Terphenyls (PCB/PCT)
EU Waste Management Legislation – TRANSPOSITION PROGRESS

NATIONAL WASTE MANAGEMENT LEGISLATION

Framework Legislation
- Environmental Law
- Metropolitan Municipality Law
- Municipality Law
- Revenues Law
- Special Provincial Administration Law
- Turkish Penal Code
- By-law on General Principles of Waste Management
- By-law on the Control of Hazardous Waste

Management of Waste Streams
- By-law on the Control of Solid Waste
- By-law on the Control of Medical Waste
- By-law on the Control of Packaging Waste
- By-law on the Control of Waste Oils
- By-law on the Control of Used Batteries And Accumulators
- By-law on the Control of Waste Vegetable Oils
- By-law on the Control of Excavated Earth, Construction and Demolition Waste
- By-law on the Control of Polychlorinated Biphenyls And Polychlorinated Terphenyls
- By-law on the Control of End of Life Tyres
- By-Law on the Control of End of Life Vehicles

Operation and Disposal
- By-Law on Landfilling of Waste
- Final Draft of By-Law on Incineration of Waste

Transportation
- First Draft of Shipments of Waste
EU Waste Legislation - IMPLEMENTATION PROGRESS

DATES OF EU HEAVY INVESTMENT COST WASTE LEGISLATION INDICATIVE IMPLEMENTATION

- Landfill Directive-2023
- Hazardous Waste Directive -2023
- Packaging Waste Directive -2020
- PCB/PCT Directive-2025
- WEEE Directive -2016
- Shipment Regulation-2013
- Incineration Directive-2023
National Waste Management Plan (NWMP)

- Covers whole Turkey.
- Time horizon is 5 years (2009-2013).

12 different waste streams

- Municipal Waste
- Hazardous Waste
- Packaging Waste
- Waste Oil
- Used batteries and accumulators
- Waste electrical and electronic equipments (WEEE)
- PCB / PCT
- Sewage Sludge
- End of life vehicles (ELV)
- Medical wastes,
- Vegetable oils,
- End of life tires (ELT).

Determination of the current status and the main problems in Waste Management (WM).

Determination of the strategic targets in order to overcome the main problems in WM.

Preparation of the action plan in parallel to the main problems in WM.
STRATEGIC TARGETS OF NWMP

Legal Framework
- Providing the Compliance of the National Legislation with the EU Legislation and Acceleration of the Implementation of the Legislation

Institutional Structure
- Development of Administrative Capacities of Institutions Responsible for Waste Management Activities

Waste Minimization / Recycling / Recovery
- Development of Strategies for Prevention and Minimization of the Waste Generation
- Increase the Quantities of Recycled and Reclaimed Waste
STRATEGIC TARGETS OF NWMP

Waste Management Facilities

- Environmentally Sound Waste Disposal
- Development of Management System for Special Wastes

Financing

- Implementation of the “Producer Responsibility Principle” and “Polluter Pays Principle” in Integrated Waste Management System.

Data Availability

- Provision of Sufficient and Reliable Data on Waste Sector
Legal Framework

- Harmonizing Turkish legislation with EU Acquis till 2016

- Preparation of specific waste management plans;
  - Packaging Waste Management Plan,
  - Hazardous Waste Management Plan,
  - Sludge from Treatment Plants Management Plan,
  - Biodegradable Waste Management Plan.

- Taking measures for effective implementation of waste management legislation.
Waste Management and Waste Treatment Plants

- The main objective in context of NWMP is to establish new landfills and remediate the old dump sites.

- In 2009-2013 period, it is aimed to stop waste acceptance to all dump sites and start remediation.

- National legislation is to be harmonized with Incineration Directive has been finalized and It is expected to come into force soon.

- 70% of population will benefit from Municipal Waste Management Systems in line with legislations till end of 2012.
National Waste Management Plan - Strategic Targets

Priority Investments in 2009 – 2013 Period

- Construction of New Landfills
- Remediation of Old Dump Sites
- Establishment of Medical Waste Sterilization Plants
- Construction of new integrated facilities for hazardous waste
- Increase Administrative Capacity of Public Institutions and Organizations
Current Situation in Waste Management

Current Management Applications;

- Municipal Waste
- Packaging Waste
- Hazardous Waste
- Specific Waste
Municipal Waste

Municipal Associations / Waste Management Associations

Turkey divided into 3 main and 11 sub-regions.

