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

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1 Background and Objectives

The production of waste increased constantly over the last decades. Therefore the recycling, recovery, treatment and environmental sound disposal of waste are main priorities on the environmental agenda of the European Union. The current EU legislation sets high standards regarding the disposal of waste within landfills. Correspondingly legislation contains obligations for Member States to take appropriate measures for implementation and enforcement including the establishment of the necessary administrative and technical infrastructure, permitting, monitoring, control and reporting.

However, statistics, studies and projects also show, that envisaged targets set by the European corresponding legislation have not always been sufficiently achieved and that efforts and standards in the waste sector are not similar in all EU Member States. In addition results showed that whereas the legal framework is well established at European scale the level of implementation is not always sufficient. This situation is reflected in the high number of petitions, complaints and infringement cases in the waste area (e.g. as concerns landfill standards, illegal dumping, siting of treatment facilities). Lack of compliance in this area might be in part due to the fact that correct waste management and treatment is associated with significant costs, which might be regarded as disadvantage in international competition and constitute a potential incentive for non-compliance in a global market. In addition especially awareness on environmental impacts and health risks from waste and related responsibility of consumers or producers is in part low in the general population (“waste does not pay”) and waste management might not be seen as a priority issue in local, regional or national policy. Therefore correct implementation of existing EU legislation is a matter of major practical importance and increasing political importance, as intended effects and harmonised standards throughout the European Union can only be achieved if legal provisions are correctly and fully implemented and enforced.

The major background to the project is therefore formed by the overall objective of European Commission policy to support, enhance and monitor the implementation of waste legislation addressing especially the fields of landfilling of waste. In order to minimise the need of infringement cases the priority is on putting in place a preventive approach, focusing on cooperating with Member States authorities and affected stakeholders for facilitating them to apply correctly the EU waste legislation.

European legislation intends to set standards for the handling, transport, treatment and disposal of waste in order to reduce the negative effects to human health and to the environment. For this purpose **Directive 2006/12/EC** on waste (former 75/442/EEC, Waste Framework Directive) sets the legal framework and basic definitions relevant for waste management. Priority within the European waste hierarchy is given to the avoidance of waste. Reuse, recycling and recovery options should be realised whenever suitable in order to reduce the consumption of primary resources and the amount of waste. However, a huge amount of waste is currently still being disposed on landfills.

Furthermore the Waste Framework Directive requires that Member States ensure that waste is recovered or disposed of without endangering human health and the environment.

Member States must take the necessary measures to prohibit the abandonment, dumping or uncontrolled disposal of waste. Holders of waste must ensure the disposal or recovery of their waste in accordance with the provisions of the Directive or have it handled by an authorised collection-, recovery- or disposal company. Any establishment or undertaking carrying out waste recovery or disposal operations must have a permit and be inspected at regular intervals by the authorities.

The new Waste Framework Directive was adopted by Council and Parliament in October 2008. Concerning the disposal of waste within landfills the European legislation, especially Directive 1999/31/EC on the landfill of waste and Decision 2003/33/EC on acceptance criteria set high requirements for the authorisation, design, operation, closure and aftercare period of landfills.

Within the last years a large number of actions were initiated especially by the EU-12 Member States to meet the requirements. However, many of the existing landfills do not fulfil the requirements yet. One of the highest priorities of the European Commission is therefore the further reduction and elimination of uncontrolled, unmonitored and mismanaged landfills and landfills without permits within the EU, which might lead to serious pollution of soil, water and air.

All new and existing landfills have to fully comply with the requirements of **Directive 1999/31/EC on the landfill of waste** (Landfill Directive) at the latest by **16 July 2009** or as indicated in the accession treaties. Its key requirements aim to ensure that all landfill operators have adequate permits and the landfills are technically adapted to EU standards and adequately monitored.

Detailed description on acceptance criteria and the acceptance process has been set by **Council Decision 2003/33/EC**. This decision entered into force on 16 July 2004 and the limit values had to be applied in the Member States at the latest by 16 July 2005.

However studies about the implementation of the legal requirement and the number of infringement cases, complains and petitions received by the Commission show, that there is a great lack of implementation not only in the “new” EU MS (EU 10, RO, BU) but also in “old” EU-15 states. A high number of illegal dumpsite is reported in EU countries indicating major structural and enforcement problems.

1.1 Objectives and tasks

Against this background, the Commission Services (DG Environment) - based on the positive experiences from a corresponding project performed last year - initiated a project aiming at information exchange and discussion by means of a series of workshops in order to commonly work on the preparation of solutions more effective cooperation and control.

The aim is to inform key officials in the national authorities about the importance of correctly applying the EU legislation on landfilling of waste. The major objectives of the events are in particular:

1. Identify current state of implementation of the Landfill Directive including the requirements of the Waste Acceptance Criteria Decision and the Waste Framework Directive (Visits to landfills should be a part of the events)
2. Explore and discuss current problems and obstacles for implementation and co-operation between the concerned authorities.
3. Exchange experiences and collect examples of good practice concerning enforcement and co-operation.
4. Discuss possible solution for improved implementation and enforcement including co-operation within as well as between Member States.
5. Spread information, compiled during the events, to a larger number of relevant officials in the national authorities concerned.

In this context the following tasks have to be fulfilled:

1. Selection of Member States to be covered
2. Selection of participants to cover all relevant national authorities and key officials and if appropriate other stakeholder like waste producer, landfill operator, accredited laboratories
3. Selection of appropriate location, timing and duration of the event
4. Coordination of the activities with IMPEL
5. Execution of all tasks related to the preparation, realisation and post-processing of the events (liaise with national authorities, organise speakers from national authorities and other stakeholders, prepare a draft agenda, invitation and a list of relevant participants to be invited, organise enrolment, manage the venue and transportation, organise a side visit, ensure translation if appropriate, provide background material and presentations, provide secretarial and technical assistance, chair and guide the event, provide post-processing material.

Topics to be discussed during the events shall include:

- Overview on legal requirements on Landfill of waste (including targets, deadlines)
- Current structure and status of waste management (responsibilities, fees, tax, reimbursement systems, collection and separation, treatment methods)
- Current state of national enforcement infrastructure (permitting, inspection, sampling and analysis, monitoring, control, closure and recultivation)
- Current deficits in implementation and enforcement and consequences thereof
- Current obstacles to implementation and enforcement of legal requirements
- Infringement procedures
- Examples of best practice for enforcement (effective inspection practice, mutual information and co-operation; waste acceptance, management of recoverables and biodegradable waste)
- Possible solutions and proposals to further improve enforcement and cooperation
- Illegal dump sites

Workshops primarily address administrative bodies responsible for enforcement of the legal requirements for landfilling of waste including experts from ministries of environment or finance, environmental inspectorates, administrative bodies involved in enforcement of landfill of waste at national, regional and local level. In addition the list of participants could include scientific and educational institutions, companies working in the field of waste management and export or NGOs.

2 Summary on information exchange and awareness raising events

This chapter provides an overview on the selection procedure for the information exchange and awareness raising events as well as on the preparation of the specific events.

2.1 Selection of Member States to be covered by events

The criteria for a proper selection of the MS to be covered by events take into consideration aspects of balancing and importance of the issue.

With respect to balancing selection should assure that:

- At least 5 MS for landfill were covered
- A well balanced range of those MS being part of the EU prior to May 2004 (EU-15) as well as those entering the EU in May 2004 and January 2007 was realised
- MS, which were covered by previous events (either by the 16 awareness raising events held between January and May 2007 or by TAIEX meetings on the topic) were no high priority countries

All new MS including RO and BU have been covered with corresponding landfill seminars recently and consequently have been attributed low priority in the further selection procedure. For the EU-15 MS, which have not been covered by landfill seminars, the following parameter for the importance of the issue in a MS have been used in addition to the balance criteria mentioned above:

- (1) The number of infringement cases in the waste sector in the previous years (data from 2004 and 2005)
- (2) The amount of municipal waste landfilled per inhabitant
- (3) Data about number, size and status of landfills
- (4) Existence of illegal landfills

Add (1): The number of ***infringement cases*** in the waste sector (including especially bad application and non-conformity cases) in 2005 was especially high in IT, FR, UK, GR, ES, PT and IE. The data of 2004 shows a similar picture.

