

1.0 Factsheet – Slovenia

Table 1-1: Basic waste management data for Slovenia

Parameter	Value
Population	
Total (inhabitants)	2,059,114
Waste generation (2014)¹	
Total (tn)	891,708
Total (kg/cap/y)	433
Waste composition (%)	
Organics- kitchen waste	24,66%
Paper	19,2%
Plastic waste	11,10%
Textile	1,94%
Composites	1,30%
Oils	0,05%
Metals	4,68%
Glass	6,85%
Wood	7,01%
Hazardous waste	0,05%
Inert waste	22,91%
Recycling data	
Paper	43%
Plastics	2%
Metal	0,4%
Glass	3%
Total recycling	48,4%
Waste management	
Treatment of Residual Waste (% of MSW in 2014)	20% (est) tbc

¹ Republic of Slovenia Statistical Office, see <http://www.stat.si/StatWeb/en/field-overview?idp=70&headerbar=8>

Parameter	Value
Waste recycled (% of MSW in 2014)	59% (est) tbd
Waste landfilled (% in 2014)	23% (est) tbd
Existing waste management infrastructure	
Type of Facility	Capacity
Residual treatment plants (MBT capacity, 2013)	61,500 t/y
	Data on MBT capacity- (permitted) end of 2015: 352.600 t/y
	Simbio (Celje): 61,500 t/y
	Snaga (Ljubljana): 175,500 t/y
	Cero Puconci (Prekmurje): 27,500 t/y
	Kocerod (Slovenj Gradec): 16,600 t/y
	Ceroz (Hrastnik): 13,000 t/y
	Komunala Slovenska Bistrica (Styria): 10,800 t/y
	JK Komunala Laško (Savinja): 2,700 t/y
Kostak (Lower Sava): 45.000 t/y	
Sorting facilities for recyclables	77,920 t/y (tbc)
Organic waste treatment facilities	Data for 2014: -composting: 19 facilities, 145,670 t/y -biogas plants: 11 facilities, 464,650 t/y
Compliance with Targets	

Parameter	Value
Data on compliance with landfill directive targets, or distance to target remaining (if target not met)	<p>Slovenia achieved the target referred to in Article 5(2a) of the Directive before 2007; in 2010 it achieved the next target, i.e. a reduction in the amount of biodegradable municipal waste sent to landfill to below 50% of the total amount, by weight, of the biodegradable municipal waste produced in 1995 (it reduced it to 48%).</p> <p>Capacities for the mechanical biological treatment of mixed municipal waste (around 314,561 tonnes/year) and the treatment of separately collected biodegradable waste (around 108,500 tonnes/year from public services and 55,900 from restaurants) will be secured by the end of 2015 with the help of cohesion funds.²</p>
Data on compliance with waste framework directive targets or distance to target remaining (if target not met)	Official data suggests Slovenia is already meeting the relevant WFD target

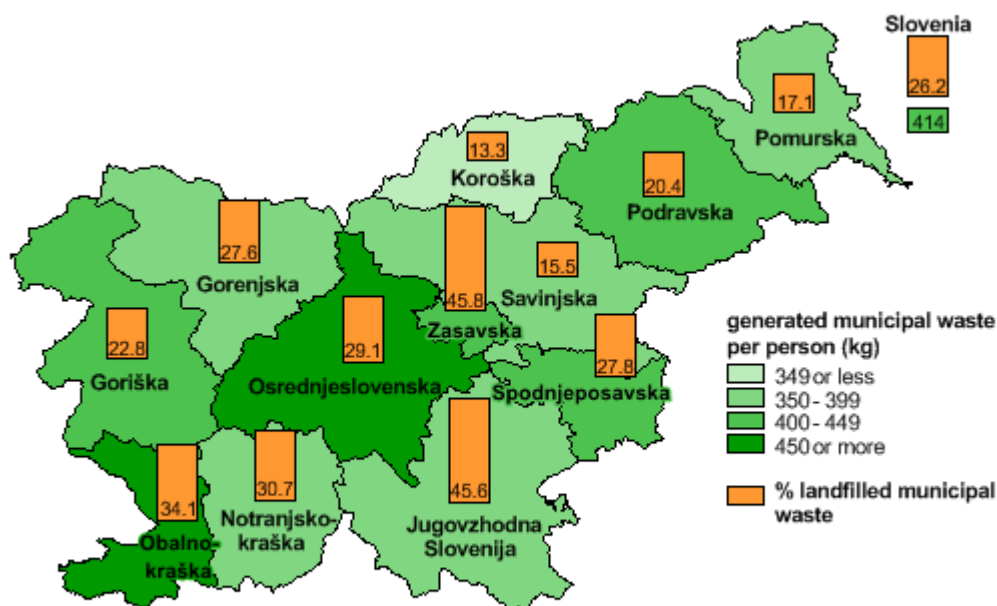
Slovenia's statistical regions exist solely for legal and statistical purposes. Both the amount of waste generated by municipalities and waste management performance in individual municipalities vary considerably. To a certain extent, they depend on the lifestyle and awareness of residents, on the available capacities for waste disposal, and on the willingness of municipalities to find new solutions. On average, 433 kg of municipal waste is produced per person, per year in Slovenia —more than one kg per day. However, large quantities of waste are not necessarily related to the urban way of life. More than 450 kg of waste per resident is generated in seven out of eleven city municipalities, but also in four municipalities with less than 2,000 residents.³

The variation in performance across regions in 2013 is shown in Figure 1.

