WASTE SECTOR IN ROMANIA
Romania joined the European Union in 01/01/2007;

- **Romania** is a mean dimension country having a **surface of 238,391 Km²** (13th European country);
- **Population**: 21,462,186 inhabitants (as for 2010);
- **Climate**: Temperate, four distinct seasons, similar to northeastern USA;
- **Capital**: Bucharest (Bucuresti);
- **Form of State**: Semi-parliamentary Republic with two legislative bodies: Senate (Senat) and Chamber of Representatives (Camera Deputatilor);
- **Currency**: Romanian Leu (RON); 1 € = 4,35 RON;
- **Official Language**: Romanian;
- **Regional Government**: 41 County Councils (Consiliu Judetean) - 41 counties and Bucharest are grouped into 8 Development Regions;

- **The main cities, in relation to the number of inhabitants**, are: Bucharest (1,931,838), Cluj-Napoca (310,194), Iasi (307,377), Constanta (306,332), Timisoara (303,640), Craiova (300,182), Galati (298,366), Brasov (282,170), Ploiesti (233,699), Braila (218,744), and Oradea (206,223);

- **Romania is a country with a middle income, having a GNP per capita of 3830 million dollars in 2005**, according to the World Bank.
Figure 3 - Population density in Romania - 2006
WASTE LEGISLATION AND WASTE MANAGEMENT POLICY

- EU legislation on the Waste Management was transpose in Romania at the level of 100%;
- The waste management is based on Romanian National Strategy for Waste Management (RNSWM) and National Plan for Waste Management;
- The activity of waste management in Romania is controlled through the regulations of:
  - The Ministry of Environment and Forests is competent authority for the coordination of implementation of the Waste Framework Directive and resulting Romanian legislation—environmental permit, directly or through National Environmental Agency, Regional Environmental Protection Agencies (control the permits for the investments and activities there are under the IPPC Directive) and County Environmental Agencies;
  - Ministry of Economy, Trade and Business Affairs – revaluation permit.
  - National Authority for Public Services – licensing;
  - National Environmental Guard – enforcement;
  - Local authorities – work permit for operation - Local authorities are involved in the practical implications of setting up systems for separate collections, processing, storing, etc., as well as the coordination of activities in the field of pre-collection and the organization of waste recycling;
Beside the content of the Acquis Communautaire and the framework legislation for environmental protection, Romanian legislation has several regulations referring to the waste management;

**MSW FLOW:**

- Law No. 51/2006 concerning the community utility services;

- Law No. 101/2006 concerning public sanitation services of localities, with modifications and amendments;
WASTE LEGISLATION AND WASTE MANAGEMENT POLICY

- **Priorities for waste management:**

  1. Prevent waste generation;
  2. Preparation for re-employment;
  3. Recycling or other ways to create and optimize the waste material recovery;
  4. Create and optimize energetic recovery schemes for waste (when waste is “inadequate” for material recovery);
  5. Final disposal supervised of these waste.

- **Waste Packaging: Ways to recycle/recovery** primary, secondary and tertiary **packaging waste**, in order to reach the objectives set by law can be done:
  - Individually, using own resources;
  - To outsource/transfer the responsibility on contract basis to a legally established economic operator (like “Eco-Rom Ambalaje S.A.” - ERA).
Municipal waste policy

- Municipality takes care of collection and treatment of household waste;
- A municipal waste policy plan could contain in general the following parts:
  - Analysis of the present situation:
    - Current amounts of waste collected;
    - Waste fractions and recycling rates;
    - Financing of the system;
  - The goals/targets of waste management:
    - National obligations;
    - Municipal ambitions;
  - The means of waste management in order to fulfil these goals:
    - Organization;
    - Collection means;
    - Information to the public;
    - Outsourcing or not;
    - How to finance;
  - Treatment and disposal of waste:
    - Where?
    - How?
    - By whom?
Municipal waste policy

• How waste collection should be organized in a specific municipality – part of the municipal policy plan;

• Romanian options for the organization of municipal waste collection:

  1. One municipal service – the municipality creates its own municipal collection service; The costs for collection, transport and treatment are covered by the municipality;

  2. One municipal service with a regional function: the municipality creates its own municipal collection service that also collects the waste for other neighboring municipalities;

  3. Outsourcing: through a tendering process the municipality selects and hires a company to provide collection services in accordance with conditions specified in the tender document. Advantage - Municipality can focus on the terms and conditions of the service.

  4. Common outsourcing: a group of municipalities can also hire a waste company for the collection and treatment of its waste.