For the following purposes, municipality associations were established under the 11 sub-regions:

- To construct municipal waste landfill,
- To reduce the solid waste amount,
- To increase recycling,
- To decrease the solid waste transportation cost,
- To prepare plans to establish solid waste transfer stations with most suitable technology.
## Municipal Waste

### The Current Situation of Waste Management in Turkey

<table>
<thead>
<tr>
<th>No</th>
<th>Main Region</th>
<th>Sub-Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Marmara Aegean</td>
<td>İstanbul, İzmir (Metropolitan Municipalities)</td>
</tr>
<tr>
<td>1b</td>
<td>Marmara Aegean</td>
<td>Other Metropolitan Municipalities</td>
</tr>
<tr>
<td>1c</td>
<td>Other Metropolitan Municipalities</td>
<td>Other Municipalities (medium/small)</td>
</tr>
<tr>
<td>2a</td>
<td>Black Sea Central Anatolia Mediterranean</td>
<td>Ankara (Metropolitan Municipality)</td>
</tr>
<tr>
<td>2b</td>
<td>Black Sea Central Anatolia Mediterranean</td>
<td>Antalya / İçel (Touristical Cities)</td>
</tr>
<tr>
<td>2c</td>
<td>Other Metropolitan Municipalities</td>
<td>Other Metropolitan Municipalities</td>
</tr>
<tr>
<td>2d</td>
<td>Other Municipalities in Black Sea (medium/small)</td>
<td>Other Municipalities in Black Sea (medium/small)</td>
</tr>
<tr>
<td>2e</td>
<td>Other Municipalities in Mediterranean and Central Anatolia (medium/small)</td>
<td>Other Municipalities in Mediterranean and Central Anatolia (medium/small)</td>
</tr>
<tr>
<td>3a</td>
<td>Eastern Anatolia Southeastern Anatolia</td>
<td>Gaziantep (Metropolitan Municipality)</td>
</tr>
<tr>
<td>3b</td>
<td>Eastern Anatolia Southeastern Anatolia</td>
<td>Other Metropolitan Municipalities</td>
</tr>
<tr>
<td>3c</td>
<td>Eastern Anatolia Southeastern Anatolia</td>
<td>Other Municipalities (medium/small)</td>
</tr>
</tbody>
</table>
### Municipal Waste / Waste Quantities

#### The Current Situation of Waste Management in Turkey

<table>
<thead>
<tr>
<th>Model Regions</th>
<th>Solid waste per capita (kg/person-day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>1.15</td>
</tr>
<tr>
<td>1b</td>
<td>1.12</td>
</tr>
<tr>
<td>1c</td>
<td>1.10</td>
</tr>
<tr>
<td>2a</td>
<td>1.15</td>
</tr>
<tr>
<td>2b</td>
<td>0.90</td>
</tr>
<tr>
<td>2c</td>
<td>0.85</td>
</tr>
<tr>
<td>2d</td>
<td>0.85</td>
</tr>
<tr>
<td>2e</td>
<td>0.85</td>
</tr>
<tr>
<td>3a</td>
<td>0.85</td>
</tr>
<tr>
<td>3b</td>
<td>0.90</td>
</tr>
<tr>
<td>3c</td>
<td>0.75</td>
</tr>
<tr>
<td>Average</td>
<td>0.95</td>
</tr>
</tbody>
</table>
Total municipal waste amount 24,36 million tons (TURKSTAT, 2008)
Municipal Waste Amount: 24,36 million tons/year (TURKSTAT, 2008).