Figure 1: Municipal Waste per Capita and Proportion of Waste Landfilled by Region (2013)

² Report of the Republic of Slovenia on the implementation of Council Directive 1999/31/EC on the landfill of waste (2010–2012).

³ See <http://www.balkwaste.eu/wp-content/downloads/deliverables/SLOVENIA.WASTE.pdf>



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Municipal waste is defined as household waste and other waste similar in nature and structure. There are a variety of possible types / streams: hazardous waste, packaging, bulky waste, biodegradable, and other types of waste. Household waste constituted only 61% of MSW in 2014, implying that there is a considerable amount of commercial waste effectively included within the definition used (the amount of household waste as a proportion of municipal waste is relatively low by EU standards).

Collection of waste is based on a combination of a bring system (people bring separate fractions of waste to collection points, or centres) and a 'door to door' waste collection system. The collection system was developed on the basis of European best practices aimed at the separation of waste. Only in this way can waste be moved up the waste hierarchy, and a significant reduction in landfilling be achieved.

1.1 Roles and Responsibilities of Key Actors

The Ministry of Environment and Spatial Planning is responsible for the review of operational programs and other measures to reduce quantities of waste, and is responsible leading Slovenia towards better waste management.⁴

The Ministry of the Environment and Spatial Planning

The Ministry of Environment and Spatial Planning carries out tasks in the field of environmental protection, nature conservation, water management, climate change, public services, environmental protection, nature conservation public services, public services, water management, radiation protection, elimination of consequences of natural disasters, investment in environmental and water infrastructure, and tasks related to the area of

⁴ See <http://www.arso.gov.si/en/soer/waste.html>

housing policy. The waste division falls under the Environmental Directorate of the Ministry.

The Ministry's tasks related to the management of municipal waste are carried out by multiple bodies. Information provided at the workshop in Slovenia indicates that the waste division of the Ministry is responsible for:

- Preparation and monitoring of the implementation of regulations;
- Monitoring the transposition of EU legislation into national law;
- Participation in the working bodies of the EU and international organizations;
- Monitoring and preparation of system solutions for waste management;
- Preparation of technical basis for law enforcement;
- Preparation and implementation of strategic documents and programs;
- Co-operation with governmental and non-governmental organizations.

Bodies falling under the Ministry include the Environment Agency and the Inspectorate of the RS for the Environment and Spatial Planning:

- The Environment Agency issues environmental permits to waste facilities, and is involved in data collection, analysis and the implementation of state monitoring;
- The Inspectorate supervises the implementation of environmental regulations.

Municipalities

At a local level, municipalities are responsible for collection of municipal waste and treatment (including landfilling) of mixed municipal waste. At the time of writing there are 212 municipalities. In accordance with Article 149 of the Environmental Protection Act, specific responsibilities for the municipalities include the following:

- Collection of municipal waste.
- Handing over separate fractions of municipal waste for further treatment in accordance with the regulations.

Municipalities are free to associate as regards the implementation of mandatory municipal public services:

- treatment of mixed municipal waste; and
- disposal of residues from the recovery or disposal of municipal waste.

Infrastructure requirements at the local level encompass the subsequent sorting of waste; the transfer of fractions of municipal waste for further treatment in accordance (reuse and recycling of separately collected fractions of waste); waste treatment (composting, AD, MBT); the preparation of waste for thermal treatment, and landfilling of residues. The thermal treatment of waste residues takes place on the national level with energy recovery and disposal of residues after thermal treatment.

The European Affairs Service performs technical and coordinating tasks in the field of European affairs to appropriately promote, within the European Union, those Slovenian interests that fall within the competence of the ministry and are of strategic importance. The European Affairs Service participates in the development and formulation of positions in the procedure of adopting legislative proposals and other acts of the European Union falling within the competence of the ministry, and is responsible for their inter-ministerial coordination.

1.2 Summary of Legislative Framework for Waste Management

At the workshop, the Ministry confirmed that the implementation of the Waste Framework

Directive for MSW currently occurs through the following legislative articles:

- Environmental Protection Act (Official Gazette of RS, no. 39/06 – UPB, 49/06 – ZMetD, 66/06 – odl. US, 33/07 – ZPNačrt, 57/08 – ZFO-1A, 70/08, 108/09, 108/09 – ZPNačrt-A, 48/12, 57/12, 92/13 and 56/15);
- Decree on waste (Official Gazette of RS, no. 37/15);
- Decree on biodegradable kitchen waste and garden waste management (Official Gazette of RS, no. 39/10);
- Decree on waste oils (Official Gazette of RS, no. 24/12);
- Decree on the treatment of biodegradable waste and the use of compost or digestate (Official Gazette of RS, no. 99/13 and 56/15);

The operation of separate collection services is also governed by the Order on the Management of Separately Collected fractions in the public service of urban waste management (Official Gazette of RS, no. 21/01). This defines minimum standards for the collection service organized as a local public service, including the frequency of the collection points for recyclables (at least one collection point for every 500 inhabitants) and collection centers (civic amenity sites) for all separated fractions of municipal waste. . The standard is at least one collection center in every municipality and in every settlement with more than 8,000 inhabitants, with exception of municipalities with less than 3,000 residents, if residents can bring their waste in at least one collection center in neighboring municipalities. Additionally, there have to be at least two collection centers in every settlement with more than 25,000 inhabitants and at least one collection center for every 80,000 inhabitants in every settlement of more than 100,000 inhabitants.