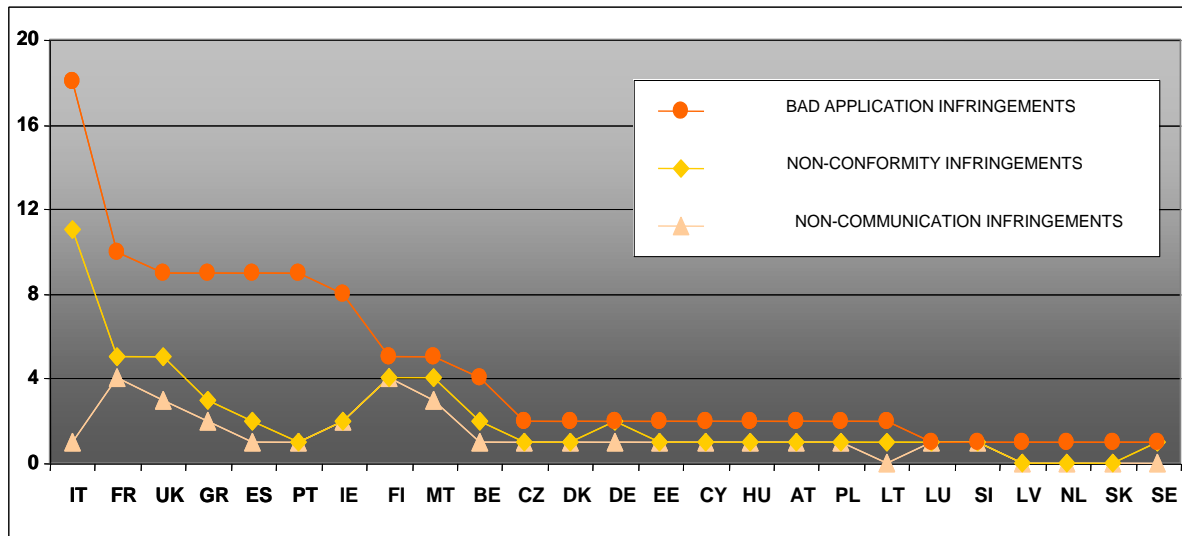


Figure 2-1: Number of infringement cases in the waste sector in 2005 by MS¹

Ad (2): Regarding the **amount of municipal waste landfilled**, data until 2003 for EU-15 show that especially IE, UK, ES, PT and IT have a high per capita rate.

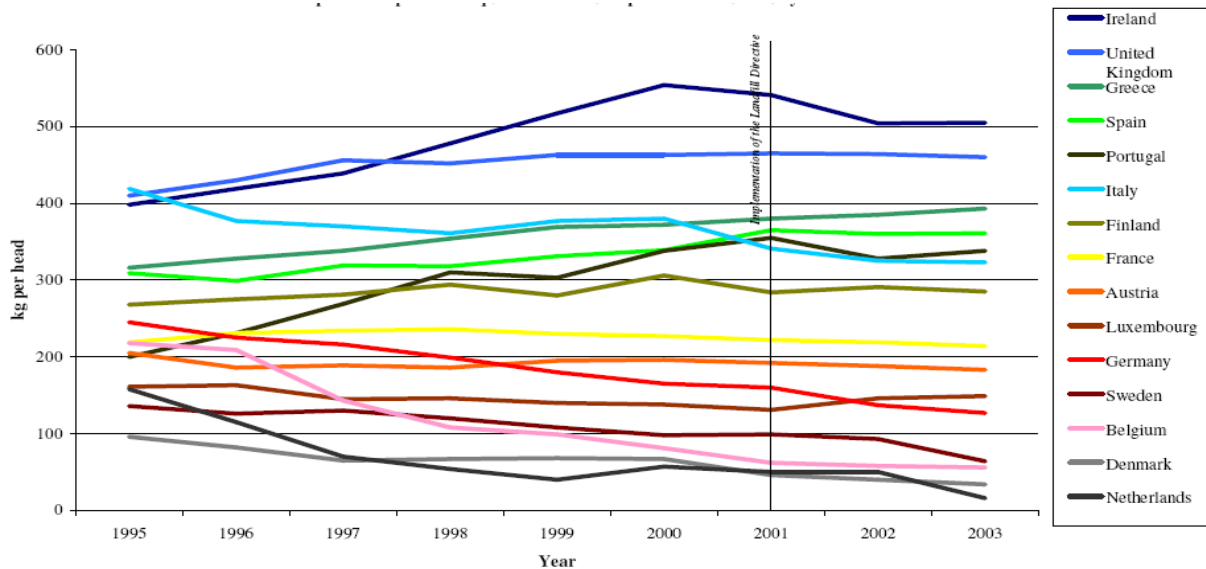


Figure 2-2: Comparison of municipal waste landfilled within EU-15 MS 2

Add (3): Data availability about the number of landfills in the MS is scarce, at least as concerns the European database EUROSTAT. The available data about **number and annual input** was evaluated from EUROSTAT and the national Waste Management Plans and is listed in Table 2-1.

¹ Source: EU: Seventh Annual Survey on the implementation and enforcement of Community environmental law, 2005, 08.09.2006

² Source: Report on Implementation of the Landfill Directive in the 15 Member States of the European Union, Golder Europe EEIG, October 2005

The compilation shows that only for 10 EU out of 15 MS data is available for the years 2000 and 2003. Concerning the non-hazardous waste landfills especially GR, IT and FR reported a high number of landfills, whereas in the case of Greece only a small amount is reported as “controlled landfills”. FI, ES and PT also reported a considerable number of non-hazardous waste landfills. In the case of hazardous waste landfills, the number is comparable high in ES, BE, FR and FI.

non-hazardous	year	BE	DK	ES	FI	FR	GR	IT	LU	NL	PT
number of landfills /controlled landfills	2000	84		192*	287	398	2,211 / 29**	631	14	36***	110 / 31**
	2003	69	141		233		1,032 / 36**		14		41
annual input [kt/y]	2000			11,284*		24,920		8,762	4,814		
	2003								4,216		
hazardous	year	BE	DK	ES	FI	FR	GR	IT	LU	NL	PT
number of landfills	2000	16		18*	13	14		12		1***	1
	2003	16			15						
annual input [kt/y]	2000					809		198			
	2003										

Explanation

* only controlled landfills are reported

** number of landfills reported as controlled landfills

*** information from waste management plan

Table 2-1: Data of number and status of landfills within EU-15 MS 3

Add (4): As concerns the **existence of illegal landfills**, data was collected within the Report on Implementation of the Landfill Directive⁴ as summarized in Table 2-2. Based on this data the number of uncontrolled landfills reported is especially high in IT, GR, FR and BE. Even if the report indicates that the definition of “illegal landfills” varies widely in the MS and some MS reported also illegal fly tipping or landfills which are undergoing minor infringements as illegal, this number might give a suggestion, what countries have special problems with uncontrolled dump sites.

MS	AT	BE	DE	DK	ES	FI	FR	
Number of illegal landfills	0	963	0	0	nn	0	1,042	
MS	GR	IE	IT	LU	NL	PT	SE	UK
Number of illegal landfills	1,453	>9	1,763	0	0	2	nn	0

Table 2-2: Number of illegal landfills reported in EU-15 MS (2005) 5

Based on the selection criteria chosen, the information collected on the situation in the Member States and specific priorities of Member States and the Commission Services, the following Member States were selected as first priority to be covered by events:

³ Source: EUROSTAT Data on Environment

⁴ Source: Report on Implementation of the Landfill Directive in the 15 Member States of the European Union, Golder Europe EEIG, October 2005

⁵ Source: Report on Implementation of the Landfill Directive in the 15 Member States of the European Union, Golder Europe EEIG, October 2005

MS for landfill events
Italy
Portugal
Spain
Greece
Ireland
United Kingdom*
France

Table 2-3: Selection of Member States to be covered by information events

As alternatives in case an event in one of the priority countries could not be executed, the following MS were suggested in accordance with the Commission recommendation.

MS for landfill events
Belgium
Finland
Bulgaria
Romania

Table 2-4: Proposal for alternative allocation of information events to EU-MS

2.2 Preparation and organisation of events

The organisation of the events was performed by BiPRO in close cooperation with the competent national authorities such as Ministry of Environment and or Environmental Agencies. Two of the events were organised with the support of local subcontractors for reasons of language and better insight into the national structure (IT, GR).

First contacts with MS and invitations of participants were accompanied by recommendation letters signed from Commission Services. Recommendation letters were provided in national language. In all cases recommendation letters are important tools for the workshop preparation. In part they represent a crucial parameter for initiating cooperation. Consequently it is important to prepare letters and translations in an early project stage.

In general there were no major problems in the preparation of the events for landfill of waste. Although a number of changes had to be made in relation to the planned time schedule and order, the events in general could be scheduled between April and July 2008, in order to allow sufficient time for finalisation of the project report in August and in order to avoid the holiday season. Minor problems occurred only in two "landfill" events:

Due to the fact, that the organisation of information exchange events in France and Ireland could not be achieved, due to heavy workload and time constrictions of the competent national key authorities, alternative events were organised. Finally mid of September could be agreed upon for Finland and 12-14 November has been agreed upon for a landfill event in Bulgaria. The following table provides an overview of the schedule for the seven planned events.

