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Annex to the **:**

REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

ON THE NATIONAL STRATEGIES FOR THE REDUCTION OF BIODEGRADABLE WASTE GOING TO LANDFILLS PURSUANT TO ARTICLE 5(1) OF DIRECTIVE 1999/31/EC ON THE LANDFILL OF WASTE

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SUMMARY OF DATA AND NATIONAL STRATEGIES

1. AUSTRIA

In 1995 the amount of biodegradable municipal waste produced in Austria was 2.675.300 tonnes. In 2001 472.181 tonnes of biodegradable municipal waste were landfilled. Thus, Austria already fulfilled in 2001 the target provided for the year 2016 to reduce the amount of biodegradable municipal waste to 35 % of the total amount produced in 1995.

On 1 January 1995 the Ordinance on the **separate collection of biodegradable waste** came into force. It requires the separate collection of biodegradable waste from households and commercial sources, if the waste is not recovered (composted) on-site. The amount of separately collected biodegradable waste has risen from a few thousand tonnes in 1989 to approximately 500.000 tonnes in 2001.

The Ordinance on Composting entered into force in 2001 and regulates quality requirements for compost from waste, the type and origin of the input materials and the conditions for their placing on the market. Pure biodegradable waste collected at source is used as humus product in agriculture, gardening and landscaping.

The Packaging Ordinance of 1993 requires the **separate collection and reuse or recovery of packaging waste**, including paper and paperboard packaging. The total amount of paper collection (print and packaging) was 510.000 tonnes in 2002.

The Ordinance on the **separation of materials arising from construction activities** requires the separation of biodegradable waste such as wood in larger construction projects. These wastes are not municipal waste, but are included in the strategy which must cover all biodegradable waste.

This legislation was accompanied by extensive information campaigns in order to change the behaviour of the public.

Pursuant to the **Ordinance on landfill** from 1 January 2004 on only waste with a maximum TOC (total organic carbon) content of 5% may be landfilled. Waste that undergoes biological-mechanical treatment and is below a certain calorific value is excluded from this obligation. This provision means that biodegradable waste must be pre-treated before going to landfill.

Due to these measures the total amount of separately collected wastes destined for recovery has risen from approximately 340.000 t in 1989 to about 1.640.000 t in 2001.

2. BELGIUM

2.1. Walloon Region

The amendment of the Walloon waste management plan lays down the waste policy and objectives for the years 2003-2008 in the Walloon Region.

The plan sets the objective to **reduce the amount of municipal waste** produced by 10% in 2007 and 15% by 2010 compared to the business as usual scenario. For household waste a reduction target of 5-7% by 2008 is set.

The amount of residual waste, that is the non separated fraction of waste, should be reduced by increasing the **separate collection in particular of the fermentable fraction** of household waste. The overall recovery target (recycling, composting, biomethanation, energy recovery) is 90% of the household waste produced and the recycling target is 60% (44% recycling and 16% composting-biomethanation). Through voluntary separate collection the amount of organic waste in rural and semi rural areas collected should reach 50 kg per inhabitant and year. The objective is thus to separately collect 61% of organic waste from households (excluding green waste) by 2007-2010. This waste should go to biomethanation units. The residual waste should go to thermal treatment installations.

The establishment of a net of parks and container should be finalised. Four new methanation plants should be created, which together with the existing plant will enable the treatment of 125.000 tonnes of separately collected organic waste. A network of composting plants should be established that will enable the treatment of 220.000 tonnes of green waste. With regard to incineration, the associations of communes should share their incineration capacities in order to avoid the construction of new incinerators and existing incinerators will be modified. Nevertheless the construction of one new energy recovery plant is envisaged. Projects for sorting and pre-treatment of residual waste will be established. In order to ensure sufficient landfill capacities for the expected amounts of residual waste, four existing landfills will be extended. The landfill plan will be amended to increase capacities of inert waste landfills. Geographical restrictions of waste acceptable at landfills will be reduced in order to optimise the management of waste.