Implementation of the Landfill Directive for MSW is currently covered by the following:

- Decree on waste landfill (Official Gazette of RS, no. 10/2014 and 54/15);
- Operational programme on urban waste management (Government Decision, no. 35402-2/2013/7 dated 13.03.2013);
- Environmental Protection Act (Official Gazette of RS, no. 39/06 – UPB, 49/06 – ZMetD, 66/06 – odl. US, 33/07 – ZPNačrt, 57/08 – ZFO-1A, 70/08, 108/09, 108/09 – ZPNačrt-A, 48/12, 57/12, 92/13 and 56/15);
- Decree on waste (Official Gazette of RS, no. 37/15);
- Rules on the operational monitoring of underground water pollution (Official Gazette of RS, no. št. 49/06, 114/09 and 53/15);
- Decree on the emission of substances in the discharge of landfill effluent (Official Gazette of RS, no. 7/00, 41/04 – ZVO-1 and 62/08)
- Rules of tariff system for public service on the environmental field (Official Gazette of RS, no. 63/09 and 87/12);

In total around 50 acts have been issued at the national level covering the various aspects of waste management.

1.3 Status of Waste Management Plan(s)

A waste management plan (WMP) covering municipal waste *only* has been adopted and is in force. This plan, The Operational Programme on Municipal Waste Management (OP RKO), was adopted in March 2013, and is a national municipal waste management plan drawn up for the entire territory of Slovenia. It has been drawn up in accordance with the requirements of Directive 2008/98/EC. On the basis of an analysis of the current situation in the area of municipal waste management, the OP RKO defines the measures which have to be adopted to improve environmentally acceptable preparation for reuse, recycling,

recovery and disposal of municipal waste. Municipal waste management scenarios for the periods leading up to 2020 and 2030 have also been drawn up; these are intended to ensure that the targets referred to in Directives 2008/98/EC, 1999/31/EC, 94/62/EC, 2002/96/EC, 2012/19/EU and 2006/66/EC are met.

Because the first National Waste Management Plan covers only municipal waste, Slovenia is preparing another plan which covers all waste streams and which will replace the extant Operational Programme for MSW. The new plan is due to be completed in 2016.

The types of waste to be covered in the new plan include: municipal waste, paper, kitchen waste, plastic, glass, metals, bio-waste, textile, wood, oil, WEEE, non-biodegradable waste, hazardous waste (batteries), and others. However, a recent review of the draft WMP suggested this was not compliant with the WFD, as required information on waste shipments and special arrangements (waste oils and hazardous wastes) had not yet been included.⁵

1.4 Summary of the Key Objectives of the Plans

1.4.1 Waste Management Plan(s)

The Operational Programme on Municipal Waste Management (OP RKO), in accordance with Directive 2008/98/EC, includes an analysis of the current situation in the area of municipal waste management, and the measures aimed at improving environmentally acceptable preparation for the reuse, recycling, recovery and disposal of municipal waste. As noted above, municipal waste management scenarios for the periods leading up to 2020 and 2030 have also been drawn up as the basis for ensuring compliance with obligations under relevant waste Directives.

In the Operational Programme on Municipal Waste Management (OP RKO), the areas of the collection, preparation for reuse and recycling, treatment, energy recovery and disposal of municipal waste are addressed in relation to 12 regions across the entire country.

In accordance with the waste hierarchy and the objective of creating a recycling society, OP RKO measures are directed towards offering the lowest possible support to the landfilling of municipal waste. An order of priority of municipal waste management procedures has been drawn up which has deviated from the waste hierarchy only on account of the restrictions dictated by technical feasibility and economic practicability. The OP RKO places emphasis on the fact that the thermal treatment of solid municipal waste must be energy efficient to the extent that it is regarded as a recovery procedure.

The OP RKO included discussion of the following:

- Confirmation that household kitchen waste (20 01 08) and green garden cuttings (20 02 01), are to be collected together in a special container separately from other separately collected municipal waste and mixed municipal waste fractions as part of implementation of the compulsory public municipal waste collection service;

⁵ BiPRO (2014) Detailed evaluation report for assessing the waste management plan of Slovenia – National 3 December 2014, EC

- Packaging which is made from plastic, metal or composite materials and in household waste; in the handling process, this waste is separated into individual packaging materials (different plastic materials, iron and steel, aluminium, composite materials such as Tetrapak);
- Waste paper and small items of cardboard waste, including small items of waste paper or cardboard packaging;
- Owing to the characteristics of individual categories of electrical and electronic equipment (chiefly because of the presence of dangerous substances and the method of recovery), WEEE is collected separately in five different collection/recovery groups:
 - waste cooling and freezing appliances (20 01 23*; EEE Categories 1 and 10),
 - waste television appliances, monitors and cathode ray tubes (20 01 35*; EEE Categories 3 and 4),
 - waste large household appliances (20 01 36; EEE Categories 1, 5 and 10),
 - waste small EEE (20 01 36; EEE Categories 2–5 and 7–9),
 - waste gas lamps (20 01 21*; EEE Category 5).