Country, Location	Date	Workshop details
PT Lisbon	13 to 14 May 2008	National Cooperation partner: APA (Portuguese Environmental Protection Agency) Venue: Premises of APA, Amadora Participants: 45 Agenda: 11 presentations (including EC and BiPRO)
IT Rome	26 to 27 May 2008	National Cooperation partner: Environmental protection agency APAT Venue: Premises of the Environmental protection agency APAT Participants: 87 Agenda: 14 presentations (including EC and BiPRO)
ES Madrid	5 to 6 June 2008	National Cooperation partner: Ministry of Environment Venue: Premises of the Centre of Studies and Applied Technologies (CETA) in the Centre of Studies and Experiments in Public Works (CEDEX) Participants: 69 Agenda: 14 presentations (including EC and BiPRO)
GR Athens	23 to 24 June 2008	National Cooperation partner: Ministry of Environment Venue: Villa Kazouli; Conference Hall of the National Centre of Environment and sustainable Development Participants: 66 Agenda: 17 presentations (including EC and BiPRO)
UK London	26 to 27 June 2008	National Cooperation partner: DEFRA Venue: Premises of DEFRA, London Participants: 28 Agenda: 11 presentations (including EC and BiPRO)
FI	15 to 16 September 2008	National Cooperation partner: Ministry of Environment Venue: Premises of the Ministry in Helsinki Participants: 14 Agenda: 11 Presentations (including EC and BiPRO) Excursion: Ämmässuo Landfill
BG	13 November 2008	National Cooperation partner: Ministry of Environment Venue: Hotel in Borovetz Registered participants: 50 Agenda: 7 presentations Excursion: No excursion following the Ministry's request

Table 2-5: Overview on landfill events

For more information on state of organisation or on the outcome of the events see chapter 3 and the annexes to this report.

2.3 Standard presentations prepared for the events

Presentations held by the European Commission and BiPRO was a constant element at all events. Consequently, these presentations are not included within the country specific minutes but are summarised in this chapter. Presentations from BiPRO will be slightly adapted and changed with up-coming new experiences and in accordance with specific information needs of the Member States concerned.

(1) Priorities and deficits in the field of landfill of waste in the EU (Commission's services, DG Environment)

Due to the fact that different experts from the Commission Services attended the workshops the presentations slightly varied:

The first version (J. Diaz del Castillo) focused on the problem of waste generation and waste management, starting from the extraction of primary raw materials. Average EU figures for waste generation and shares of treatment methods were highlighted, trends and differences between Member States were presented. In addition the legal framework for waste management and strategic objectives of waste policy were stressed. In this context lack of information on the specific situation in various Member States was mentioned and deficits in meeting legal targets for e.g. packaging or organic waste and the existence of illegal dumpsites was emphasised as a major issue to be solved. This was combined with an appeal to promote more and better sustainable production and consumption patterns amongst all actors concerned. Finally, infringement procedures as an instrument to urge MS to take the necessary measures was described and illustrated with a number of leading cases.

The second presentation (G.Kiayias) put a direct focus on EU policy requirements with respect to landfill, before presenting data on the current state of implementation and knowledge at EU level. Use of landfill gas and strategies on biodegradable waste were another focus stressed in more detail before addressing shortly the current state of implementation of the acceptance criteria decision. Infringement procedures were the last topic addressed.

The third version (P.Wessman) started from the fact that action is required by MS in the light of numerous complaints and infringement cases as well as deficits observed. It highlighted the legal framework and major developments before finally stressing the priorities for the near future.

(2) Introduction to the EU Project for "Information Exchange and Awareness Raising events on landfill of waste" (BiPRO)

The presentation briefly explained the function and interlinkage of the workshop with other similar events taking place in 2007 and 2008. It emphasises the objectives of the projects and stresses the different possibilities to obtain and use the workshop materials from the own and the other workshops.

(3) Overview on relevant European legislation – The Landfill Directive (BiPRO)

The presentation gave an introduction to the framework of waste policy within the EC and concentrated afterwards on the requirements set in the Landfill Directive. Starting with introducing the relevant legislative documents and basic definitions in the waste sector, the presentation explained what a landfill is and which operations are counted as landfilling operation. The presentation described the three classes of landfills and its specifications and pointed out which wastes cannot be accepted at landfills. It pointed out the reduction targets for biodegradable waste and highlighted specific extensions of deadlines if applicable. Furthermore the presentation focussed on the siting and general requirements set in the Landfill Directive and on the procedure and necessities during the phases of authorisation, operation, closure and aftercare. Finally the requirements for existing landfill installations were highlighted and it was referred to general and specific transition periods for the countries.

(4) Legal requirements for acceptance and control during operation of landfills (BiPRO)

As the decision on acceptance criteria (2003/33/EC) sets specific provisions especially for the monitoring procedure on landfills and has to be applied since July 2005, it was introduced in a separate presentation. Especially the content of the three Annexes dealing with the procedures for acceptance of waste at landfills, the waste acceptance criteria and the sampling and test methods were highlighted. The steps of the procedures for the acceptance of waste at landfills, being the basic characterisation, compliance testing and on-site verification were explained in detail. Examples were given for specific leaching limit values for different classes of landfills and the procedure and difficulties with sampling was addressed. This included suggestions for cooperation including participation in the IMPEL project on landfill of waste.

(5) Experiences from the Previous Project Events (BiPRO)

One aim of the project is the information exchange between Member States. Consequently this presentation provided summary information about the experiences made in all previous events, constantly updating the information with the results from the events which have been completed. The presentation contained information on state of implementation including major deficits in planning, practical enforcement and problems due to lack of acceptance, awareness, cooperation, technical aspects or uncertainties with interpretations. Besides this the presentation presented examples of good practice in implementation and enforcement and summarised priorities to achieve improvement including information on MS suggestions of tasks for the EU Commission.

Modified presentations with more practical information on principles and approaches to reach legal requirements and reduce the quantity of waste landfilled, were prepared for Spain and for Bulgaria.

All presentations, including the standard presentations from the EC and BiPRO are available for download at: <http://www.bipro.de/waste-events/land/landfill.htm>

3 Overall problems and deficits in implementation

The following chapter highlight the main problems and deficits observed as concerns landfill of waste, examples of good practice, priorities and suggestions towards the EU Commission in order to support the process. More details on the situation in the individual Member States including figures about the current state of landfill and waste management is presented in the annex to this report. Except of the event in Bulgaria site visits were included into the agenda, which provided additional valuable information on the technical standard and additional treatment facilities. Unfortunately it was never possible to visit a landfill for hazardous or inert waste, so that the acceptance procedures or technical standards for these types of facilities could not be assessed.

3.1 Characterisation of the situation in Member States

Based on the information and the impressions collected during the information exchange and awareness raising events held in five Member States, the situation with respect to waste management and implementation of the landfill directive can be characterised as follows:

Major deficits and problems in waste management (high share of landfilling) were or are to a large extend comparable in the Member States where workshops have been conducted and similar in many aspects to the situation in the Member States covered by the series of event held in 2007.

In all MS visited significant efforts have been taken to improve the situation and to adapt the landfills to the requirements of the landfill directive but quite some differences can be observed in the changes and amelioration achieved

Old dump sites have been closed and new regional landfills or integrated treatment plants have been or are currently built but the number of new landfills or of alternative treatment facilities is still not sufficient.

The separation at source or in the landfills in many cases remains relatively low and the fee system in most cases does not yet enhance increased separation by citizens

The major parameter for the level of implementation and enforcement of the Landfill Directive can be clearly identified as:

- (1) Compliance of new and existing landfills with the technical requirements
- (2) Achievement of the biowaste targets
- (3) Acceptance procedure compliant with legal requirements.

In this context it can be stated that:

- All MS covered have constructed and are currently constructing landfills compliant with the legal requirements although to a different extent. On the other hand there are

partly significant numbers of “old landfills and dumps which are not compliant are will not be easy to close by 2009

- Most of the Member States have started composting and separate collection of biowaste but are still struggling with the biowaste target.
- Acceptance procedures are in place in the modern landfill and seem to be quite similar for MSW. But there are some doubts whether they are fully in line with the legal provisions (e.g. visual inspection before un-loading; basic characterisation, weighing, documentation) and are applied in all places.