A consultation of the communes will be carried out concerning **aid for the separate collection** of paper and paperboard in order to ensure the implementation of the take back obligation for paper from post box advertising. Aid for the separate collection of organic waste from households will be redefined.

2.2. Flemish Region

In Flanders 1.212.743 tonnes of municipal waste were landfilled in 2000 (291.323 tonnes of household waste and 968.000 tonnes of commercial waste). This is a decrease of the total amount of biodegradable municipal waste of 75% compared to the amount produced in 1995. Thus, Flanders already exceeds the reduction target of Article 5(2) of 65% for the year 2016. The Plan on Household Waste for 2003-2007 provides for a further reduction of waste going to landfill beyond the targets of Article 5(2).

The following wastes are banned from landfills:

– Unsorted household and commercial waste

– Waste materials that are collected separately with a view to be recovered

– Waste materials that could be recovered because of their nature, quantity and homogeneity

– The combustible residual fraction of sorted household waste or comparable commercial waste

– Old and expired medicines

Until 2005 **landfills** will be allocated an **annual quota** of waste that may be accepted. This deviation from the landfill ban serves as a back-up if the capacity for thermal treatment is not sufficient. From 2005 extra capacity must be created enabling the reduction of landfilling of household waste and commercial category 2 waste to zero. Landfilling will then only be allowed in emergency cases or if the required treatment capacities are not realised in time. The criterion to distinguish between combustible and non-combustible waste is a TOC content of 6%.

3. DENMARK

In Denmark in recent years only very small amounts of biodegradable municipal waste have been landfilled, corresponding to far less than 10% of the total amount of biodegradable municipal waste produced in 1995. The amount produced in 1995 was 1.813.000 tonnes. In 2002 only 35.000 tonnes were landfilled.

The Order No 619 of 27 June 2000 concerning waste requires all Danish municipalities as of 1 January 1997 to send waste (including industrial waste) that is suitable for incineration to incineration. This is equivalent to banning the landfilling of waste suitable for incineration.

The strategy of Denmark to reduce the amount of biodegradable municipal waste going to landfills consists in maintaining the ban on the landfilling of waste that is suitable for incineration.

4. FRANCE

France already largely respects the targets of 2006 and 2009. However, the estimated amount of biodegradable municipal waste going to landfill in 2016 is 40% of the total amount produced in 1995. The following measures are proposed to achieve the target of a reduction to 35% in 2016:

The Act of 13 July 1992 requires that by 1 July 2002 only **"final waste",** that means waste that cannot be treated anymore under the present technical and economic conditions may be accepted in landfills. In accordance with this requirement the waste management plans have been revised with a stronger orientation towards recycling. Separate collection of waste, in particular of paper, has developed.

A study is being carried out on the management of municipal waste in 2002. The data collected will enable a more refined appreciation of the situation.

Since 2000 the separate collection of paper has strongly developed. The percentage of population served has risen from 62% in 2000 to 83% in 2002 and 92% by the end of 2003.

The rate of **paper recycling** has risen from 59% in 2000 to 61,5% in 2001. Further efforts will be made in the coming years with the new objectives fixed for packaging waste. Further progress is expected for the paper print distributed in mailboxes and on public ways.

In the last years the collection of **green waste** has strongly progressed through the setting up of collection points. Also, ADEME has supported numerous composting projects. The circular of 29 June 2001 fixed rules to ensure the harmlessness of compost produced. Numerous waste management plans provide the development of separate collection of

biowaste. Methanisation projects are being studied in different agglomerations. The Communication of the Council of Ministers of 4 June 2003 on household waste provides measures to promote the development of the biological treatment of biowaste.

There are approximately 130 incinerators at present in France. Some waste management plans foresee the construction of new incineration plants, some of which are already under construction. It is estimated that the amount of waste going to **incineration** will increase by 1-2% in the next years.

The **biological pre-treatment** of waste is not widespread in France, but the experiences of the existing sites are followed with interest.