Pursuant to Article 149 ZVO-1, the government of Slovenia can define the mandatory scope of municipal public utility services in relation to communal waste, thus broadening the possibility for private investment in this sector. The Operational Programme for municipal waste establishes the need for additional infrastructure for the biological treatment of biowaste generated by households, as well as a new system of mechanical and biological treatment centres for the treatment of mixed MSW. Furthermore, the Programme establishes the need for new energy from waste treatment infrastructure.

In order to ensure Slovenia's self-sufficiency in the treatment and disposal of mixed municipal waste, the OP RKO defines a network of landfills and facilities for the disposal and treatment of mixed municipal waste, taking into account the geography and social circumstances, and the need for landfills and treatment capacities. The infrastructural municipal waste management network as defined provides Slovenia with self-sufficiency in the recovery and disposal of municipal waste.

Implementation of the OP RKO also ensures a reduction in greenhouse gas emissions resulting from the putting of municipal waste to landfill; in formulating the measures, due regard was also paid to the requirements laid down for Slovenia under the strategy to reduce the amount of biodegradable waste sent to landfill from Directive 1999/31/EC⁶.

Slovenia is currently preparing a WMP covering the whole area of the Republic of Slovenia, which will update the situation on MSW and will also cover other waste streams. This is due to be adopted at the beginning of 2016.

1.4.2 Waste Prevention Plan

A waste prevention plan has still not been adopted. In October 2014, the Ministry for Environment opened a public consultation on the matter.⁷ In June 2015 a stakeholder meeting was held regarding green waste management, which included discussion of waste

⁶ Report of the Republic of Slovenia on the implementation of Directive 2008/98/EC of the European Parliament and of the Council on waste, 12 December 2010–31 December 2012

⁷ http://www.mkgp.gov.si/nc/si/medijsko_sredisce/novica/article//7707/

prevention. However, we understand from the workshop that the waste prevention plan is currently in preparation and is due to be adopted at the beginning of 2016. The Ministry presented a draft waste prevention program on 21 December 2015, which is still open for public consultation at the time of writing. The Ministry held two public debates in January 2016. The debate was intended for stakeholders and municipal companies as well as non-governmental organizations and the wider interest public. The program is expected to commence at the end of April 2016.

1.5 Progress towards the Fulfilment of Targets

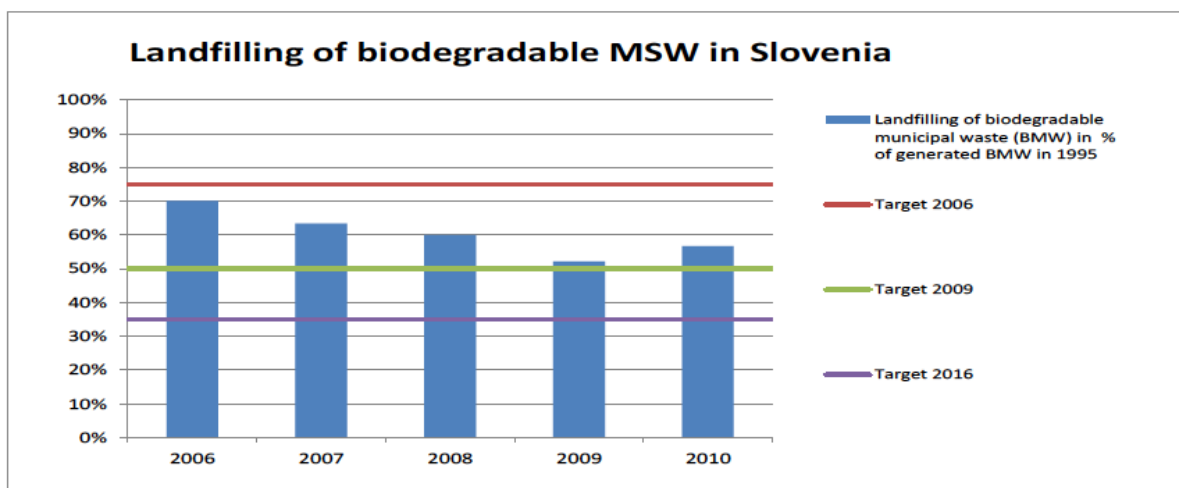
1.5.1 Landfill Directive Targets

According to the EU Landfill Directive, Member States have to reduce the amount of biodegradable municipal waste (BMW) landfilled progressively through the years 2006, 2009 and 2016. Targets are related to the amount of BMW generated in the baseline year of 1995: in that year Slovenia generated 445,000 tonnes of BMW.

