

European Commission, Brussels



**ORGANISATION OF AWARENESS-RAISING EVENTS CONCERNING THE  
APPLICATION AND ENFORCEMENT OF COMMUNITY LEGISLATION ON  
SHIPMENTS OF WASTE AND ON LANDFILLS**

REFERENCE: 070307/2007/481226/MAR/G4

**REPORT EXTRACT**

**PORTUGAL**

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**BIPRO**

Beratungsgesellschaft für integrierte Problemlösungen

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# 1 Outcome of information exchange and awareness raising events

## 1.1 Workshop on landfill of waste in Portugal

Lisbon, Amadora	13 to 14 May 2008	<b>National Cooperation partner:</b> APA (Portuguese Environmental Protection Agency) <b>Venue:</b> Premises of APA, Amadora <b>Participants:</b> 45 <b>Agenda:</b> 11 presentations (including EC and BiPRO)
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Table 1-1: Overview on workshop on landfill of waste in Portugal

The information exchange and awareness raising event on landfill of waste in Portugal took place on 13 to 14 May 2008 in Amadora. The event was organised with strong support APA, the Portuguese Environmental Protection Agency. The workshop was scheduled as a two days event, and included an excursion to the Valorsul Landfill.

The 42 Portuguese participants comprised representatives of the Ministry of the Environment, the National Environmental Protection Agency, Inspectorates in the field of spatial planning, representatives of laboratories and private waste management companies (see Annex I participation list).

The event was realized in Portuguese with simultaneous translation. In total 11 presentations were held.

### 1.1.1 Summary of presentations held in Portugal

Besides the presentations from BiPRO and DG ENV, the following presentations were held during the workshop in Amadora:

#### *(1) Implementation of the Waste Landfill Directive in Portugal – Results achieved and difficulties encountered*

The presentation addressed the steps taken to implement Directive 1999/31/EC in Portugal. The legislative documents and the strategic plans for municipal waste were presented. Most of information provided is reported within the sections “Major problems and deficits identified”.

#### *(2) Reverse Osmosis Concentrate and Sludge Disposal in Landfill*

The presentation focused on reverse osmosis is a recent developed landfill related technique which APA considers to be of interest to be promoted in Portugal. The presented results are based on a study conducted on behalf of APA. The leachate is treated with reverse osmosis with the effect that from 100 per cent pure leachate, 40 per cent remain as concentrated leachate while the rest remains as water. In the framework of a scientific study it was tested to inject the leachate concentrate into the landfill to shorten the decomposition time of the landfilled waste. The technique has yet to prove to work in practice. Whether this procedure

would be compliant with the EU requirements is not clear yet.

*(3) Challenges and opportunities for waste Management in the community support Framework 2007-2013*

The presentation addressed the funding of waste management measures; facilities/treatment to reduce biodegradable fraction to better achieve reduction targets. The regions may now apply for these programs, and the MoE selects among certain criteria and co-finances the projects.

*(4) Organic Matter: New Opportunities, New Destinies*

The presentation discussed an integrated waste management project in the region of Porto (8 municipalities with 10% of Portuguese population involved). It presented details on a composting unit of biodegradable waste and a pilot project for domestic composting. This included photos and data (input-output), a description of the selective collection system and challenges observed.

*(5) SISAV – A new approach of waste management in Portugal*

The presentation focussed on the description of the recently established integrated system for management of industrial hazardous waste in Portugal in order to reach self-sufficiency. The presentation described the planning procedure including the market analysis for waste generation with data for regional waste generation. Furthermore it provided information on the treatment technologies applied (soil decontamination, stabilisation and solidification, recovery of packaging, physico-chemical treatment, waste oil treatment, evaporation-oxidation, landfill, supportive technologies like biofilter and gas washer). Technologies were described in detail and illustrated with photos. The presentation contained a description of the acceptance procedures performed, as well as of the technical standard of the landfill.