5. GERMANY

Germany will fulfil the target provided for the year 2016 to reduce the amount of biodegradable municipal waste to 35 % of the total amount produced in 1995 already on 16 July 2006 not only for biodegradable municipal waste but for all biodegradable waste.

Pursuant to the Waste Act producers and holders of waste as well as waste treatment bodies must firstly prevent waste and secondly recover them by material or energy recovery. The recovery of waste has priority over the disposal of waste. A high quality recovery in accordance with the type and nature of the waste must be aimed at. Waste must be kept and treated separately, if this is necessary to achieve the aforementioned objectives.

Biodegradable waste from households, gardens and parks are mostly collected separately and recovered. Waste is collected from households via the so called “bio-bins”. The biowaste is mostly processed into compost. Partly anaerobic digestion processes are applied and the biogas generated is used for energy. Between 1990 and 2000 the amount of separately collected biowaste increased by more than six times. The Biowaste Ordinance of 21 September 1998 regulates the treatment and analysis of biowastes and mixtures and guarantees the safe recovery on soils used for agriculture, forestry and gardening. A small part is also recovered on landfills (for the recultivation layer).

Waste wood is recovered to a large extent. Only around 15% of the total generation is landfilled. The Waste Wood Ordinance that entered into force on 1 March 2003 lays down special requirements for the safe recovery and disposal of waste wood. Pursuant to this ordinance waste wood that can not be recovered may only be incinerated and not landfilled anymore. The recovery of waste wood is encouraged by the Commercial Waste Ordinance with its separation obligation and through aids on the basis of the Renewable Energy Act.

The separate collection of **paper** is a successfully growing institution in Germany. The Packaging Ordinance of 1991 and the Voluntary Commitment of the graphic paper industry of 1994 have increased the recycling of paper. The percentage of paper collected for recovery rose from 34% in 1980 to 71% in 2001. The percentage has not risen since 1997, which indicates that the limits of the collection systems have been reached.

Packaging waste can have a high content of biodegradable waste, is recoverable and should be diverted from landfills. On the basis of the Packaging Ordinance of 1991 a system for the take back and recovery of packaging waste was established by the economic operators (the Green Dot – Duales System Deutschland, DSD). The percentages of recovered packaging

waste rose from 56% in 1993 to 77% in 1999. Also for packaging it can be seen that the recovery quota is nearing its limit.

In the mechanical biological treatment process the **high calorific value fraction** (plastics, paper, wood) must be separated from the residual waste in order to achieve the acceptance criteria for landfilling. After conditioning this fraction is suitable for use as fuel in cement kilns or power plants. In the case of a 'normal' mechanical biological treatment this fraction amounts to around 50% by weight of the waste.

In 2000 out of a total of 2,4 Mio Mg (dry matter) of **municipal sewage sludge** generated, 60% were recycled (use on agricultural and other land), 23% were incinerated and 7% landfilled after dewatering.

The **Landfill of Waste Ordinance** provides that municipal waste and waste that is disposed of like municipal waste may be deposited in landfills, if the maximum carbon content is not more than 3% (determined as TOC, total organic carbon). This necessitates a thermal treatment of the waste. After incineration the biodegradable content is estimated to be a maximum of 1%. The amount of slags produced is around one third of the waste amounts before incineration. Two thirds of the slags can be recovered in construction operations. The amount going to landfill is therefore only 15% of the original waste amounts.

If waste is subject to a mechanical biological treatment, the carbon content of the resulting waste going to landfill may not exceed 18%. The biodegradable content is estimated at a maximum of 10%. The amount of waste landfilled is reduced to 30% of the originally generated waste due to separation of the fraction with a high calorific value, biodegradation and dewatering.

These requirements must be met without exception by 1 June 2005.