  5. Mixed model: part of the waste collection is done by the municipality, part of the waste collection is outsourced. Advantage – for every waste fraction an optimal solution can be chosen.
Romanian generalities - How waste management is financed?

1. Funding solid waste operations depend on the specifics of the solid waste system for each locations;

2. Generally the home and business pays its monthly waste bill – these funds provide the revenue to cover the costs of the operations;

3. Solid waste operations receive revenue from the sale of services and recyclable materials – price paid for recyclable materials;

4. Other source of revenue: Grants, EU Funds, Bonus provide by Producers Organization;

5. In a publicly owned system, in general, the revenue equal the cost and in a privately owned system the revenue should exceed the cost, resulting in a profit.
INTRODUCTION TO WASTE MANAGEMENT SITUATION IN ROMANIA

- National statistic data – 2006:
  - **Recovery of industrial waste** - 12,511 thousand tons (4% of the total generated quantities);
  - **Waste Disposal** - Disposal system is land filling - 98%;
  - **Incineration of MSW** is not yet carried out in Romania*

  *only private sector that mainly incinerates hazardous waste and co-incineration of waste (including packaging waste) in approved cement factories.

**Waste generated in 2006 in Romania**

<table>
<thead>
<tr>
<th>Type</th>
<th>Hazardous Waste</th>
<th>Non Hazardous Waste</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons</td>
<td>%</td>
<td>Tons</td>
</tr>
<tr>
<td>Mining industry</td>
<td>497,588</td>
<td>0.25</td>
<td>198,751,713</td>
</tr>
<tr>
<td>Industry (minus mining)</td>
<td>555,227</td>
<td>0.49</td>
<td>111,938,335</td>
</tr>
<tr>
<td>Municipal waste</td>
<td>x</td>
<td>x</td>
<td>8,866,424</td>
</tr>
<tr>
<td>Total</td>
<td>1,052,815</td>
<td>0.33</td>
<td>319,556,472</td>
</tr>
</tbody>
</table>
INTRODUCTION TO WASTE MANAGEMENT

SITUATION IN ROMANIA

- In 2009 more than 95% of the collected waste has been disposed on landfills.
- In 2010, there were 29 compliant landfills;
- Total quantity of MW (Municipal Waste) reported as collected in 2009 = 6,930,000 t; Approximately 1,500,000 t were generated but not collected => that the quantity of MW generated in 2009 = 8,441,596 t;
- Approximately 63% of the population in connected to sanitation services at national level, out of which 84% in urban area and 38% in rural area;
- National practice = collection in the mixture (approximately 96% of the household and similar wastes are collected in a mixed bin), without separation at source;
- In 2010 – 698 separate collection settlements => separately collected waste = 58,245 t; Separately collected waste at national level (2010)
3-steps for the implementation process of the separate collections, as follows:

• 2004-2006: experiencing (pilot projects);
• 2007-2017: extension of the separate collection at national level;
• 2017-2022: implementation of the separate collection in critical areas (collective houses, isolated rural settlements, mountain areas);

Out of the total quantity of MSW collected in 2009, 100,560 t were recovered, out of which 93,620 t through recycling and 6.94 t through co-incineration in cement factories;

In 2011, there were 1238 economic operators at national level authorised for packaging waste collection, recycling, energy recovery;

Total quantity of packaging released on the market in 2009: 998.687 t,

• out of which 466,790 t were recovered (46.74%),
• out of which 404,208 t (40.47%) through recycling.
Approximately 63% of the population in Romania is connected to sanitation services at the national level, out of which 84% in urban areas and 38% in rural areas; 

- The national practice is mixed waste collection (approximately 96% of the household and similar wastes are collected in a mixed bin), without separation at source;
- Waste treatment is done in small extent and only for certain waste streams (P.W.=Packaging Waste);
- In 2009 more than 95% of the collected waste has been disposed on landfills;
- In 2010, there were 29 EU compliant landfills, in the following counties: Neamț, Iași, Braila, Buzău, Constanța (3 landfills), Tulcea, Ialomița, Prahova (2 landfills), Dambovita (2 landfills), Dolj, Gorj, Vâlcea, Mehedinți, Arad, Argeș, Bacău, Bihor, Brașov, Galați, Mureș, Sibiu, Ilfov (3 landfills) and Harghita. The EU legislation and standards for waste management were transposed into national legislation, with some transition periods for full compliance;
ROMANIAN STATUS ON WASTE TREATMENT

- **Low rate of recovery:**
  - Parallel collection and sorting circuits;
  - Certain waste materials there are no real recycling options at national level (glass);
  - Other waste (as paper, plastic and metal) are separated and exported for recovery (in 2009 approximately 380,000 t were exported);
  =>markets for extraction and sales of recyclables and compost need further development.