*(6) Recent advances on the compacted clay liner performance in landfills*

The presentation discussed the technical aspects and potential problems of the legal requirements related to the geological barrier. This included a comparison of EU and US requirements and the question how to compact clay liner in a most efficient way. The main outcome of the presentation was that the strict height limit in the EU legislation is problematic and should be replaced by a more flexible approach based on the conductivity features of a material more than on its height. Different problems leading to increased conductivity of the natural barrier due to draught, the importance of a specific water content, the function and importance of the geomembrane, etc were described. Corresponding engineering details related to the superficial coverage and the drainage systems were also discussed.

*(7) Recent advances on the geosynthetic performance in liner systems and the importance of the Quality Assurance*

The presentation focused on the requirements and details of quality procedures to assure a bottom sealing system in conformity with the EU requirements. This comprised a general

overview on the technical specification of the bottom liner as requested by landfill directive, major problems that can lead to deterioration and procedures to reduce the risk. The presentation also included the request to make legislation more flexible to better adapt it to technical progress.

#### **Site visit to the Valorsul landfill**

Valorsul, SA, is the company responsible for processing and recovery of about 750,000 tons of municipal solid waste (MSW) generated each year by five municipalities in the area north of Lisbon, accounting for one sixth (18%) of all the household waste produced in Portugal.

This huge quantity of waste is treated and valued by Valorsul through a modern system of Integrated Management of solid Waste, attended by five units, which is part of a central incineration and landfill of Mato da Cruz, prepared for the controlled deposition of about 180,000 tons of waste per year. The landfill includes three cells for deposition of domestic solid waste. One of it with 7 ha, already utilized by one of the municipalities served by the multi-municipal system, have been closed by Valorsul, in accordance of de CE Directive and assembled to a network of extraction of biogas. The other two cells are in operation, with 13.7ha, one of them will achieved the maximum capacity on 2008, have a capacity of 3,550,000 m<sup>3</sup>. The rates applied to deposition are of 22 € / ton for the municipalities and 41 € / ton for individuals/private companies. It is expected that the life of the three cells landfill reaches its terminus in 2010. New cells are in project phase.

#### *1.1.2 Legal background and national enforcement structure in Portugal*

The Landfill Directive was transposed to Portuguese law mainly by “Decreto-Lei” n.º 152/2002, of 23 May 2002. The Decision 2003/33/CE is also applied.

PERSU II, a national strategic plan in the field of municipal waste management, has been issued in 2006 covering the phase 2007-2016. The plan fine-tuning the aims of the precedent strategic plan PERSU (from 1997; covering 1997-2006). This strategic plan also contains measures for a full implementation of the waste hierarchy in Portugal in the MSW sector, measures to reduce the biodegradable fraction in landfilled waste and detailed target figures to achieve this aim and measures to fully enforce the principle of self-sufficiency.

Waste fees at household level are charged together with water consumption. A shift towards a more polluter-pays-principle orientated approach is foreseen in PERSU II plan.

There are different bins to enable an early separation of the waste. In cities and in rural areas, citizens bring waste to nearby containers. Green waste is separately collected; a market for compost does exist.

#### *Information on enforcement / monitoring issues*

The issued permits oblige monitoring actions to be carried out according to the “Decreto-Lei nº 152/2002”. The monitoring results are organized in a report format which is, six-monthly or annually, addressed to APA and to others competent authorities concerning the landfill

licensing procedures such as the Regional Authorities for the Environment (CCDR) and the Regional Authorities for the Economics (DRE). The reports are analyzed subsequently. If any infraction is identified, correction measures must be applied by the operator and if, eventually, the situation is considered as being severe, the Inspectorate-General of the Environment (IGAOT) must be informed.

The criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Landfill Directive are in line with those established within the Waste Acceptance Criteria Decision. For those landfills receiving exclusively non-municipal and non-hazardous waste, procedures are established under Council Decision (2003/33/EC) and criteria applied as laid down in national legislation (Decreto-Lei nº 152/2002).

Regarding the acceptance of wastes at landfills, APA provides guidance for the basic characterization.

#### *Information on enforcement of measures against illegal dumping and littering*

APA representatives informed that there is no major problem with illegal dumping and littering because of two characteristics of Portuguese waste management system:

- Civil amenity sites are easily reachable for each citizen;
- A collection at source system is in place for several waste streams: paper, package and packaging waste, glass and batteries. WEE is separately collected in collection points; a take-back-system is in place.