At present there is not sufficient treatment capacity in Germany to treat all the waste in order to achieve the landfilling requirements. For the 19.910.000 tonnes of waste to be treated in 2005 there is a total treatment capacity for 18.860.000 tonnes (16.860.000 tonnes in incineration plants, 1.800.000 tonnes in mechanical biological treatment plants as well as 190.000 tonnes in other *Länder)*. The bodies responsible for the treatment of waste are taking all the efforts to establish the missing treatment capacities.

In 1993 28.410.000 tonnes of municipal biodegradable waste were produced. In 2005 only less than 5% of this amount will go to landfills. Thus, the target of 2016 will already be achieved.

6. ITALY

In 1995 Italy produced 25.780.000 tonnes of waste. Of these 16.757.000 tonnes were biodegradable waste (294 kg/inhabitant). 82, 2% of this quantity -that is 13.767.000 tonnes and 241, 5 kg/inhabitant- were landfilled.

In 2001 the trend of increasing amounts of waste going to landfills was reversed. From 2000 to 2001 the amount of municipal waste landfilled was reduced from 21.917.000 tonnes to 19.700.000 tonnes. In 2002 8.300.000 tonnes of biodegradable waste were deviated from landfills through separate collection, mechanical biological treatment and incineration (rising from 6.900.000 tonnes in 2001). In 2002 the biodegradable fraction that was separately

collected amounted to 3.800.000 tonnes, rising by 10% since the previous year. 5.600.000 tonnes of unsorted waste were treated in 2002, with an estimated biodegradable fraction of 3.100.000 tonnes. 2.700.000 tonnes of waste, of which approximately 1.500.000 tonnes are biodegradable, were incinerated in 2002.

The per capita amount of biodegradable waste going to landfills fell from 176 kg in 2001 to 163 kg in 2002. The target of Article 5(2)(a) of the Directive is therefore already fulfilled. It must be noted that these figures take into account the fact that 40% of organics are stabilised and used in the landfill as daily cover or for operation activities.

Italy has put into place economic instruments that on the one hand guarantee the availablility of resources for the after-care of landfills for a period of even more than 30 years and on the other hand require a financial commitment from the operator of a landfill. These measures will increase the costs of landfilling.

Furthermore an ecotax has been in place since 1995. This tax has not been very effective in reducing the amounts of waste going to landfills and it will have to be reviewed by the regions. In particular the quantity of waste to be used as daily covering in landfills should be limited in order to prevent the possibility of evading the tax.

An increase of separate collection of organics to at least 8.000.000 tonnes in 2008 is foreseen, in particular by increasing the separate collection in the southern regions. The government will soon adopt a decree on biological treatment. 2.800.000 tonnes of organic waste are currently composted. Capacities for further 5.000.000 tonnes exist.

The government intends to encourage the setting up of incinerators. Many installations are in the authorisation process.

High and medium risk material pursuant to Regulation (EC) No 1774/2002 on animal by-products may not be landfilled, even after pre-treatment. Furthermore the landfilling of organic healthcare waste is banned even if it has been sterilized.

7. GREECE

The Landfill Directive is implemented in Greece by Joint Ministerial Decision 29407/3508/2002. This decision implements the targets of Article 5(2). Greece makes use of the possibility of postponing the achievement of the targets by four years. The regional distribution of these targets will be performed by updating the regional waste management plans. The targets are to be achieved by promoting the recovery of waste and in particular recycling, composting, the production of biogas and general recovery of materials or energy.

Alternative systems for the management of **packaging waste** have been introduced, including programmes for the collection of recyclable waste at source and the construction of **sorting and/or recycling** plants. Where this is considered economically and technically feasible, **bio-mechanical treatment** plants and/or **energy recovery** plants will be constructed.

The new legislation on the management of non hazardous waste (Joint Ministerial Decision 50910/2727/2003) sets the targets of the new national waste management plan. It also sets the concrete content of the regional plans and that requires an update of these plans by 22 December 2005. The updated regional plans will include a clear reference to the projects and actions implemented at regional level with a view to achieving the targets of the new national

plan and the reduction targets set by the Joint Ministerial Decision 29407/3508/2002, the projects that are still outstanding and the selection of measures to reduce landfill.