- 11,657,000 tons of waste was directly disposed of in landfills
- 276,000 tons were treated in composting facilities.
Reducing Amount of Biodegradable Waste
(By Law on Landfilling of Wastes)

Municipal Waste Amount: 24,36 million tonnes/year
(TURKSTAT, 2008)
Estimated Biodegradable Waste~ %54,5 (NWMP, 2008)
Current Situation in Waste Management

- Under operation: 46
- Under construction: 40
- Project preparation: 28
- Energy Recovery from Landfill gas: 3

Total capacity: 51,73 MW

TE CO2: 1,600,000 ton (wealth value: 18,330,000 $)
**Landfill of Municipal Waste**

2008: serving for 31 million people

2009: serving for 32.5 million people

2010: **target** is serving for approximately 35.5 million people
Packaging waste management plan

Every municipality has to prepare a plan about packaging waste collecting at source.

Number of plans approved

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>108</td>
<td>219</td>
<td>221</td>
</tr>
</tbody>
</table>

Every municipality has to prepare a plan about packaging waste collecting at source.
Software developed for packaging waste

Software is used by

- Ministry,
- Provincial,
- Packaging producer (annual),
- Trade marker (annual),
- Sorting facility (monthly),
- Recycling facility (monthly),
1,12 million tons per year hazardous waste is produced in Turkey (TURKSTAT 2004).
MODULE 1- Hazardous Waste Declaration Forms (HWDF)

USERS: Hazardous Waste Generators (annually)

Collected Data:
- Name,
- Address,
- NACE Codes,
- Capacities,
- Waste Code (6 Digits)
- Amount
- Recovery/Disposal Methods
- Recovery/Disposal Facility (licensed)

MODULE 2- Monitoring and Control Module of HWDF

USERS: Ministry and Provincial Organizations,
Dynamic Reporting System is available.

January 2011: waste amount statistics for the year 2009 will be declared
THE CURRENT SITUATION OF HAZARDOUS WASTE MANAGEMENT IN TURKEY

**Hazardous Waste / Facilities**

### Incineration Facilities

<table>
<thead>
<tr>
<th>Province</th>
<th>Design Capacity (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>İZAYDAŞ</td>
<td>35,000</td>
</tr>
<tr>
<td>PETKIM</td>
<td>17,500</td>
</tr>
<tr>
<td>TÜPRAŞ</td>
<td>7,750</td>
</tr>
<tr>
<td>TOTAL</td>
<td>60,250</td>
</tr>
</tbody>
</table>

- 1 Gasification facility in İstanbul-capacity: 29,000 tons/year

### Cement Facilities-Co incineration

- 27 facility, total capacity 500,000 ton/year

### Landfill Facilities

- İZAYDAŞ
  - 1 unit of landfill site for hazardous wastes (Total Capacity: 160,000 tone/year)
- İSTAÇ (Landfill) (Capacity: 105,000 tone/year)
- ERDEMİR (Landfill) (Capacity: 6,084 tone/year)
- İSKEN (Landfill) (Capacity: 11,000 tone/year)
Hazardous Waste Disposal Facilities

<table>
<thead>
<tr>
<th>Type</th>
<th>2003</th>
<th>2009</th>
<th>2010-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incineration Plant</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Landfill</td>
<td>1</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>
• Medical wastes are disposed of by incineration or sterilization process and landfill.
• Landfill of medical waste without sterilization process has been prohibited since April 2010.

- 2009
  approximately 100,000 tonnes of medical waste disposed by
  %16 incineration
  %21 landfill
  % 22 sterilization.
- 2010
  sterilized medical waste amount: %33 of total medical waste amount.
Waste Oil Regeneration

- By-law on Control of Waste Oils 30.07.2008

- Legal and natural persons who establish and/or operate waste oil recovery facilities has to be licensed.

- Monitoring:
  - national waste transportation forms
  - waste oil notification forms
  - mass balance tables

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regeneration facilities (licensed)</td>
<td>4</td>
<td>13</td>
<td>18</td>
<td>21</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>The amount of waste oil recycled (tonnes)</td>
<td>3782</td>
<td>14430</td>
<td>19259</td>
<td>16560</td>
<td>28.000</td>
<td>4.850</td>
</tr>
<tr>
<td>The amount of product obtained from waste oil (tonnes)</td>
<td>6871</td>
<td>11000</td>
<td>10440</td>
<td>16500</td>
<td>2500</td>
<td></td>
</tr>
</tbody>
</table>
In 2009, 15000 tonnes of waste oils were used as alternative fuel (co-incineration).