3.2 Summary of common challenges and deficits

The following section highlights the main problems the MS visited experience with respect to implementation of the Landfill Directive and the landfilling of waste. For further information and in order to also stress specific problems of single MS a short overview of the observations made in each MS is presented in addition. Challenges and deficits in general have been observed in the following fields:

- (1) *High share of landfilling in waste management
(including limited separation at source, high content of biodegradables, deficits in organisation of waste management services, limited implementation of the polluter pays principal in MSW management),*
- (2) *Existence of large numbers of “old, low standard” landfills and continued use not compliant landfills
(related to deficits in construction of new landfills or infrastructure of other treatment facilities)*
- (3) *Limited market for recoverables*
- (4) *Lack of acceptance and understanding among population
(including illegal dumping of waste)*
- (5) *Difficulties with technical requirements in the landfill directive or the acceptance criteria decision
(e.g. geological barrier, degassing, leachate treatment, acceptance procedure, pre-treatment, limit values for certain wastes)*

It has to be noted that although the infrastructure for inert and hazardous waste management was shortly described in the majority of event a major focus of the information exchange events was often the MSW management as this is the major responsibility of public authorities.

(1) *High share of landfilling in waste management*

The amount of waste disposed of in landfills is still very high. This is especially true for MSW

for which the overall share of landfilling lies between >50% and >90%. Actions are taken to reduce the amount of waste land filled by investing in separate collection systems and treatment facilities. However, landfilling in many cases remains by far the cheapest and easiest way to get rid of the waste.

Spatial planning aspects (land availability) do not seem to be acknowledged as important limiting factor so far in the EU-MS visited. In addition there generally is a strong scepticism and opposition in the population against the construction of thermal waste treatment installations which could serve as alternative treatment method thus reducing the share of landfill.

- *High content of biodegradables in landfilled waste*
Mixed MSW directed to landfill generally has a high content of biodegradables (30-50%). A market for “waste generated” compost is existing in the majority of MS, but quality is limited (category B) if generated from mixed MSW (general practice in Mediterranean MS due to climatic conditions) and production costs at least in GR exceed sales revenues. In many MS there is a poor market for the compost and this ends up being used in the landfills as top soil.
- *Limited separation at source, limited quality of materials for recovery*
A separate collection system at household level (special bags, bins etc.) is generally not introduced in the Mediterranean Member States. Citizens bring their wastes to containers at street corners. Installation of separate containers for glass, paper & cardboard and packaging waste has generally been started in urban areas. Separate collection rates however are not too high, reaching 25% in IT and 10% in ES. Installation of civic amenity sites, except of PT, FI seems to be still in the beginning. But specific collection tours are offered e.g. for bulky waste.
- *Organisation of waste management services*
The organisation of waste management services and infrastructure is an important aspect for the implementation and economically viable operation of “modern” compliant landfills because the technical standard is associated with higher management costs than simple old landfills or dump sites. Consequently it is important not to allow waste to be delivered at low price sites but to thrive to achieve a regional self sufficiency at least as concerns landfill of waste. In this context it has to be noted that currently in a number of MS (e.g. GR, ES and UK) waste collectors/municipalities waste are still authorised to chose the landfill where they will deliver their waste or cannot be forced to join regional cooperation agreements. This leads to the situation that old landfills are used with priority as gate fees are lower whereas the modern installations are lacking waste.
- *Limited implementation of the polluter pays principle*
Waste fees for municipal solid waste disposal are generally still quite low (10-60€/ton) in the visited MS. This leads to the situation that the incoming money from waste fees or taxes is not sufficient to economically operate a modern waste management infrastructure. Deficits in implementation of the polluter pays principle can also be observed in the fact that due to the current system of collection of waste fees/taxes

(e.g. payment by electricity bill, payment by m²) citizens are not completely and equally covered. (E.g. citizens not connected to electricity services e.g. do not pay any fees in GR; a household of 100m² is paying the same annual fee/tax not regarding the fact if 1 or 6 persons are living there). Finally management fees for citizens are generally not graded by weight but imposed as a part of local taxes so that increased separation does not pay for citizens. (a citizen separating a lot is not charged differently than one throwing all waste in his bin). As public fees are a very delicate topic at the political agenda especially at municipal level, the decision for imposing fees are not based on economical facts but rather on political sensibilities.

(2) *Existence of large numbers of "old, low standard" landfills and continued use not compliant landfills*

An important number of small and technically poorly equipped landfills (municipal dumps) were in use in the MS and partly are still in use. A systematic approach in steering the closing down and recultivation process considering the risk potential of the old landfills is generally used in the Member States. In addition the process of closing down landfills has started during the last years and some countries have made remarkable progress with that, however, due to related costs and reluctance of local authorities it is doubtful whether the deadline of 2009 can be met in all MS. The lack of alternative disposal sites is another factor slowing down the closing process. Proper recultivation is even a more important problem and still pending in a number of cases. Risk assessment and classification and plans for remediation measures however, have been achieved in the majority of cases.

- *Deficits in construction of new waste management infrastructure*
Good planning exists in most of the countries regarding the installation of new landfills based on the concept of regional landfills for newly established waste management regions. Surveys on existing capacities, future demand and suitable locations were conducted. A major problem which hinders a faster approach is the local responsibility and autonomy for waste management and the reluctance of local authorities to cooperate in waste management and/or limited guidance and pressure from central authorities. In Greece the national geography is another complicating parameter, as regional cooperation would need to involve distant islands in some cases. Especially separate collection and recovery are costly on small islands due to mandatory transport to larger units on the mainland
- *Remaining non-compliant landfills*
Although conditioning plans have been provided and reclassification could be performed for quite a number of landfills, it can be expected that there are still many landfills not compliant with the EU requirements especially in IT and GR. Efforts to either close or adapt however have also to be performed in ES, UK, PT.
- *Poor infrastructure of alternative treatment methods*
The high share of landfilling is associated and/or a consequence of a limited infrastructure of alternative treatment methods. This deficit is especially important as concerns incineration, and recycling/recovery installations. Due to the amount generated proper recycling of plastics seems to be a major issue to be solved in

future.

Severe deficits in treatment capacity for certain waste streams especially exist in GR and IT, where either industrial or municipal wastes have to be shipped abroad for disposal and recovery. On the other hand PT has improved the situation for hazardous waste significantly in the recent past. .

(3) *Limited market for recoverables produced*

Some problems with marketing of compost seem to occur, except of the UK and PT, which produce high quality compost from garden waste that is used in agriculture. Marketing is hampered by limited quality and lack of acceptance by farmers (“we always used synthetic fertilizer”) or in the general population (“what has been produced at a landfill certainly is hazardous”, etc). Consequently compost from MBT is currently mainly used for engineering purposes at the landfill sites. In addition production costs at least in part (e.g. GR) are higher than the sales revenues achievable. In addition also RDF cannot always be commercialised and marketed, so that e.g. RDF is either landfilled or stored in one of the landfills visited.

(4) *Lack of acceptance and understanding among the population*

Deficits in separation rates, in construction of adequate infrastructure, low fees and illegal dumping are at least partly based on low awareness of potential environmental impacts (“we always have used this dump”, “...burned in our backyard”) and historical habits and “not in my backyard” attitudes. In regions with low average salaries the acceptance of waste fees is especially low and fees tend to be avoided in the light of generally increasing costs for life. This includes reactions such as:

o *Illegal dumping of waste*

A precise number for illegal dumpsites is probably not available in any of the countries. An inventory of old dump sites however has generally been conducted. Illegal dumping is still common. The environmental police is addressing this issue in Spain, Portugal and Italy. Greece has established a register of illegal dumps (mainly all older sites) and has elaborated a closure plan. Littering (along roads seems to be less regarded as illegal dumping in Mediterranean Member States. This issue seriously has mainly been addressed and fined in the UK

(5) *Difficulties with technical requirements in the landfill directive and the acceptance criteria decision*

o *Technical requirements in the landfill directive*

Concerning technical requirements for landfill construction or operation and aftercare the appropriateness of the provisions for the hydrological conductivity in the landfill directive ($k < 10^{-9}$ and artificial layer of >0.5 m) have been questioned. It was suggested to make this requirement more flexible in order to better adapt it to technical progress and possibilities in order to be able to find tailor made solutions for geological conditions in place. Besides this, the use of shredded or whole tyres as engineering material in drainage layers is an issue engineers in a number of MS would like to discuss. The obligation for degassing of closed landfills, energy use of

gas from smaller landfills and collection and treatment of leachate water were additional topics that were mentioned as difficult.