Since the implementation of these measures, illegal dumping is mainly restricted to C&D waste. Regarding this waste stream, a recent issued Decree which foresees high fines aims to be expected to conduct to an adequate management of these wastes.

#### *1.1.3 Facts and Figures related to landfilling of waste in Portugal*

Currently, there are 34 landfills for MSW and 5 landfills for industrial waste in operation. Additionally, 3 landfills for industrial waste and 2 landfills for hazardous waste are currently constructed. A map with the industrial waste landfills localization can be found in the following table:

Aterros para resíduos não perigosos de origem industrial

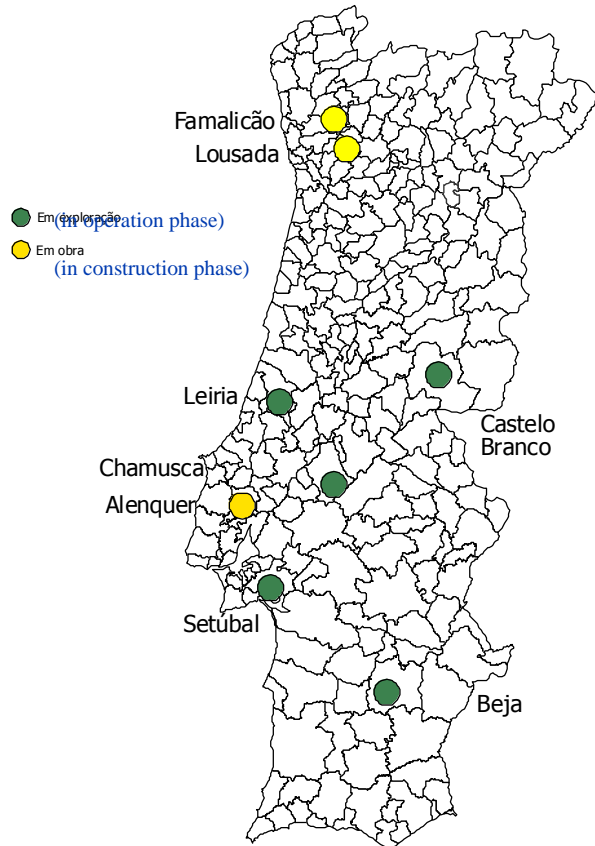


Figure 1-1: Map with the industrial waste landfills localization, source: APA 2008

The following table provides an overview on the development of waste management infrastructure in Portugal over the past 10 years:

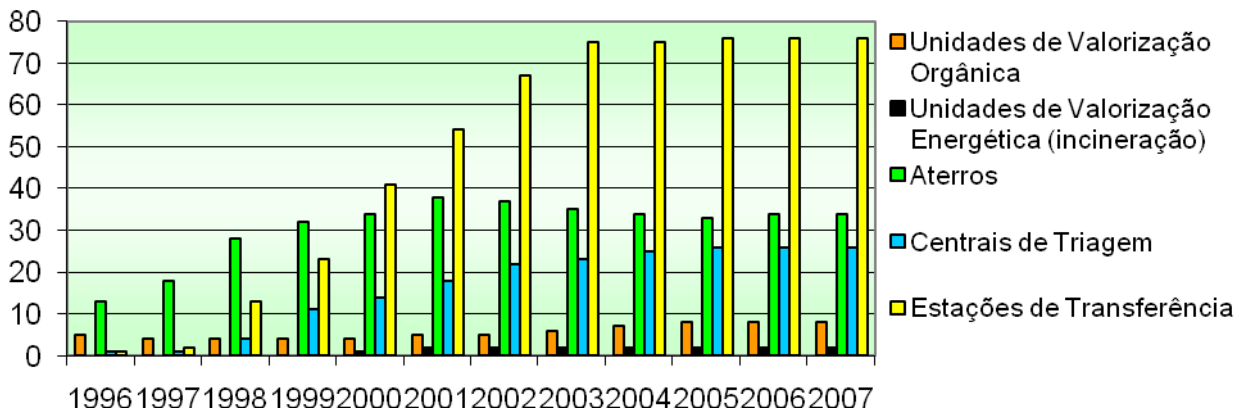


Figure 1-2: Waste treatment facilities, source: presentation APA

Orange bar: composting plants, black bar: Incineration, green bar: landfills, blue: separation plants, yellow: transfer stations

Whereas there are landfills for hazardous waste which are operated by private companies,

landfills for MSW are usually ran by public companies.