With a view to meeting the obligation to treat all waste before landfilling, the management agencies of the new and existing landfills must select one of the alternative treatment solutions and have it in operation at the latest by the deadline set in Joint Ministerial Decision 29407/3508/2002.

8. LUXEMBOURG

In 2002 a total quantity of 192.270 tonnes of municipal waste was disposed of in Luxembourg. Almost 66% of these were disposed of by incineration and 65.952 tonnes were landfilled. The percentage of biodegradable waste in residual waste was 64,6% in 1992-1994 and 54,5% in 2001.

The Regulation of 24 February 2003 on the landfilling of waste implements the reduction targets of Article 5(2) of Directive 1999/31/EC. These targets, however, only apply to regions that dispose of their waste by landfilling.

In the past years different structures have been put into place to inform municipalities, enterprises and individuals and to raise their awareness in the area of prevention and management of their waste. Such structures have been established for organic waste, other recoverable waste and hazardous and industrial waste.

Kitchen waste is separately collected in a green bin (door to door collection). The population covered is 40%.

Green waste is collected in central containers and sites (collection by voluntary delivery). Furthermore, individuals can bring their green waste to container parks and composting and cofermentation installations. The population covered by this system is 97, 5%.

The amount of kitchen and green waste produced per year is estimated at 63 000 tonnes (150 kg per inhabitant). Kitchen and green waste is recovered by composting. In 2002 four co-fermentation installations were accepting 375 tonnes of waste.

According to a survey 25% of the households in Luxembourg carry out home composting. In addition there are six composting installations that can treat around 45.000 tonnes. The Ministry of Environment is granting aids of 66% for investment costs to municipalities for the construction of installations fro the treatment of organic waste.

Paper and wood are collected by voluntary delivery to container parks and collection bins or by door to door collection. In 2000 more than 83% of the population had the opportunity to bring their paper and wood waste to container parks, 88% were covered by door to door collection and 79% had access to collection bins.

In 2002 7.096 tonnes of paper, 7.609 tonnes of treated wood and 1.782 tonnes of green waste were collected in container parks.

The two landfills for municipal waste in Luxembourg are equipped with a separate collection station, where citizens and enterprises can deliver recoverable waste.

On the site of the landfill of Fridhaff/Diekirch an installation for the mechanical pre-treatment of municipal waste was put into operation. The waste is shredded and separated into different fractions. The high calorific fraction is incinerated. The ferrous metals are recovered. The fraction going to landfill is treated by homogenisation. In 2005 a biological pre-treatment installation for the stabilisation of the waste will be put in place.

At the Muertendall/Flaxweiler site the waste is shredded and put in windrows for six months. These windrows stabilise the waste by degrading the organic content.

9. THE NETHERLANDS

The Netherlands already comply with the requirement to reduce the amount of biodegradable waste going to landfills to 35% of the amount produced in 1995. In 2000 around 10% of the organic waste that is still mixed in with residual waste was landfilled and the rest was incinerated.

Quantitative prevention is achieved by encouraging direct **recovery of organic waste** of plant origin e.g. by composting vegetable, fruit and garden waste at home or by using green waste as soil improver in the area where it is generated.

Qualitative prevention is achieved by **separation at source**, which yields a pure raw material for compost production. Only separately collected organic wastes can meet the heavy metal limits set out in the decree concerning the quality and use of other organic fertilisers (BOOM).

For **vegetable, fruit and garden waste** from households the target is that 55% of the amount produced in 2006 must be collected separately. This target is about the same as the percentage separately collected in 2000. To encourage further separate collection a Programme for the Encouragement of Household Waste Separation and Prevention is being introduced by central government, regional and local authorities. For collection the target for separate collection is 60% by 2006. The 'Waste prevention for sustainable business' programme aims to encourage companies to separate waste at source.