- *Implementation of the Acceptance Criteria Decision*
The workshops focused on MSW management. In this context on-site verification and visual inspections are generally restricted to rough checks at disposal sites where hazardous compounds .e.g. WEEE are being sorted out. Visual on-site verification of waste batches prior to unloading generally does not take place for municipal solid waste. Control is restricted to oral or written reporting on waste type and origin and documentation of weight (at new facilities equipped with weight bridges). Regular sampling of all incoming waste types has only been stated for the treatment facility in Madrid, whereas it seems to be not the case in other landfills visited (Note: MSW normally is not sampled and analysed as exempted from this obligation).
- *Difficulties in implementation of the “treatment prior to landfilling” principle*
Pre-treatment of mixed MSW is generally interpreted as MBT. Corresponding installations are increasingly constructed but current capacity is not sufficient to cover all incoming waste even in large modern treatment plants. Small existing landfills generally do not have separation possibilities.
- *Exceedance of limit values set in Decision 2003/33/EC*
Chemical analysis for basic characterisation and compliance testing of industrial, inert and hazardous wastes seem to be generally performed in all MS visited. In this context, problems with exceedance of limit values, lack of guidance on analysis methods, lack of specific limit values, different requirements and problem of storage capacity were expressed nearly in all MS. Limit values set in Decision 2003/33/EC seem to be almost consistently exceeded in certain types of waste (e.g. soils, C&D wastes, ashes, slags). Alternative treatment methods were reported to be currently not regarded as feasible due to high costs and efforts (Comments from industry).

Besides these aspects, it has to be stated that a number of aspects could not be clarified in detail in the framework of the event and thus remain open for future discussions.

- The management of industrial and hazardous waste was generally not in the focus and not explained in detail any of the work shops performed. This includes also the management of inert waste or C&D waste which constitutes an important part of waste generated and where disposal still seems to be frequently in uncontrolled dump sites throughout the countries.
- Consequently information on analysis and sampling procedures although principally addressed remained vague and almost never reached the level of the elaboration of a sampling plan.
- Information on recycling and material recovery remained limited. The current state of the infrastructure, market conditions and quality of separately collected raw material could generally not be investigated and discussed in detail.
- Control (unannounced inspections) of authorised landfills and closed dumps was only addressed, illustrated or explained in UK and PT.

- Similarly the issue of landfill monitoring although illustrated for modern landfills, was not further discussed or elaborated for closed dumps.
- Remediation technologies for closed dumps as a function of the hazard assessment were only discussed in GR. No information has been provided by the other MS how they intend to comply with EU requirements in this respect.

Consequently quite a number of aspects remain to be further discussed and clarified in the future.

In addition to the overall problems more or less common in all the Member States a number of specific aspects have been stressed in single events either due to national characteristics or due to the specific composition of the audience.

3.3 Detailed compilation of challenges and deficits as identified during events

As the specific results of single events provide additional interesting information on national characteristics and state of discussion a short compilation of major problems by Member State is provided below. More details are available in the Annex to this report.

Bulgaria

- *The rate of landfilling is high (over 80%)*
- *The ratio of landfill of organic waste (agriculture, forestry) and the biodegradable fraction in landfilled waste (e.g. mixed MSW) is high, and even taking into consideration the prolonged deadlines it will be challenging to achieve the targets given in the Landfill Directive*
- *Most of established landfill sites do not meet EC standards*
- *Municipalities often do not appreciate to collaborate among each other to organise waste management system more efficiently*
- *Separate collection systems are to be improved*
- *It was stated that illegal dumpsites are a major issue of concern*
- *The “treatment prior landfilling” principle is not fully implemented yet*
- *The “polluter pays” principle is not fully implemented, partly due to the fact that waste fees are regularly fixed by elected bodies*
- *It was stated that there are problems with the overall treatment capacity of hazardous waste in Bulgaria*
- *A major market for compost does not exist*
- *Fee system does not set suitable incentives for citizens*

Finland

- Public reservations are in place against waste incineration due to bad experiences in Helsinki; environment permits are complained on; no infrastructure for co-incineration
- *Polluted soils are heterogenic, solubility test are problematic*
- *Representativeness of samples is a complex and difficult issue*
- *A particular problem exists with biowaste which is a complex issue due to geographical and weather conditions; the quality of the biowaste is low and resistance in agriculture to use landfill generated biowaste is high. Wood package waste is estimated to be more useful in energy production than used as material*
- *Privatization is not always running smoothly (e.g. regarding the management and reporting of Municipal Waste including Bio Waste)*
- *Implementation of producer responsibility principle on package waste is problematic*
- *Lack of investment into waste management facilities*
- *Public reservations are in place against waste incineration due to bad experiences in Helsinki; environment permits are complained on; no infrastructure for co-incineration*

Greece

- *Huge number of illegal dumps*
- *Low willingness of local authorities to cooperate in closure of old dumps and construction of new landfills due to poor preparedness to pay fees for waste management*
- *Poor awareness in general population that waste composition and thus environmental threats have changed*
- *Geographical structure of the country highly complicating the establishment of efficient recovery structures (high transport costs to collect recoverables at islands, local recovery facilities not viable); and economically viable landfill of waste under modern technological standards (many scattered village, small islands, isolated settlements)*
- *Low political priority (transposing decisions from one elective period to the next one)*
- *Large number of small to very small installations to be constructed*
- *Severe lack of personnel for landfill management*
- *Strong “not in my backyard” mentality resulting in fierce opposition against infrastructural planning and permitting of treatment facilities*
- *Poor separation rate*
- *No well established collection and separation infrastructure (no door to door collection of waste and recoverables (only containers at corners); no quantity related waste fee system for citizens*

- *No legal obligation to serve specific waste management facilities*
- *Lack of market for RDF and compost*
- *Bulky waste not used for generation of RDF but send to landfill*
- *Delays in the development and realisation of the national waste management strategy*
- *Lack of financial resources*
- *Lack of incentives for improved competition*
- *Lack of incentives (e.g. graded gate fees for combustible fraction) and punishing tools for improved separation*
- *Deficits in recovery market and need for more effective separation systems were stated.*

Italy

- *Landfill is still the major treatment method in Italy (>50%)*
- *Problem that pre-treated waste has to be classified as EWC 19 and thus may not be accepted at landfills without testing anymore (Industry)*
- *Huge financial burden if the complete financial guarantee for after care has to be delivered at start of the operational phase.*
- *Major problems with enforcement and practical application of acceptance criteria decision*
- *Different requirements as concerns sampling, analysis and compliance testing (acceptance criteria decision leaves room for regional authorities to specify requirements in permits issued)*
- *Difficulties to meet specific limits (DOC, TOC) for non-hazardous and hazardous waste landfills for certain waste types*
- *Difficulties to meet limits for chlorine, sulphate, antimony, molybdenum and selenium*
- *Lack of appropriate analysis methods for DOC and hydrocarbons; strong confounding interferences with other components*
- *Lack of treatment possibilities for sludges (decreasingly accepted in agriculture) and asbestos (not acceptable at inert waste landfills)*
- *Inconsistent setting of landfill classes and subclasses by regional authorities (different subclasses in category B)*
- *Difficulties in interpretation of EU requirements concerning pre-treatment of waste*
- *Differences between EU and national legislation on landfill of waste (e.g. technical standard for geological barrier and sealing system)*
- *National limits for soil reclamation allow higher contamination than EU limits for disposal of hazardous waste*

- *Huge regional differences in Italy (extremely poor progress in Campania, Sicilia, Molise and Basilicata; even though a lot of infrastructural measures have been financed)*
- *Lack of clarity in definition of bio waste*
- *Acceptance criteria decision requirements are only enforced in landfill with permit according to new legislation*
- *Lack of activity (education, information) at local level*
- *No clear planning as concerns construction of new waste treatment facilities*
- *Amounts of inert waste used as secondary raw material for construction works in landfills exceed needs and thus have to be regarded as fake measures to avoid payment of landfill taxes*
- *Majority of landfills got permit before implementation of the landfill directive requirements, thus can be expected to be not compliant to a large extent*
- *lowered limits for inert waste landfills compared to previous law and soil legislation, new restricting limits for inert wastes, whereas on the other hand inert wastes can be sent to non-hazardous waste landfills, without corresponding restrictions, highly subjective characterisation requirements for inert wastes*
- *diverging requirements for compliance testing*
- *important problems with acceptability of wastes at hazardous waste landfills (high investment costs low revenues),*
- *important differences in DOC limits for B subclasses between provinces*
- *diverging conditions for financial guarantee*

Portugal

- *Landfill is still the major treatment method*
- *No clear planning as concerns construction of new waste treatment facilities*
- *Issues concerning reverse osmosis applied to landfills*