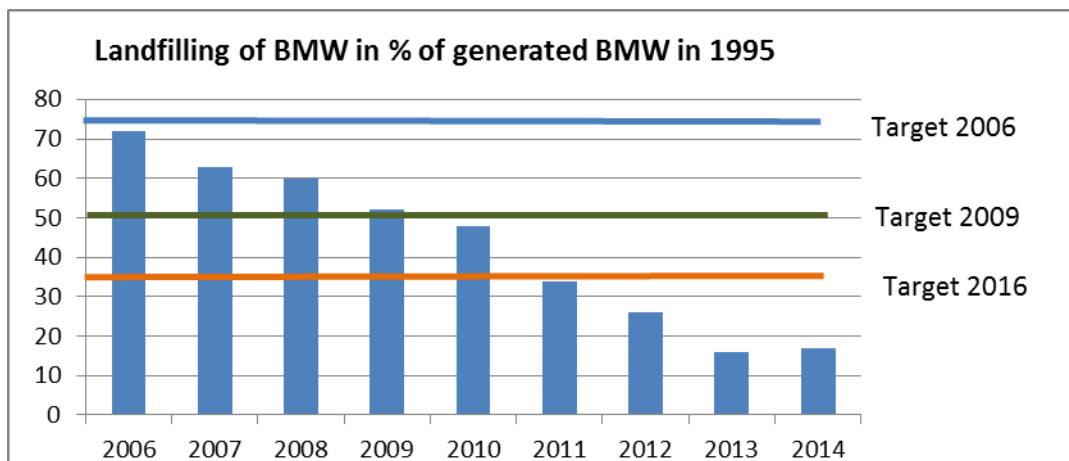
In 2006, the amount of BMW landfilled was 319,000 tonnes, or 72 % of the quantity generated in 1995. Therefore, the target value for 2006 was successfully reached. In 2009, 232,000 tonnes of BMW was landfilled, i.e. 52 % of the quantity generated in 1995, which means that the target for 2009 (50 %) was not fully reached. In 2010, 213.834 tonnes of BMW was landfilled, i.e. 48 % of the quantity generated in 1995, which means that the target for 2009 (50 %) was reached.

In July 2009 Slovenia applied for a derogation period of four years (a prolongation of the deadline for fulfilling the last of the 3 targets, so moving the target date back from 2016 to 2020) (SLO, SEA, 2012). Figure 2 indicates that Slovenia has improved its performance over time, but that some further progress will need to be made to fulfil the targeted value of 35 % by 2020.

Figure 2: Landfilling of biodegradable MSW in Slovenia



Source: EC, 2012 and Slovenia, 2012



In most of the period to 2015, the main contribution to meeting the landfill directive targets has come from recycling. By establishing a door to door system for the selective collection waste of municipal packaging, paper, glass and biowaste it has been possible to significantly reduce the amount of residual waste being landfilled. The development of door to door collection systems has also helped to reduce the amount of packaging waste, including paper and card, in residual waste.

More recently, and including through the Operational Programme for MSW, efforts are being made to ensure that residual waste is further reduced, and that more of the residual waste that is generated can be dealt with so that BMW landfilled is further reduced. The Operational Plan for municipal waste management provided for eight regional centres for waste management.

The Ministry of Environment and Spatial Planning is responsible for energy processing power fractions. Currently, there is only one location - Celje - where thermal treatment with energy recovery takes place⁸. The Court of Auditors has recently been critical of the Ministry for its performance in this regard, yet it may be the case that the slow pace of development in this regard has helped foster a more proactive approach to management of waste in the upper tiers of the hierarchy.

The Operational Programme provides for measures to reduce the share of biodegradable waste going to landfill⁹:

- Landfilled mixed municipal waste shall not exceed 18% TOC/kg dry substance.
- In 2020, the landfilled mixed municipal waste TOC content shall be approximately 14%/kg dry substance (the draft WMP foresees 15.49%/kg).
- An increase of MBT and composting/biogas installations to reduce biodegradable fractions in municipal waste.
- An increase in recycling of separately collected kitchen and green waste and the establishment of a market for good quality compost.
- Awareness raising on the proper handling of kitchen waste and home composting, and the provision of free composters.
- A possible raise of the landfill tax and the introduction of municipal taxes on mixed

⁸ The operation is nevertheless classified as a disposal operation 'D10 – incineration on land'

⁹ http://www.mko.gov.si/fileadmin/mko.gov.si/pageuploads/zakonodaja/varstvo_okolja/operativni_programi/op_komunalni_odpadki.pdf

municipal waste.

Treated municipal waste may only be landfilled if it meets the prescribed conditions (calorific value does not exceed 6,000 kJ/kg of dry matter, TOCs do not exceed 18% of the weight of dry mechanically/biologically treated municipal waste and AT₄ does not exceed 10 mg O₂/g of the dry matter of biodegradable waste).¹⁰

Exemption from the compulsory treatment of municipal waste (below the limit value referred to in the preceding Article) is, under Article 60 of the Decree, possible until no later than 2015 if the operator of the municipal waste management centre is also the operator of the municipal waste landfill site. In this case, the mechanical treatment or separation of the following types of waste shall be deemed to be the treatment of mixed municipal waste: waste metals, including waste metal packaging and waste plastics, including waste plastic packaging and other combustible fractions suitable for energy recovery.