- **Incineration:** Because of the features of the municipal waste and of the high investment and operations costs, no facility for the municipal waste incineration exists currently in Romania.

- **Landfilling:**
  - A number of 236 landfills of the 251 registered municipal landfills in urban area do not comply with environmental standards.
  - In 2010, there were 27 compliant landfills;
  - By the end of 2010 there were 80 non-compliant landfills operating, which are to cease their activity and to be closed, in steps, until 16/07/2017, in accordance with GD 349/2005.
INTRODUCTION TO PACKAGING WASTE (PW) MANAGEMENT SITUATION IN ROMANIA

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Packaging waste generated in Romania (in tonnes)</td>
<td>999,000&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Packaging waste recycled in Romania (in tonnes)</td>
<td>379,620 (38%&lt;sup&gt;b&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>Packaging waste recovered in Romania (in tonnes)</td>
<td>449,550 (45%&lt;sup&gt;b&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>Packaging placed on the market by ERA’s clients (in tonnes)</td>
<td>617,103</td>
</tr>
<tr>
<td></td>
<td>Packaging waste collected through household selective collection (in tonnes)</td>
<td>24,416 (2,4%&lt;sup&gt;c&lt;/sup&gt;) (7,4%&lt;sup&gt;d&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>Packaging waste recycled through ERA’s system (in tonnes)</td>
<td>325,262 (32,6%&lt;sup&gt;c&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>Packaging waste recovered through ERA’s system (in tonnes)</td>
<td>331,781 (33,2%&lt;sup&gt;c&lt;/sup&gt;)</td>
</tr>
</tbody>
</table>

<sup>a</sup> According to the Eurostat statistics in 2009
<sup>b</sup> Include packaging waste from household and commercial flow
<sup>c</sup> Value estimated based on the quantities of packaging waste generated in Romania in 2009
<sup>d</sup> Value determined based on the quantities of packaging waste recovered/recycled through ERA system in 2010.
### National Minimum (per material) and Global Recycling/Recovery Packaging Waste Objectives (%)

<table>
<thead>
<tr>
<th>Year</th>
<th>Paper</th>
<th>Plastic</th>
<th>Metal</th>
<th>Glass</th>
<th>Wood</th>
<th>Global Objectives for Recycling</th>
<th>Global Objectives for Recovery or Incineration with Energy Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>60</td>
<td>14</td>
<td>50</td>
<td>44</td>
<td>12</td>
<td>42</td>
<td>48</td>
</tr>
<tr>
<td>2011</td>
<td>60</td>
<td>16</td>
<td>50</td>
<td>48</td>
<td>15</td>
<td>46</td>
<td>53</td>
</tr>
<tr>
<td>2012</td>
<td>60</td>
<td>18</td>
<td>50</td>
<td>54</td>
<td>15</td>
<td>50</td>
<td>57</td>
</tr>
<tr>
<td>2013</td>
<td>60</td>
<td>22,5</td>
<td>50</td>
<td>60</td>
<td>15</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>Year</td>
<td>Paper</td>
<td>Plastic</td>
<td>Metal</td>
<td>Glass</td>
<td>Wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TOTAL</td>
<td>From which PET</td>
<td>TOTAL</td>
<td>From which Al</td>
<td></td>
<td>Global Objectives for Recycling</td>
</tr>
<tr>
<td>2010</td>
<td>60</td>
<td>14</td>
<td>-</td>
<td>50</td>
<td>-</td>
<td>44</td>
<td>12</td>
</tr>
<tr>
<td>2011</td>
<td>60</td>
<td>22,5</td>
<td>42</td>
<td>50</td>
<td>17</td>
<td>54</td>
<td>15</td>
</tr>
<tr>
<td>2012</td>
<td>60</td>
<td>22,5</td>
<td>55↑</td>
<td>50</td>
<td>21</td>
<td>60</td>
<td>15</td>
</tr>
<tr>
<td>2013</td>
<td>60</td>
<td>22,5</td>
<td>55</td>
<td>50</td>
<td>21</td>
<td>60</td>
<td>15</td>
</tr>
</tbody>
</table>
Legal recycling and recovery objectives by 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Paper/cardboard</th>
<th>Plastic</th>
<th>Glass</th>
<th>Metals</th>
<th>Wood</th>
<th>Global recycling</th>
<th>Global recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper/cardboard</td>
<td>---</td>
<td>15</td>
<td>15</td>
<td><strong>60</strong></td>
<td>60</td>
<td>60</td>
<td><strong>79,5</strong></td>
</tr>
<tr>
<td>Plastic</td>
<td>---</td>
<td>---</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>14</td>
<td><strong>34</strong></td>
</tr>
<tr>
<td>Glass</td>
<td>---</td>
<td>15</td>
<td>22</td>
<td>32</td>
<td>38</td>
<td>44</td>
<td><strong>70</strong></td>
</tr>
<tr>
<td>Metals</td>
<td>---</td>
<td>15</td>
<td>15</td>
<td><strong>50</strong></td>
<td>50</td>
<td>50</td>
<td><strong>87</strong></td>
</tr>
<tr>
<td>Wood</td>
<td>---</td>
<td>---</td>
<td>5</td>
<td>7</td>
<td>9</td>
<td>12</td>
<td><strong>21</strong></td>
</tr>
<tr>
<td>Global recycling</td>
<td>18</td>
<td>25</td>
<td>26</td>
<td>33</td>
<td>38</td>
<td>42</td>
<td><strong>52,7</strong></td>
</tr>
<tr>
<td>Global recovery</td>
<td>22</td>
<td>32</td>
<td>34</td>
<td>40</td>
<td>45</td>
<td>48</td>
<td><strong>53,7</strong></td>
</tr>
</tbody>
</table>
What is collected and why?