The Decree on landfills and landfill bans prohibits the landfilling of separately collected vegetable, fruit and garden waste, waste of plant origin from agriculture and horticulture, market waste, waste from public parks and gardens or green waste from public spaces.

The Environmental Management Act prohibits the incineration of waste outside special installations. This provides an incentive to take green waste to installations for recovery. Municipalities may grant derogations from this prohibition, provided this does not adversely affect the environment.

Vegetable, food and green waste is currently processed in **composting and fermentation** plants. The environmental impact assessment carried out in connection with the national waste management plan included a comparison of different treatment and processing techniques. When all the techniques are compared, gasification of separated vegetable, food and green waste comes out significantly better than the others, except in the context of the distance to target weighting, where the differences between techniques are not significant. Taking into account costs and available processing capacity, composting or fermentation of

separately collected vegetable, food and garden waste is for the time being the preferred method. These have thus been set as minimum standard.

Green waste is taken mainly to green waste composting units where, possibly after pre-treatment, it is generally composted in the open air. Green waste may also be used directly as a soil improver or as material for filling in fenland ditches, if these processes are at least equivalent to composting in environmental terms and if they comply with the relevant legislation (Fertilisers Act, BOOM Decree and Soil Protection Act).

10. PORTUGAL

In Portugal the targets of Article 5(2) of the Landfill Directive are transposed by Decree-Law No 152/2002 of 23 May 2002. Although Portugal landfilled approximately 90% of its municipal waste in 1995, it will not make use of the possibility to postpone the achievement of the targets.

The amount of biodegradable municipal waste produced in 1995 is 2.252.720 tonnes. This represents 58 % of the total municipal waste (food and garden waste 35%, paper and paperboard 23%). 992.816 tonnes of the biodegradable municipal waste are recovered or incinerated.

Separate collection of food and garden waste is to increase to 10% of the amount produced in 2002 in 2006 and 25% in 2009. In 2016 only separately collected food and organic waste will be treated by organic recovery.

At present there are 6 **composting** plants with a total capacity of 391.400 tonnes. These composting plants mostly treat unsorted municipal solid waste. Thus, the yield from the plants is low and a high proportion of the output material is rejected and sent to landfills. The compost is used as organic fertiliser in agriculture and gardening. Three new biological treatment plants (2 composting plants, 1 anaerobic digester) are planned, which will increase the total capacity to 500.000 tonnes. The new composting plants will treat biodegradable waste separately collected from the main sources (restaurants, canteens, hotels, markets, supermarkets and hypermarkets). At a later stage separate collection from domestic producers will be phased in. Further new units for organic recovery (composting and anaerobic digestion) and the conversion, adaptation and extension of existing composting units is also being considered, as well as the installation of smaller units using simpler technological processes (e.g. composting of green waste from gardens, parks and golf courses) in order to reach a capacity for organic recovery of biodegradable municipal waste of 860.960 tonnes in 2016. With regard to sampling, characterisation and use of compost additional standards, in particular technical standards, will need to be set.

With a view to reducing the quantity of waste going to 'central treatment systems' (i.e. centralised units with a high treatment capacity), **back yard composting** in schools or in small collective management units will be promoted whenever it is viable and also in areas where separate collection and centralised treatment systems for biodegradable municipal waste cannot be justified. Pilot projects will be developed mobilising target populations and the distribution of composting units for the treatment of waste will be promoted. The measures to be adopted should also be integrated in the awareness-raising campaigns for the environment to be launched.

Portugal has two **municipal waste incinerators** that generate electricity and have a total capacity of 1.060.000 tonnes per year. A third incinerator with a capacity of around 126.000 tonnes per year was planned to enter into operation in the second half of 2003. A total of 706.856 tonnes per year of biodegradable municipal waste will be treated in these incinerators. One new municipal waste incinerator will be built, with a capacity of 400.000 tonnes per year. The possibility of expanding existing incinerators will also be considered. The incineration capacity for biodegradable municipal waste will be increased from the current 706.856 tonnes per year to 945.256 tonnes per year in 2016.