Mixed municipal waste shall be deemed to have been treated if at least the following are separated and sent for recovery or disposal but not depositing 40% of the waste metals, including waste metal packaging, WEEE and waste batteries and 20% of the waste plastics, including waste plastic packaging, packaging from composite materials and other combustible fractions suitable for energy recovery relative to the proportion of these types of waste in the mixed municipal waste prior to treatment.

Following the treatment as described above, further biological treatment of the mixed municipal waste must be ensured to the extent that the annual quantity of the residual municipal waste sent for depositing is no more than 222 kg per inhabitant of the municipality for which the operator of the municipal waste management centre referred to in the first paragraph of this Article provides the public service of treatment of mixed municipal waste (which is in line with the quantities which the Republic of Slovenia is obliged to achieve in this period with regard to reducing the quantities of municipal waste put to landfill – Article 5(2) of Directive 1999/31/EC).

The quantity of biodegradable waste collected separately by public service providers has increased noticeably in the reporting period:

- 2010: 58 617 t (7% of municipal waste collected)
- 2011: 78 092 t (11% of municipal waste collected)
- 2012: 91 116 t (14% of municipal waste collected)
- 2013: 104 372 t (16% of municipal waste collected)
- 2014: 108 458 t (16% of municipal waste collected).

The operational programme also confirms that 26,000 tonnes of food waste was expected to be collected from restaurants in 2011; this material is not collected via the municipal collection service, and some of this is not composted due to animal by products regulations. The Ministry has confirmed that 45,000 tonnes of organic material was treated in total during that year, including material collected from other sources. A total of 48,000 tonnes of separately collected organic material was treated in 2014.

Slovenia achieved the target referred to in Article 5(2a) of the Directive before 2007; in 2010 it achieved the next target, i.e. a reduction in the amount of biodegradable municipal waste

¹⁰ Report of the Republic of Slovenia on the implementation of Council Directive 1999/31/EC on the landfill of waste 2010–2012

put to landfill to below 50% of the total amount, by weight, of the biodegradable municipal waste produced in 1995 (it reduced it to 48%). Capacities for the mechanical biological treatment of mixed municipal waste (around 340,000 tonnes/year) and the treatment of separately collected biodegradable waste (around 73,000 tonnes/year) will be secured by the end of 2015 with the help of cohesion funds.

Other measures which will support the meeting of targets include:

- Further promotion of the separate collection of biodegradable waste and paper, cardboard and their efficient recycling;
- The promotion of household composting;
- A prohibition on the depositing of separately collected municipal waste fractions, except for the residues produced by their recovery if these meet the conditions for the depositing of non-hazardous waste (with this also applying to packaging); and
- Compulsory treatment prior to depositing.
- The drafting of a waste prevention programme;
- Consistent adherence to the waste management hierarchy.

The Operational Programme on Municipal Waste (OP), which extends and tightens the conditions applying to the landfill of biodegradable substances, was adopted at the end of 2013. The measures contained within the Operational Programme were intended to ensure that the target for the depositing of biodegradable waste under Directive 1999/31/EC will be reached.¹¹

Under Article 38 of the Decree on the Landfill of Waste, all landfill operators must take steps to reduce the spread of odours into the environment and prevent adverse impacts on human health due to:

- Emissions of odours, dust, organic and inorganic compounds and aerosols;
- Wind dispersal of light fractions of waste into the environment;
- Noise from the transfer of waste at or on the route to the landfill site;
- Birds, rodents and/or insects;
- Fires caused by spontaneous ignition.

Landfills must also be equipped with the means to prevent vehicles transporting waste from spreading dust and mud on public carriageways (Article 37(6) of the Decree on the Landfill of Waste).

It is during the procedure for the issuing of an environmental permit that the applicant is obliged to submit documentation proving that the disposal of waste will not cause excessive environmental pollution (points 1, 2 and 4 of Article 39(4) of the Decree on the Landfill of Waste make clear that the emission of pollutants to water, the air or the soil may not exceed the prescribed limit values; the procedures and methods of disposal of waste may not cause excessive environmental pollution and have adverse effects on the countryside; and that measures must be put in place to protect against uncontrolled events and to deal with and limit the consequences of ecological disasters). Requirements for the following are also checked: commencement of operation; waste disposal procedures and other conditions

¹¹ Report of the Republic of Slovenia on the implementation of Council Directive 1999/31/EC on the landfill of waste (2010–2012)

of operation; the implementation of operational monitoring and other forms of control of environmental pollution; methods proposed for making regular checks of the landfill body and the operation of the landfill's technical facilities (points 3 to 6 of Article 40(1) of the Decree on the Landfill of Waste).

1.5.2 Waste Framework Directive Targets

1.5.2.1 Data Collection and Surveys

Through the regular survey under the **Annual Report on Collected Municipal Waste (KO-Z)**, the Statistical Office of the Republic of Slovenia (SURS), together with the Ministry of the Environment and Spatial Planning, collects data on the amounts of municipal waste collected, and its management.