- In order to achieve the recycling/recovery obligations on behalf of ERA clients, ERA contractual partners, the WMCs, collect the following categories of packaging waste:

  1. GLASS
  2. PET
  3. PVC
  4. PP
  5. PS
  6. Other plastics
  7. PAP
  8. Beverage Cartons
  9. Ferrous metal
  10. Aluminum
  11. Wood
In Romania, Packaging Waste (PW) is considered as recycled when the PW and/or the secondary raw materials comes from PW are accepted and used/bought by a **Final Recycler**;

**Final Recycler** = the processor of packaging waste and/or secondary raw materials comes from PW, which reprocess these waste materials in a production process for the original purpose (“close loop recycling”) or for other purposes (“out loop recycling”) or for other purposes including composting but excluding energy recovery;

=> Waste is considered as recycled when is accepted in the technological process of an appropriate final recycler.
ERA System WMC Contracts

• ERA has a long term contracts with licensed WMCs (partners of ERA);

• In order to fulfil the recycling/recovery quantitative objectives, ERA are making a **direct negotiation** with WMCs, **according to the calculated tariffs**;

• The terms of the contract are similar for all WMC (there is a frame contract for service agreement for the recovery and recycling of packaging waste)
  – differences are concerning quantities and PW materials collected/recovered and contracted;

• Yearly, accordingly an Additional Act of the contract and in compliance with the total packaging quantities put on the market by ERA’s clients, in direct negotiation with WMCs, the contracted quantities and the tariffs for the packaging waste management services are upgraded by ERA.
## Waste management companies/operators in partnership with ERA, in 2010

<table>
<thead>
<tr>
<th>Region</th>
<th>Sanitation operators</th>
<th>OPP Remat</th>
<th>Other WMC</th>
<th>Total number</th>
</tr>
</thead>
<tbody>
<tr>
<td>North-East (6 counties)</td>
<td>13</td>
<td>3</td>
<td>11</td>
<td>27</td>
</tr>
<tr>
<td>South-East (6 counties)</td>
<td>8</td>
<td>5</td>
<td>17</td>
<td>30</td>
</tr>
<tr>
<td>South (7 counties)</td>
<td>8</td>
<td>3</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>South-West (5 counties)</td>
<td>3</td>
<td>3</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>West (4 counties)</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>North-West (6 counties)</td>
<td>11</td>
<td>4</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Center (6 counties)</td>
<td>10</td>
<td>4</td>
<td>17</td>
<td>31</td>
</tr>
<tr>
<td>Bucharest-Ilfov</td>
<td>5</td>
<td>6</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
<td><strong>31</strong></td>
<td><strong>98</strong></td>
<td><strong>190</strong></td>
</tr>
</tbody>
</table>
### ERA PACKAGING FEES