- Cement plants
- Power plants
- Lime plants
- Iron and steel plants

Total 33 plants.
Restriction of Hazardous Substances in EEE

- By-Law on Restriction of Hazardous Substances in EEE
  Publication date: 30 May 2008,
  came into force: 30 May 2009.

- Article (5) of the By-Law,
  “Excluding in Annex-2 Applications, To put into the market of the whole imported and manufactured electrical and electronic equipments which include lead (Pb), mercury (Hg), hexavalent chromium (Cr6+), polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE), and cadmium (Cd) have been prohibited.”

- Article (7) of the By-Law;
  “In order to prove compliances of their products Producers have to fill in the Declaration Form in Annex-3 and submit that form to Ministry of Environment and Forestry (MoEF) every year.”

- Up to now, 126 firms have been recorded in our Ministry Data Bank.
Draft By-law studies are on-going.

The By-law is envisaged to be published at the end of 2010.

Enter into force will be gradually.

- 2009: the amount of collected WEEE is 3,917 tonnes.

- 2010: 9 registered WEEE treatment facilities
Used Batteries And Accumulators

• By-law on Control of Used Batteries and Accumulators (01.01.2005)

• Amendment on 03.03.2005.

Scope:

• Labelling all batteries and accumulators,
• Marking,
• Reduction of quantities of harmful substances in production,
• Separate collection, transportation and disposal,
• Prohibitions, limitations and obligations about import, transit passage and export, the measures to be taken, the controls to be made, and the responsibilities to apply.
Accumulator collection rate reached to 90%

Separate collection of batteries
• By-law on End of Life Vehicle (30.12.2009)
The By-law will come into force on gradually.
Scope;
• Technical requirements for storage,
• treatment,
• de-pollution,
• treatment operations for recycling
End of Life Tyres

- By-Law on Control Of The End of Life Tyres (25.11.2006)

- The producers responsible for collecting ELTs or making them collected at the amounts launched that for the first year 30%, the second year 35%, the third year 40%, the forth year 45% and the fifth year 50%.

- 2009: 50,000 tonnes ELTs were collected and disposed.
**WASTE VEGETABLE OILS**


**USED FRYING OIL COLLECTED (tonnes)**

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1700</td>
<td>2900</td>
<td>6500</td>
<td>7700</td>
</tr>
</tbody>
</table>

**Usage of W.Vegetable Oil**

- Product recovery (soap, biodiesel, and the like)
- Energy regeneration (incineration in licensed plants)
• The By-law on Control of PCB / PCTs (21 January 2007)

• Full implementation date of the By-Law is 2025.

• The preparatory works and the inventory
• The identification of the priority sectors to record data
• The software for inventory

• It is expected that the inventory will be completed by 2020.
• Until the end of 2025, the final disposal of all PCB containing materials and equipment will be expected to be completed.
Sludge Problem

Sludge Handling (705,000 m³/d - 30,000 m³/d) - 40 Facility

- Uncontrolled Landfill: 34%
- Controlled Landfill: 39%
- Combustion: 7%
- Agricultural Reuse: 7%
- Used in Treatment Plant Area: 5%
- Sent to Sludge Treatment Facility: 2%
- No Sludge Handling: 2%
- Not Reported: 4%
Sludge Problem

Sludge Handling (30,000m³/d - 5,000m³/d) - 40 Facility

- Uncontrolled Landfill: 23%
- Controlled Landfill: 19%
- Combustion: 8%
- Agricultural Reuse: 6%
- Used in Treatment Plant Area: 11%
- Sent to Sludge Treatment Facility: 27%
- No Sludge Handling: 6%

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Sludge Problem

Sludge Handling (5.000m³/d-40m³/d)-42 Facility

- Uncontrolled Landfill: 23%
- Controlled Landfill: 27%
- Agricultural Reuse: 14%
- Used in Treatment Plant Area: 9%
- No sludge Handling: 18%
- Not Reported: 9%
THANK YOU FOR YOUR ATTENTION

www.atikyonetimi.cevreorman.gov.tr/

www.tbb.gov.tr