Through the regular survey conducted under the **Annual Report on the Amount of Waste Brought to Landfill Sites (KO-U)**, SURS, together with the Ministry of the Environment and Spatial Planning, collects data on the amounts of municipal waste landfilled.¹²

With the Annual **Statistical Survey on Waste Generation in Production and Service Activities**, the collection of data on municipal waste and quantities of waste landfilled is carried out through a web application IJSVO. From 2014 onwards, the units responsible for reporting on waste collection and treatment have transmitted their data through the information system IS waste created by the Slovenian Environment Agency.

The legal basis for the survey is provided by:

- National Statistics Act (45/95 in 9/01)
- Annual Programme of Statistical Surveys (97/13)
- Decree on waste (37/15, 69/15)
- SI-STAT data portal, <http://pxweb.stat.si/pxweb/dialog/statfile1.asp>

Our understanding is that Slovenia has chosen to use Method 4 for reporting performance against the target under Article 11.

Slovenia, according to the National Statistics Office, has made **significant progress** in the field of the separate collection of waste: from 2010 to 2013, the recycling rate for packaging reported to Eurostat increased from 61% to 69%.¹³

Figure 3 shows the development of recycling of MSW in Slovenia in terms of total recycling, material recycling and organic recycling (compost and other biological treatment). The increase in recycling has been almost entirely linked to performance in respect of dry recyclables, which contributed 90% of the overall recycling performance.¹⁴ In absolute terms, the increase in overall recycling was from 89,000 tonnes in 2001 to 364,000 tonnes in 2013.

Figures for the amount of packaging placed on the market are inconsistent with the amount of material appearing in the waste stream when calculated from the composition data – the latter being a much larger amount. Not all of the separately collected material is actually

¹² See <http://www.stat.si/StatWeb/Common/PrikaziDokument.ashx?IdDatoteke=8092>

¹³ Eurostat data available from <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&plugin=1&language=en&pcode=ten00063>

¹⁴ <http://www.eea.europa.eu/publications/managing-municipal-solid-waste>

recycled material, and there appears to be a considerable gap between the quantities of waste generated and treated, which, in turn, affects the calculation of recycling rates. As a result the rates of plastic waste recycled also appear to be unrealistically high (consistent with this being calculated from the lower, “treated” figure). The Slovenian authorities are currently in discussions with the Court of Auditors with regards to the accuracy of the records kept by the Ministry; the final opinion of the Court has yet to be confirmed.

There is also a difference between the amount of waste generated, and the amount treated. In addition, different datasets report different amounts – the Eurostat data has a generation figure that is 20% higher than the internal dataset. In discussion at the workshop, the authorities confirmed that the latter difference was explicable in part because the higher amount to Eurostat also includes some commercial waste. The difference between treatment and generation relates to the Slovenian interpretation of the Eurostat methodology – it was further confirmed at the workshop that the ministry excludes pre-treated waste and recycling that is contaminated, as well as moisture loss from the MBT systems from the treatment figure.

Figure 3: Management of Municipal Waste, 2002-2012 (%)



Source: http://kazalci.arso.gov.si/print?ind_id=653&lang_id=302

Notes – « other operations of recovery » include bulky waste management (where not recycled) and the recovery of specialist streams such as oils

1.6 Implementation of Specific Waste Framework Directive Articles

1.6.1 Article 4: Application of the Waste Hierarchy

In accordance with the waste hierarchy and the objective of creating a recycling society, measures in the Operational Programme (OP RKO) are directed towards offering the lowest possible support to the landfilling of municipal waste. An order of priority of municipal waste management procedures has been drawn up which only deviates from the waste hierarchy on account of the constraints of technical feasibility and economic practicability. Article 9 of the Decree on Waste states that the order of priority of the waste hierarchy

must be observed in the generation and management of waste. Any deviation from this order of priority is only possible for individual waste streams to which special regulations apply if due regard is paid to the entire lifecycle of the substances and materials and the requirement to reduce environmental burden.

The waste management programme is set out in Articles 11, 12 and 13 of the Decree on Waste. Article 11(2) states that measures are to be determined in the waste management programme, based on an analysis of the existing waste management situation, which are necessary for making improvements in environmentally sound preparation for the reuse, recycling, recovery and disposal of waste for the entire territory of the Republic of Slovenia.

Requirements regarding the preparation and the content of this programme are laid down in Article 12 of the Decree on Waste, with the first paragraph of this Article stating that the waste hierarchy is one of the bases for the preparation of a waste management programme. The Decree stipulates that in the drafting of operational environmental programmes for waste management, the following order of priority measures should be observed:

- preventing waste generation;
- preparing waste for reuse;
- recycling;
- other recovery processes; and
- waste disposal.

In accordance with EU legislation, there are prohibitions on the use of certain hazardous substances in batteries, electrical and electronic equipment, cars and packaging.

Instruments have been developed to introduce ecological design/ecodesign for these waste streams – for example, an environmental tax (which acts more like a non-compliance fee) has been introduced for: the use of lubricating oils, generation of end-of-life motor vehicles, generation of waste electrical and electronic equipment (with the generation of waste batteries and accumulators also included in this context), generation of packaging waste (with the generation of graveside candle waste also included in this context), generation of end-of-life tyres, and waste disposal.