In the course of implementation of the strategic plan PERSU, until 2002 a total of 341 dumping sites and 14 non compliant MSW landfills were closed in Portugal, so that no dumpsites are left for today. With respect to MSW management, several landfills were constructed in the meantime, as well as the respective supporting infrastructures.

The composting unit at LIPOR is working with 60.000 t organic waste resulting in 20,000 tons of compost. Waste is collected in gardens, parks, markets, restaurants, cemeteries and houses. Collection frequency varies from daily to 3x per week. The project is running well and shall be extended.

Hazardous industrial waste is management by the Integrated Center for Recycling, recovery and Elimination of Hazardous waste (CIRVER) managed by SISAV. The center has an average treatment capacity of 150,000 tons/year and a max capacity of 315, 000 tons/year.

#### *1.1.4 Major problems and deficits identified*

- Landfill is still the major treatment method
- Concerns with achieving the Landfill Directive targets on biodegradables

#### *1.1.5 Examples of good practice identified as potential tools to improve implementation and enforcement*

- Strategic approach visible to comply with EU Regulation
  - Waste hierarchy within the management of MSW
  - Reduction of biodegradable fraction in landfilled waste
  - Compliance of landfills
- Elimination of a high number of illegal dumps
- Successful tackling of the littering problem
- High separate collection rate
- Information and awareness-raising campaigns

#### *1.1.6 Priority activities for implementation of Landfill Directive in Portugal*

- Further improvement of waste treatment infrastructure towards the recovery of material and energy
- Further efforts to fully set to life the principle of self-sufficiency

#### *1.1.7 Proposals, suggestions and needs addressing the EU Commission:*

- Guidance from EU as regards criteria for monolithic waste
- Clarification of status of reverse osmosis technique

## 2 Agendas and Participant Lists

### 2.1 Agendas

#### 2.1.1 Agenda for Amadora, Portugal, 13 to 14 May 2008

### Participants

The event is addressed primarily to the administrative bodies involved in enforcement of landfill of waste. Other relevant organisations like important scientific and educational institutions, waste management companies and NGOs are also invited to contribute to the information exchange process.

### Travel information

**Location:**  
 Agência Portuguesa do Ambiente  
 Rua da Murgueira, 9/9A - Zambujal Ap. 7585  
 2611-865 Amadora, Portugal

**Room: Auditorio APA**  
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Links to a map of the surrounding of the ministry and to accommodations can be found at the homepage.

### Background and Objectives

Each year about 1.3 billion tonnes of waste are produced by the citizens of the European Union and require adequate treatment. The European Commission has taken various measures to reduce the amount of waste by supporting appropriate treatment, reuse, recycling and recovery of waste. Nevertheless a huge amount of waste is still landfilled.

To reduce environmental and health impacts of this disposal method the European legislation, especially **Directive 1999/31/EC** on the landfill of waste and **Decision 2003/33/EC** on acceptance criteria for waste, set high requirements for the authorisation, operation, closure and aftercare of landfills. This includes technical standards, reduction targets, acceptance procedures, limit values, monitoring and control activities. All existing landfills have to fully comply with the legal requirements at the latest by 2009 (earlier for landfills for hazardous waste)

Within the last years many activities were initiated to meet this requirements, however many landfills do still not fully comply with the legal requirements.

↓

Therefore the European Commission (DG Environment) initiated a project to support enforcement and promote information transfer. In total seven events will be held in EU Member States.

Besides discussing the legal requirements and objectives of EU policy the events aim at supporting the exchange of information amongst experts in the field of implementation and enforcement and to discuss best practices.

National and regional experts are given the possibility to receive information, exchange experiences and to identify possibilities for further improvements of implementation and enforcement within their countries.