Spain

- *Lack of limit values in acceptance criteria decision (no limit for content in wastes for non-hazardous waste, no limits for monolithic wastes, no limits for wastes in case solely non-hazardous wastes being disposed of, lack of landfill category for non-hazardous wastes with high organic content)*
- *Lack of accredited laboratories*
- *Lack of guidance on gate fees*
- *Provisions for geological barrier too tight, hampering technological progress and alternative solutions with similar or better protection effect*

- *Unclear definition for conditions for disposal of asbestos wastes*
- *Landfill too cheap in comparison to other treatment methods*
- *Poorly developed market for secondary raw materials/recoverables*
- *No separation at source for recoverables*
- *Lack of guidance for acceptance procedure*
- *Lack of adequate electronic information system for tracing of wastes*
- *Waste transports to low price landfills*
- *Problems to achieve obligation of gas treatment at small dump sites*
- *Classification as non-hazardous waste according to EWC or hazardous waste directive but exceeding limit values for landfill categories B and C. (DOC, TOC, Chlorine, Sulphate)*
- *A relevant quantity of hazardous wastes exceed limit values set for DOC, Cl, and Sulphate; stabilisation methods too expensive*
- *Lack of specification for conformity testing (every 200 tons or yearly; when limits shall be regarded as exceeded?)*
- *Citizens are charged by electricity or municipal services bill; they rarely get a financial incentive for separation and often even do not know the fraction they have to pay for waste management.*

UK

- *Pre-existing waste management system was highly dependent on landfilling and remains important*
- *It will still take a lot of effort to comply with the later EU targets on biodegradables*
- *Alternative waste management infrastructure is being developed and public attitude towards waste could be improved*
- *Littering and illegal dumping of waste (fly-tipping) remains a problem*
- *Market for recyclable goods exists but leaves great potential for improvement*
- *Number of problematic waste streams that cannot meet WAC (e.g. furnace slag from battery recycling and used pot liners from aluminium smelting) are temporarily continuing to be landfilled (the UK Government has advised the Commission of its approach and actions are in progress to either make these compliant with WAC or to find other disposal or recovery routes)*
- *The collection of representative of samples is a complex and difficult issue*

3.4 Examples of good practice

In general the full implementation of the landfill directive requirements and the development of a modern waste management structure is still underway in the Member States where workshops were organised, and further efforts are needed in the field of integrated treatment infrastructure, operation and aftercare according to legal requirements as well as in the field of increased separation and recovery in order to fully meet legal requirements. Nevertheless in the past years important steps have been undertaken to change the waste collection system and the management infrastructure to make it compatible with European landfill requirements and in comparison with the waste management system previously in place in the countries, a number of examples for good practice concerning implementation of the Landfill Directive (1999/31/EC) have been provided during the events. Good practice can be mainly identified in the following fields:

- (1) Reduced share of landfilling (MBT, composting, alternative treatment facilities, separate collection, funds, taxes, fees, awareness raising)
- (2) Compliance with legal requirements for technical standard and operation (identification, closure, regional management, biogas recovery, leachate treatment, construction, guidelines, documents, electronic tools, inspection, sampling)

In particular the following examples shall be highlighted. A more detailed description of figures in specific Member States is provided in the annex document.

(1) *Reduced share of landfilling*

- *Construction of modern landfills with MBT, energy recovery and biogasification plant*
In all of the Member States a first set of modern regional landfills has been constructed in the past years in order to replace “old” municipal dumps. Further regional integrated plants are projected. The landfills visited in Madrid, Rome and Athens are equipped with high technology MBTs for effective separation and recovery of different fractions (paper, glass, plastics, metals, refused derived fuel and organic fraction) from mixed municipal waste and selectively collected packaging waste from trade and commerce and with composting plants for the organic fraction.
- *Construction of alternative treatment facilities and alternative technologies*
In all of the Member States composting plants are established and composting has been started at the modern landfill sites visited. Composting capacity in ES and IT was reported to be about (30%) and (28%) respectively which would almost be sufficient for all organic waste generated. The only problem might still be an inhomogeneous distribution of the plants namely in IT. Home composting was not a major issue discussed, in part probably due to the climatic conditions. Besides this biogasification is another treatment technology which is started in some of the plants visited. All MS started other alternative treatment in terms of material recovery, although the capacity partly remains limited. Finland in addition plans to increase the

share of waste incineration to 50%.

- *Installation of civic amenity sites*

The establishment of civic amenity sites in urban areas and municipalities is still not common, but ES reported about the installation of "puntos limpios" for collection of bulky waste, WEEE and hazardous wastes from households. PT stated the existence of 200 civic amenity sites throughout the country.

- *Separate collection*

In addition to separation plants at landfills, containers for separate collection of paper, and packaging waste from citizens are increasingly established namely in urban areas. Containers are mostly managed by landfill operators. Bulky waste, green waste and hazardous waste are collected at households in separate routes or at request. In PT glass, paper and packaging waste, sometimes also organic waste are collected door by door in rural areas. In England and Wales mixed MSW is collected every two weeks, whereas in the alternative weeks separate waste fractions (paper, tins, glass, plastics, garden waste, kitchen waste) are collected. In Finland separate collection of recoverables is performed throughout the whole country.

- *Environmental Fund based on taxes and fines for support of investment projects*

In Catalonia reimbursement for municipalities is based on recovery and separation infrastructure giving an incentive to build the corresponding installations and to avoid landfill of waste

- *Landfill taxes, waste fees & other instruments*

Most of the MS have raised their waste fees over the past years, and partly established waste taxes. A quantity oriented fee system is established in Finland. Besides this a packaging tax and a waste tax for landfill is in place. A waste tax to finance alternative treatment facilities has also been put into place in Catalonia (see above). The UK has established economic incentives (tradable LATS and landfill tax escalator to reduce the amount of biodegradables landfilled)

- *Awareness raising*

Information activities and education/information campaigns are performed in the majority of MS. A special intensified program has been reported by the UK.

(2) *Compliance of landfills with legal requirements*

- *Closure of non-compliant dumps*

A large number of non-compliant municipal dump sites have already been closed in recent years. In the UK and in ES the number of dumps closed in the last four years exceeds 1,500 in each country. In Italy the number of landfills has been reduced to about half in the southern regions and in Greece about 88% of the old dumps sites have been already closed according to the information provided.

- *Identification and elimination of illegal dumps & littering*

Important initiatives have been taken to identify and combat illegal dumping. Namely

in the UK important fines are imposed on littering and controls are intensified. In IT, ES and PT an environmental police with specific responsibilities in environmental crimes including illegal waste management have been established in recent years and started investigations in 2006. Already now an important number of infractions could be detected and prosecutions could be started. Who is responsible for detection of illegal dumps in Greece could not be clarified. Greece performed a study to register uncontrolled landfills. The study includes a risk assessment of the located landfills and results in a list of priority actions for closure and recultivation measures. PT reported to having eliminated all illegal dumps (probably in the sense of non-complying dumps) by now. In the UK a fly tip protocol has been put in place between Environment Agency and local authorities to clearly define respective responsibilities in the field of littering / illegal dumping.

- *Nationwide establishment of regional waste management systems*
In Portugal and Finland a regional waste management system, including mandatory allocation to a specific treatment facility has already completely been achieved and the numbers of regional systems are also constantly increasing in the other MS. In the UK good co-operation between municipalities is in place and incentives for co-operation between municipalities have been developed.
- *Use of biogas for energy recovery from degassing of closed landfills*
In all of the Member States energy recovery from biogas has been started or is foreseen at the modern landfill sites visited. The construction of the “new” sites directly besides the closed “old” landfill enables an effective management of biogas from the closed site. Energy recovery from biogas is used for electricity production and in the case of Rome also for production of biomethan. This however does not apply for smaller older dumps where at least flaring is foreseen, but depends on the size and type of the landfill or dump. In small uncompacted sites, degradation has often already taken place to an extent that production of biogas will not be sufficient for economic recovery. (see also (3))
- *Leachate collection and treatment*
Leachate collection according to EU requirements is performed at the modern landfills visited during the project. Leachate is either recycled to the landfill body in case annual evaporation outweighs precipitation and/or is treated by reverse osmosis. In ES it was reported that treated waste water is directed in addition to municipal waste water treatment plants..
- *Innovative materials and quality checks for geological barrier*
Especially in PT and IT there were discussions about optimised construction technologies and best materials for the geological barrier and the artificial impermeable layer
- *Guidelines for landfill operators on correct application of legal requirements*
Guidelines have generally been elaborated either on national or on regional level.