<table>
<thead>
<tr>
<th>Packaging Material</th>
<th>Fees (€/tonne)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010</td>
</tr>
<tr>
<td>Glass</td>
<td>16,29</td>
</tr>
<tr>
<td>PET</td>
<td>21,47</td>
</tr>
<tr>
<td>Plastics</td>
<td>11,68</td>
</tr>
<tr>
<td>Cardboard paper</td>
<td>13,27</td>
</tr>
<tr>
<td>Steel</td>
<td>10,27</td>
</tr>
<tr>
<td>Aluminium</td>
<td>10,27</td>
</tr>
<tr>
<td>Wood</td>
<td>10,53</td>
</tr>
</tbody>
</table>
ERA ACHIEVEMENTS

Licensed quantity, t

Operating principles:
- Transparent fees;
- Open organization;
- Equal treatment of all customers;
- Equal treatment of all materials;
- Not for profit - any profit is reinvested to increase efficiency.
ERA Selective Collection Infrastructure

2.5 cm special IGLOOS

1.1 cm special containers

0.24 cm selective collection bags

• ERA supported some costs of containers made by sanity operators;
Tarrifs and the decision making process

- City council
  - Proposal on tarrifs
  - Decision on tarrifs
- Waste management administration
- Customers
  - Service
  - Invoice
  - Payment
- Contractors/sanitation WMC
  - Contract
  - Payment

Local Authority (I) and WMC (II)
Romanian generalities – Direct Financing of solid waste collection and treatment

- **Waste tariffs** – whether or not waste is put into the collection system, the household has to pay the waste tariff; Household pays the same amount of money for the waste, no matter how much waste is produced => no financial incentive to reduce waste generation;

- **Sell of secondary raw materials** – When selective/separate collection is applied, the separated waste fractions are sold as raw materials => generate income and recover a significant portion of costs for selective waste collection and treatment;

- **Producers’ responsibility** – source of income – through ERA system.
Romanian generalities – Economic Instruments related to PWM

• **Eco-taxes** as a fine for non-achievement of recycling targets – to raise revenue for environmental (WM Facilities) purposes;

• **Bag eco-taxes (0,2RON/non - biodegradable bag)** – to discourage the use of bags, because of their perceived environmental impact;

• **Eco-tax** – to encourage the non-landfilling of the recycled material from MSW – diminishing by 15% the MSW quantity designated to be disposed each year.
ERA Financial Scheme

The ERA financial scheme:

- **FINANCIAL SUPPORT** of the reported (to ERA) packaging waste quantity which are transported to an appropriate Final Recycler, expressed in RON/t and per specific packaging material => support the municipality operated selective collection scheme of packaging waste (the HH flow) and the IC waste flow collection operated by licensed WMCs;

  - **Provide containers** (by commodatum agreement/loan for the use agreement) for Household and Industrial/Commercial packaging waste flow;
    - **Communications forms**;

- The operational ERA expenses to WMCs reflects the packaging waste management costs.
Low cost of refuse collection and landfilling country (27 €/collected tonnes);
7% of recovered quantities comes from the selective collection of household waste and 93% comes from the industrial/commercial flow;
Only 65% (86% considering an economic perspective - cost savings due to recycling are taken into account) of the costs are being supported by industry;
For the full cost system supported by industry => the increase in the bonus payment (ERA) should be even higher (+469%) than the value practiced in 2010.
CONCLUSION - WASTE SECTOR IN ROMANIA

According to SOP ENV, the total funding (EU and national) for priority axis 2 is 1,167 billion € or investments of about €25-50 million per county.

- **Waste collection:**
  - Set up the **more accurate packaging waste generation** and **waste composition** - re-established with greater detail taking data from existing facilities in the various counties;
  - Shift of **selective collection** from dry bin to **at least 3 bins** (paper - blue, plastics & metals - yellow, glass - green); The Plan seeks, by 2017, to extend the separate collection of the municipal waste nationwide;
  - Contribution of the private Recycling Schemes (“Green Dot”) at a high level, accordingly to the “producers responsibility” principle;

- **Waste treatment:**
  - “Low Cost” approach for waste treatment;
  - **Upgrading the sorting stations (the larger ones)** with separation systems such as for the plastic fractions;
  - **Home composting** - can contribute not only to the diversion target but to environmental awareness as well;

- **Disposal:**
  - The National Plan envisages one conform landfill per county; 75% of 1995 (4,800,000t) landfilled BMW by 2010; 50% by 2013; 35% by 2016; BMW = Bio. Municipal Waste.
  - Some implementing measures which could have been important have not been introduced (notably, a landfill tax);

- **Waste to Energy:** In Brasov and Bucharest counties, two WtE plants will be constructed under PPP, however planning of the plants has not yet been solved.