Currently various technologies such as **pyrolysis and gasification** are in the process of being developed and applied to waste management. These could also be used if they prove to be of added value in the future in technical and economic terms.

Portugal has set objectives for the **recycling of paper and paperboard packaging** reaching 75% in 2016. It will also be necessary to increase the recovery of paper and paperboard other than from households and places where a significant quantity of this type is usually produced (such as offices, universities and hypermarkets).

It could also be considered to progressively increase **fees for the deposit of waste in landfills** and to introduce phased restrictions of quantities of waste going to landfills. The introduction of appropriate fees to ensure the sustainability of the systems is also deemed important.

Awareness raising activities will be developed with the objectives of informing citizens and encouraging their active participation in this process. The aim is to promote the participation of the general public, leading producers of biodegradable waste and users of compost.

Research and development should be encouraged, particularly with regard to processes for the collection and treatment of waste as well as its optimisation with the aim of producing compost of a quality that is appropriate to its end-use.

11. SWEDEN

The *Governmental document 2000/01:130* establishes the general target to reduce landfilling of waste with at least 50% until 2005. Two bans have therefore been adopted in order to prohibit the landfilling of sorted combustible waste (in force since 1.01.2002 but derogations may and have been granted at regional level) and organic waste (in force since 1.01.2005). A landfill tax has also been introduced. In addition, biological treatment will increasingly be used to recover alimentary waste. Regional authorities may deviate from this ban where there is a lack of capacity. The amount of combustible sorted waste going to landfills in 2003 was 0,9 million tonnes. Derogations were granted in 2003 for 1,5 million tonnes. A large part of the derogations granted was not used.

The *report 5298* on the follow-up of the ban on the landfilling of sorted combustible waste shows that the need to landfill such waste continuously decreases. The incineration capacity increases and extensive plans for new incineration capacity exist according to the report. Biological treatment also increases. Fewer derogations from the ban will be granted and only during a transitional period. It is up to the regional authorities to decrease the landfilling by ensuring that the bans are enforced. The priority for this varies between regional authorities.

12. UNITED KINGDOM

The United Kingdom has transposed Article 5 of the Landfill Directive with the Waste and Emissions Trading Act 2003. The Act provides that the Secretary of State must set targets for the landfilling of biodegradable municipal waste in the United Kingdom, England, Scotland, Wales and Northern Ireland. The waste disposal authorities will be allocated allowances to landfill biodegradable municipal waste. If the waste disposal authorities breach these limits they will be liable to penalties. The allowances may be traded. The Act provides for the preparation of strategies for England, Scotland, Wales and Northern Ireland for the reduction of biodegradable waste going to landfills.

Under the packaging Regulations businesses will have the obligation to recover 52% of packaging waste in 2001 and to recycle at least half of that. New targets for 2001-2006 are being considered.

The United Kingdom's strategy is set out in the Waste Strategy 2000 for England, the National Waste Plan 2003 for Scotland, the National Waste Strategy 2002 for Wales, the Waste Management Strategy 2000 for Northern Ireland and the Strategy for the Reduction of Biodegradable Waste going to Landfill for Gibraltar.

13. ENGLAND

Tradable allowances for the landfilling of biodegradable municipal waste will be allocated to local authorities.

The **newspapers** publishers have committed to use 60% recycled content by 2001, 65 % by 2003 and 70 % by 2006.

An initiative on producer responsibility for **junk mail** has been developed.

A **landfill tax** of £ 11 per tonne for active waste and £ 2 per tonne for inactive waste was introduced in 1996. In 1999 increases to the active rates of £ 1 per tonne per year were announced with a review in 2004. However, the Treasury has since announced that the current rate for active waste of £ 15 will be increased by at least £ 3 per tonne per year until the rate reaches £ 35 per tonne. Under the landfill tax credit scheme landfill operators can claim credit against donations to approved environmental bodies up to a maximum of 6% of their annual landfill tax bill. Activities eligible for support include the reclamation of polluted land, research and education to promote re-use and recycling, the provision of public parks and amenities, the restoration of historic buildings. Measures to promote waste minimisation, re-use and recycling are funded by the central Government through the Waste Implementation Programme.