- *Standardised documents for basic characterisation (Asturias)*
- *Establishment of electronic reporting and documentation system for improved planning*
The region of Asturias (Spain) reported about the establishment of a electronic reporting and documentation system for waste management/landfill in order to improve planning of the corresponding infrastructure. In Italy the MoE reported on the establishment of a Telematic registry project in order to improve tracing and follow up of waste data.
- *Systematic supervision of compliance of all existing landfills (UK)*
- *Regular sampling of all incoming waste types (Madrid)*

3.5 Detailed compilation of examples of good practice as identified during events

As the specific results of single events provide additional interesting information on national characteristics and state of discussion a short compilation of major problems by Member State is provided below. More details are available in the Annex to this report.

Bulgaria

- *Regular meetings of all concerned authorities*
- *Guidance document planned*

Finland

- *Regular meetings of all national authorities including most concerned stakeholders*
- *“Nordic cooperation”: Close exchange with other Scandinavian authorities’ representatives*
- *Guidance documents for many aspects of landfilling (Operation, WAC, closure, financial guarantee...)*
- *High fines discouraging people from illegal dumping of waste*
- *Local regulation has proved to be efficient in a country in which the density of population varies considerably*
- *EU LIFE funded waste prevention project in Helsinki Area including communication (see project web page www.ytv.fi/eng/Fiksu/)*

Greece

- *Construction of modern landfills*
- *Establishment of regional solid waste management bodies and cooperation*
- *Guideline on proper waste management at landfills that has been distributed to landfill*

operators and shall be published at Ministry website

Italy

- *Establishment of specialised police task force in 2006 responsible for prevention of environmental crime; use of police investigation techniques, GPS, infrared cameras, aerial photography etc.; cooperation with environmental agencies, international cooperation via Interpol; fight against organised crime; educational activities*
- *The implementation of D.Lgs 36/2003 shows first results (reduced number of landfills, improved environmental performance, improved balancing of treatment costs)*
- *Increased separate collection rate*
- *MBT shows to be the best instrument to reduce landfill of biodegradable waste*
- *Modern incineration shows to be another good instrument to implemented an optimised life cycle of waste and to reduce the landfill of the biodegradable fractions*
- *Basic characterisation performed for all waste, compliance testing requested for hazardous wastes*
- *Information brochure for landfill operators developed by APAT*
- *Start of a telematic registry project in order to improve tracing and follow up of waste data (MoE)*

Portugal

- *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*

Spain

- *Setting of an the equation for calculation of the financial guarantee in authorisation of a landfill (Galicia)*
- *Legal framework for authorisation pursuant to EU requirements in place (Galicia)*
- *Ban of landfill for wastes exceeding 65% liquid fraction (Galicia)*
- *Limit values for all relevant types of waste put in place in regional legislation (Galicia)*
- *IPPC requirements fully adopted “wastes can only be accepted if not recoverable, if treatment plants do not exist in Galicia” (Galicia)*

- *Study for calculation of appropriate gate fees, review every two years (Galicia)*
- *Specification of procedures for compliance testing established in Pais Vasco*
- *The region of Asturias developed a prior information and consent system which allows electronic tracing and follow up of wastes.*
- *Waste tax and environmental fund introduced as steering instrument for development of integrated waste management and increased recovery in Catalonia*
- *Installation of an Environmental Police fighting against illegal waste management*
- *Documentation system and acceptance procedure for waste in the Municipality of Madrid (bar code; sampling 1% of each type of waste)*

UK

- *UK authorities are taking a lot of measures to implement and enforce the requirements of Landfill Directive*
- *Strategic approach is clearly visible to shift the UK waste management system which was highly dependent on landfilling towards a more diverse waste management system complying with EU provisions*
- *Innovative economic incentives are in place in order to reduce biodegradable fraction (LATS, Landfill tax escalator...)*
- *Awareness Raising campaigns are in place*
- *Waste collection schemes and separation are in place; green waste is collected separately and a market for compost exists*
- *Enforcement infrastructure in place*
 - *Systematic supervision of compliance of all existing landfills*
 - *Fly tip protocol in place between Environment Agency/Scottish Environment Protection Agency and local authorities to clearly define respective responsibilities in the field of littering / illegal dumping*
 - *Large number of non-compliant landfill sites closed or closing*
- *Good progress towards municipal waste targets*
- *Good co-operation between municipalities in place and incentives for co-operation between municipalities in place*
- *Defra/regulator provides guidance documents in various fields (e.g. on how to sample waste)*

3.6 Summary of priorities for Member States

Priorities as reported by participants during the events differ between the Member States. Globally they cover the following fields:

- (1) *Regional harmonisation of standards and requirements (IT)*
- (2) *Guidance and clarification on sampling, analysis methods and limit values*
- (3) *Documentation and tracing of waste streams (electronic systems)*
- (4) *Limitation of waste transports*
- (5) *Elevation and harmonisation of gate fees*
- (6) *Waste prevention*

3.7 Detailed compilation of priorities as identified during events

As the specific results of single events provide additional interesting information on national characteristics and state of discussion a short compilation of major problems by Member State is provided below. More details are available in the Annex to this report.

Bulgaria

- *Implementation of the envisaged profound reform measures to modernize of the entire waste management system*
- *Introduce of consistent fee system setting suitable incentives for waste avoidance but which does not promote illegal dumping*
- *Focussing on waste streams of concern*
- *Shifting of responsibilities of MSW management from municipal level to regional level*
- *Improvement of waste management infrastructure, particularly building of facilities*

Finland

- *Overall improved waste prevention including full enforcement of producer responsibility*
- *Improved separation at source*
- *Further establishment / modernization of plant infrastructure (energy use, sorting plants, biowaste treatment facilities)*

Greece

- *Take into account and request directive 1999/31/EC requirements in permitting of landfill sites (responsibility of competent authorities)*

- *Construction of new facilities both for disposal as for recovery and selection based on regional waste management plans.*
- *Biofilters and wet scrubbers for gas treatment of separation and composting units*
- *Evaporation of leakage waters from separation/composting by means of incinerator gases*
- *Parallel line in separation plant for increased flexibility*

Italy

- *More meetings at national and EU level in order to achieve harmonisation of requirements and interpretation*
- *Need for of consistent bio waste strategies (Industry)*
- *Need for clarification on derogation for mandatory pre-treatment (Industry)*
- *Need for nationwide analysis standards (Industry)*
- *Need for intermediate installation to perform analysis and wait for results (Industry)*
- *Further infrastructural funding in the Mezzogiorno with the objective to reach:
reduced landfilling (from 395 to 230 kg/cap and year)
increased separate collection rate (from 9% to 40%)
Increased composting (from 3% to 20%)*

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*

Spain

- *Major education and formation of landfill operators to gain the necessary knowledge to perform operation and control as required (Galicia)*
- *Prices of landfilling should be reassessed to avoid that unjustifiably cheap landfills/dumps prevent the development of modern installations for waste treatment.*
- *Waste transports within the countries to cheapest landfills/dump sites need to be prevented in order to foster the development of modern installations*

UK

- *The key focus for the near future was identified as being the waste prevention*
- *Further reduce share of landfilling.*
- *Meet EU targets on biodegradables*
- *Further education and awareness raising of citizens*
- *Further fight against littering and illegal dumping (fly-tipping)*
- *Further improve market for recyclable goods*

3.8 Summary of requests directed towards the EU Commission

Requests for support that were addressed to the EU Commission during the events by participants, were quite similar to a large extent and covered the following fields:

- (1) *Clarification of a number of issues
(pre-treatment, EWC 19 and 20 procedures, biowaste, end of waste, treatment of reverse osmosis sludges, asbestos waste)*
- (2) *Guidance and norms on sampling, analysis methods and limit values
(including for monolithic waste)*
- (3) *Support for development of solutions for waste exceeding limits*
- (4) *Review of legal provisions
(geological barrier, completion limit values, inert waste for recovery, inclusion of sustainability principle, tighten engineering standards for inert waste landfills, responsibility for sampling and testing, shredded tyres)*
- (5) *Guidance for harmonisation of landfill B categories*
- (6) *BREF for landfills*
- (7) *FAQ list on Commission website*

3.9 Detailed compilation of requests towards the EU Commission as identified during events

As the specific results of single events provide additional interesting information on national characteristics and state of discussion a short compilation of major problems by Member State is provided below. More details are available in the Annex to this report.