### Information Exchange and Awareness Raising Event on LANDFILL of Waste

**Portugal Amadora**

13.05.2008  
and  
14.05.2008



Project funded by DG Environment of the European Commission

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<http://www.bipro.de/waste-events/land/landfill.htm>

## AGENDA

Tuesday, 13 May 2008

from 10:00	Registration, Come together, including Coffee
Chairperson: Luisa Pinheiro, Portuguese Environmental Agency, Ferdinand Zotz, BiPRO	
10:30	Humberto Rosa, Secretary of State for the Environment <i>Opening of the Workshop</i>
10:40	Elisabeth Müller, BiPRO <i>Introduction to the EU Project</i>
<b>I. RELEVANT LEGISLATION AND STATUS QUO</b>	
10:45	Ferdinand Zotz, BiPRO GmbH <i>Overview on relevant European legislation</i>
11:20	Jorge José Diaz del Castillo, European Commission, DG Environment, <i>Status and problems with the implementation of European legislation for landfills</i>
11:50	COFFEE BREAK
12:05	Ana Lima, Portuguese Environmental Agency <i>Implementation of the Waste Landfill Directive in Portugal – Results achieved and difficulties encountered</i>
12:25	Alfonso Lobato de Faria, Instituto de Soldadura e Qualidade <i>Reverse Osmosis Concentrate and Sludge Disposal in Landfill</i>
12:45	Questions and Discussions
13:15	LUNCH BREAK

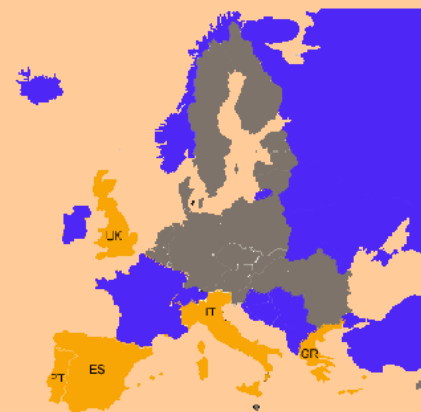
Tuesday, 13 May 2008

Chairperson: Ana Isabel Paulino, Portuguese Environmental Agency, Elisabeth Müller, BiPRO	
<b>II. SPECIFIC ASPECTS OF IMPLEMENTATION</b>	
14:30	Ana Maria Barata da Silva, Ministério do Ambiente, do Ordenamento do Território e do Desenvolvimento Regional <i>Challenges and opportunities for waste Management in the community support Framework 2007-2013</i>
14:50	Elisabeth Müller, BiPRO <i>Legal requirements for acceptance and control during operation of landfills</i>
15:05	Abílio Almeida, LIPOR <i>Organic Matter : New Opportunities, New Destinies</i>
15:20	Manuel Simões, SISAV <i>SISAV – A new approach of waste management in Portugal</i>
15:50	Questions and Discussions
16:00	COFFEE BREAK
16:15	António José Roque, Laboratório Nacional de Engenharia Civil <i>Recent advances on the compacted clay liner performance in landfills</i>
16:30	Madalena Barroso, Laboratório Nacional de Engenharia Civil <i>Recent advances on the geosynthetic performance in liner systems and the importance of the Quality Assurance</i>
16:45	Ferdinand Zotz, BiPRO <i>Experiences from Previous Events</i>
17:00	Questions and Discussion
18:00	END OF THE FIRST WORKSHOP DAY

Note: After each presentation 5 minutes for questions are included

Wednesday, 14 May 2008

<b>III. EXCURSION</b>	
8:30 – 11:00	Excursion to the landfill Valorsul
11:00	COFFEE BREAK
Chairperson: Ana Isabel Paulino, Portuguese Environmental Agency, Ferdinand Zotz, BiPRO	
<b>IV. CLOSING SESSION</b>	
11:15	Discussion, open questions, concluding statement
12:30	END OF THE WORKSHOP



## 2.2 List of participants

### 2.2.1 List of participants for Amadora, Portugal, 13 to 14 May 2008

	Name	Institution	Adress	Phone	E-Mail
1	Jorge José Díaz del Castillo	EU Commission, DG Environment	Avenue de Beaulieu 5, B-1049 Brussels	0032 2 2968263	Jose-Jorge.Diaz-Del-Castillo@ec.europa.eu
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