14. SCOTLAND

In 1995 1.680.000 tonnes of biodegradable municipal waste were produced. In 2002 around 141.000 tonnes of municipal waste were recycled (4%), 83.000 tonnes were composted (3%) and 65.000 tonnes recovered as energy (2%). The plan sets the objective to reduce the amount of biodegradable municipal waste going to landfills to 1.260.000 tonnes in 2010, 840.000 tonnes in 2013 and 590.000 tonnes in 2020. Overall recovery will rise from 9% to 30 % by 2006, 45% by 2010 and 69 % by 2020. Recovery by recycling and composting alone will be

27% by 2006, 38% by 2010 and 55% by 2020. The detailed measures to achieve this outcome will be set out in the 11 Waste Strategy Area plans.

In order to increase **recycling** the use of bring facilities and of segregated collection regimes will be expanded. By 2010 about 85% of households and other premises served by local authority collections will be offered a segregated kerbside collection of recyclable materials. By 2020 coverage should be 90%. Recycling facilities will be widely distributed across Scotland, with a capacity of 1.200.000 tonnes per year.

In the short term the largest volume of **composting** will be of mixed waste, which will go to landfill or may be used for useful purposes. Overtime the separation of waste at source should allow the production of high quality compost. About 49% of households will be offered separate collection of organic waste by 2010 and 60% by 2020. In addition facilities for receiving garden waste at civic amenities sites will be extended. Around 300.000 tonnes per year of capacity for composting mixed waste will be installed by 2010 and another 300.000 tonnes per year for composting of segregated waste (extending to 450.000 in 2020). Composting facilities will need to be designed in accordance with standards for compost products, which are in place or currently being developed.

Scotland has two incinerators **recovering energy** from 90-95.000 tonnes of municipal waste per year. New facilities will be introduced for 190.000 tonnes per year. However, if waste growth continues as assumed, a capacity of 800.000 tonnes per year will be needed by 2020 to reach the targets of the Landfill Directive.

Other alternative treatment methods include anaerobic digestion and mixed waste processing (sorting out recyclable materials, production of refuse derived fuel, production of composted material).

15. WALES

In 1999/2001-2 Wales produced 1.620.000 tonnes of municipal waste, of which 93% was landfilled and 7% recycled. It is estimated that 64% of the waste is biodegradable (1.038.000 tonnes). 11.975 tonnes were composted, 31.481 tonnes of paper and 2.673 tonnes of textiles were recycled and 1.040.000 tonnes were landfilled. The target for Wales is to reduce the amount going to landfills to 675.000 tonnes in 2010, 450.000 tonnes in 2013 and 315.000 tonnes in 2020. By 2003/04 at least 15% recycling and composting of municipal waste should be achieved with at least 5% composting and 5% recycling. By 2006/7 at least 25% recycling and composting should be achieved with at least 10% composting and 10% recycling.

In order to achieve the targets local authorities should promote reuse, home composting and recycling in particular through kerbside collections, bring sites and recycling centres and extraction of materials from mixed municipal waste.

16. NORTHERN IRELAND

A **Market Development Programme** will be carried out to stimulate demand for recycled materials, in particular for recycled paper.

District Councils should promote home **composting** and should facilitate centralised composting of segregated organic waste, where such systems are demonstrated to be BPEO (best practicable environmental option).

17. GIBRALTAR

Gibraltar has no landfill sites and waste has historically been disposed of by **incineration**. At present the waste is exported for landfill in Spain, as the incinerator has had to be closed down. Gibraltar plans to build a new incinerator. It is expected that the new plant will be operational by late 2005 or early 2006. Once this is in place biodegradable waste will no longer go to landfill.