Bulgaria

- *Provide clarification on interpretation of EU waste management legislation*
- *The Decision on acceptance criteria should be revised to enable the implementation of the Decision, e.g. as regards the requirements on basic characterisation*
- *Limit values for the spreading of sewage sludge in agriculture are too strict*

Finland

- *Provide clarification of interpretation problems*
- *Review of engineering standards of Landfill Directive; e.g. requirements for surface sealings, especially for impermeable mineral layer and drainage layer should be more flexible*

Italy

- *Provide clarification as concerns the definition of bio waste*
- *Provide clarification as concerns the definition of pre-treatment prior to landfill*
- *Develop solutions with respect to DOC, TOC limits for non-hazardous and hazardous waste landfills*
- *Provide guidance and norms as concerns sampling of waste*
- *Clarify procedure to be applied for EWC 20 and EWC 19 (acceptable at landfill without testing – requesting testing)*
- *Provide clarification as concerns the end of waste properties*

Portugal

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

Spain

- *Review provisions for geological barrier hampering technological progress and alternative solutions with similar or better protection effect*
- *Clarify conditions for disposal of asbestos wastes*
- *Find solution for substances and wastes exceeding the WAC limits where alternative treatment is not affordable from the economical point of view or technically not feasible.*
- *Amend and/or provide guidance on limit values in acceptance criteria decision: (limit for content in non-hazardous waste, limits for monolithic wastes, limits for wastes in case solely non-hazardous wastes is being disposed of*
- *Provide guidance and harmonise landfill categories for non-hazardous wastes with high organic content)*
- *Provide guidance, reduce and harmonise analysis methods*

UK

- *There is a small number of existing sites without artificial sealing liner but which are viewed as environmentally acceptable. The Landfill Directive specifies landfill engineering requirements but the detail at the site specific level is open to interpretation on need for both a geological barrier and an artificial sealing liner; Defra is considering contacting the COM to clarify*
- *Compliance with WAC has reduced the amount of inert waste available for quarry restoration; Regulation of inert waste is being reviewed; UK Government consulted on a range of issues raised by industry*
- *Further guidance on the interpretation of pre-treatment would be desirable*
- *COM should provide guidance on better common consideration of technical*

engineering / risk assessments

- *Criticism was raised during the discussion that the concept of the Landfill Directive is “old fashioned” and does not sufficiently take into account the principle of sustainability. Denmark was recommended as an example for considering the principle of sustainability within landfill related policy.*
- *Another basic criticism was raised against the laxly drafted EU provisions concerning the engineering of landfills for inert waste which could lead to the absurd result that landfills for inert waste might be considered more of a threat to the environment than landfills for hazardous waste.*
- *A suggestion was made during the discussions to shift the responsibility for sampling and testing to the waste producer to set incentives to produce less hazardous waste*
- *Other suggestions include introducing a BREF for landfills and to provide extensive FAQ section on landfills at EU level*

4 Conclusions and recommendations

The organisation of workshops showed that interest in discussions about the implementation of the landfill directive differs between Member States and regions. Whereas the interest and/or the willingness to cooperate were low in a number of States, a high interest in the issue could be observed in others. Similarly participation of regional authorities varied significantly although all have been invited uniformly. The fear to trigger an infringement procedure or to deliver facts that can be used in an ongoing procedure influenced the authorities' attitude and may not be neglected.

From the outcome of the events it nevertheless can be concluded that the awareness raising workshops have been a valuable tool to exchange information, increase understanding and to stipulate cooperation amongst the involved authorities. The workshops have been beneficial for both sides; the Member State authorities and the Commission Services, as it allows to identify basic problems which similarly arise in all Member States as well as specific national challenges. This enables the Commissions Services to use its competences and possibilities to target information exchange and joint activities in the future. The workshops provided a more comprehensive insight into national characteristics and problems as well as a horizontal overview on the situation and common aspects.

Participation of a Commission representative has in general been highly appreciated and honoured by Member State authorities.

4.1 Conclusions on State of implementation and enforcement

As concerns state of implementation and enforcement and major deficits and problems experienced it can be concluded that the situation in the Member States is similar to a large extend and also similar to the situation in the Member States covered in the series of events organised in 2007.

In general the full implementation of the landfill directive requirements and the development of a modern waste management structure is still underway in the Member States where workshops were organised, and further efforts are needed in the field of integrated treatment infrastructure, operation, aftercare, separation and recovery in order to fully meet legal requirements and conclusions on the state of implementation are as follows:

- (1) *High share of landfilling and high content of biodegradables in landfilled waste*
- (2) *Limited separation at source, limited separation infrastructure and deficits in markets for recoverables*
- (3) *Limited implementation of the polluter pays principle as gate fees are still low and citizens have to pay a fixed sum without flexibility related to private separation attempts*

- (4) *Existence of considerable number of “old, low standard” landfills and deficits in construction of new waste management infrastructure including alternative treatment methods*
- (5) *Partially lack of cooperation and understanding and opposition against infrastructural measures in the general population*
- (6) *Partially deficits in cooperation between authorities at national level*
- (7) *Ongoing illegal dumping of waste*
- (8) *Difficulties with technical requirements in the landfill directive and implementation of the Acceptance Criteria Decision*

Aspects such as:

- management of industrial and hazardous waste including inert waste or C&D waste
- information on analysis and sampling procedures
- details on current state of the treatment infrastructure, market conditions and quality of separately collected raw material
- control of authorised landfills and closed dumps
- landfill monitoring for closed dumps.
- Remediation technologies for closed dumps

could not be discussed in sufficient detail to draw conclusions on.

Nevertheless in the past years important steps have been undertaken to change the waste collection system and the management infrastructure to make it compatible with European landfill requirements. Achievements have been made especially in the following fields:

- (1) *Restructuring of waste management infrastructure (system of waste management regions)*
- (2) *Identification and elimination of illegal dumps, closure of non-compliant dumps*
- (3) *Construction of modern landfills with MBT, energy recovery and biogasification plant*
- (4) *Composting*
- (5) *Leachate collection and treatment*
- (6) *Installation of civic amenity sites*

- (7) *Installation of collection points and (to a lower degree) civic amenity sites*
- (8) *Guidelines for landfill operators on correct application of legal requirements*
- (9) *Establishment of electronic reporting and documentation system for improved planning*
- (10) *Raised landfill taxes and waste fees; environmental funds and landfill allowance trading schemes as incentive for increased separation*

Based on these conclusions the following recommendations may be suggested.

4.2 Priority activities for Member States

In order to improve implementation of the European Landfill Directive 1999/31/EC and to meet the intention of related European legislation on waste (Directive 12/2006 and Decision 2003/33/EC) the following priority activities have been identified, which can be recommended to the Member States covered by this report in general even though to different extent.

- (1) Further reduce waste amount landfilled
- (2) Significantly reduce organic and combustible fractions in landfilled waste
- (3) Speed up closure, recultivation and aftercare of “old” and illegal dumpsites
- (4) Build up administrative capacity (at national, regional and local level including landfill operators)
- (5) Enhance control and inspection measures
- (6) Harmonise standards and requirements at national level
- (7) Create further incentives for separation and recovery
- (8) Search solutions for plastic packaging

These priority activities may be achieved by the following specific measures

- (1) Improve the infrastructure of alternative treatment methods (disposal and recovery)
- (2) Improve markets for recoverables and compost
- (3) Thoroughly implement the permit requirements by regional and local authorities
- (4) Introduce effective control and sanctions for illegal dumping and littering

- (5) Further improve the polluter pays principle by gradually raising waste fees and by introducing a fee system for citizens based on the amount of residual waste and reward separate collection
- (6) Improve guidance for local and regional cooperation
- (7) Further build awareness and cooperation of citizens

4.3 Priorities for EU Commission

In order to support improvement of implementation of European landfill legal requirements the following activities have been identified that could be taken by the European Commission. In general the recommendations are the same as elaborated after the last series of events given the fact that the deficits and difficulties with implementation are basically the same:

- (1) Foster joint activities at all levels to learn from each others experiences
- (2) Enhance cooperation and information exchange within the IMPEL Network
- (3) Support, participate in and promote development of norms and guidance on sampling, analysis and limit values (monolithic, non-hazardous waste)
- (4) Elaborate guidelines and manuals on interpretation of pre-treatment, disposal of asbestos waste, biowaste
- (5) Provide guidance on gas treatment at old previously uncontrolled or small dumps
- (6) Provide guidance on minimum requirements and best practice for remediation
- (7) Review technical requirements for landfill standards (geological barrier, surface coverage, use of shredded tyres for engineering purposes, safety standards class A)
- (8) Support, participate in and promote RD measures and market analysis for packaging waste recovery (before all plastics) and efficient use of RDF
- (9) Compile, publish and disseminate information on best practice and strategies in the field of recycling and material recovery from packaging waste and compost

Guidance on legal requirements of European legislation may range from written documents, as well as short interpretations uploaded to a specific Commission website to oral explanations in the framework of TAC or corresponding expert meetings at European level.

A final elaboration of recommendations both for Member States as for the Commission will be performed for the final report.