The second paragraph of the Article lays down the measures that must be provided by this programme:

- Measures to promote preparation for reuse, in particular by promoting the establishment of and support for reuse and repair networks, the use of economic instruments, public procurement criteria, quantitative targets, or other measures;
- Measures to promote high-quality recycling and systems for the separate collection of waste adequate for achieving the required recycling quality standards, where this is technically, environmentally and economically practicable.

The waste prevention programme is referred to in Articles 15 and 16 of the Decree on Waste. Under Article 16, the waste hierarchy is also one of the bases for the preparation of this programme, which must be based on the principle of breaking the link between economic growth and environmental impact. The waste generation prevention programme should:

1. Set targets for preventing the generation of waste;
2. Describe and assess existing waste prevention measures from the point of view of achieving the targets referred to in the previous point;

3. Identify and assess the required additional measures for achieving the targets referred to in point 1 so that appropriate measures are selected to prevent waste;
4. Lay down measures to promote the reuse of products, in particular by promoting the establishment of and support for reuse and repair networks, the use of economic instruments, public procurement criteria, quantitative targets, or other measures;
5. Lay down qualitative and quantitative reference criteria, as well as targets and indicators for monitoring the implementation of measures and assessing the progress made in preventing the generation of waste.

The OP RKO aims to meet the requirements imposed by the environmental targets of at least 50% preparation for the reuse and recycling of municipal waste (at least for waste fractions of paper, metal, plastic and glass). The measures contained in the OP RKO are intended to minimise residual waste, with priority placed on preparation for reuse and recycling.

A tax on pollution caused by landfilling was introduced for waste disposal. Also a financial guarantee must be provided by landfill operators as part of the process of acquiring their environmental permit, which can be cashed in by the authority which issued the permit in the event of irregularities in the closure and after care of landfills.

In order to reduce quantities of biodegradable waste, at the same time as introducing a limit on the volume of biodegradable waste three more regulations have been adopted:

- Decree on biodegradable kitchen waste and garden waste management Official Gazette, No. 39/10 and changes);
- Decree on the treatment of biodegradable waste and the use of compost or digestate (Official Gazette, No. 99/13 and changes); and
- Decree on the management of waste edible oils and fats (Official Gazette, No. 70/08).

Through these measures, Slovenia became one of the first countries to have introduced compulsory operations in the treatment of biodegradable waste and conditions for its use, as well conditions for placing treated biodegradable waste on the market (Decree on biodegradable household waste management (Official Gazette, No. 62/08 and changes, expiry date 2010).

Amendments were also made to individual regulations in 2006 and 2007 which bring in the polluter pays principle and extended producer responsibility for the following waste streams: waste packaging; waste plant protection products containing hazardous substances; and waste electrical and electronic equipment. In 2008 regulations also introduced extended producer responsibility for: waste batteries and accumulators, grave side lights and waste medicines, and from 2009 for end-of-life car tyres. After the concession contracts, awarded in accordance with Decree on the manner, subject of and conditions for performing public utility service of the management of end-of-life vehicles, had expired in 2012, an extended producer responsibility scheme was introduced for end-of-life vehicles in accordance with Decree on end-of-life vehicles.

The Waste Prevention Plan is due to be adopted at the beginning of 2016. Waste prevention activity current takes place in the form of environmental campaigns, the implementation of programs in schools (Eco Schools) and the activities of environmental NGOs. Municipalities focus their efforts primarily on awareness raising campaigns directed towards public waste services users (promoting the collection of hazardous waste, textiles, etc.).

1.6.2 Article 10: Recovery

The recovery of waste is laid down in Article 22 of the Decree on Waste. Waste must be recovered, whereby recovery must be carried out in accordance with the requirements of the waste hierarchy, and the requirement to protect the environment and human health. Preparation for reuse has priority over recycling and other waste recovery procedures, while recycling has priority over other recovery procedures, except for preparation for reuse. Waste may, nevertheless, be disposed of, and not recovered, if:

- The State of the art recovery technology does not allow it;
- There is no possibility of the waste or its components being used further;
- The recovery of the waste would cause greater environmental burden or a greater threat to human health than its disposal in relation to:
 - emissions of substances and energy into the air, water or soil,
 - the use of natural resources,
 - the energy that the process requires or that it is possible to obtain,
 - or the level of hazardous substances remaining in the waste residue after recovery;
- The costs of waste recovery are disproportionately higher than the costs of disposal—which is not applied to the putting of waste to landfill in accordance with the Decree on the Landfill of Waste (OGRS, 61/11).

Article 18 of the Decree on Waste stipulates that paper, metal, plastic and glass waste, and waste for which a system of separate collection has been established under a special regulation governing the management of individual streams or types of waste, must be collected separately. The Decree also stipulates that other waste must also be collected separately where this is technically, environmentally and economically practicable and that it may not be mixed with other waste or other materials with different properties if this enables its recovery or if it is required in order to simplify or improve recovery. It is not explicitly determined when the separate collection of waste is not deemed practicable for the above reasons.

1.6.3 Article 11: Reuse and Recycling

The OP RKO aims to meet the requirements imposed by the environmental targets of at least 50% preparation for the reuse and recycling of municipal waste (at least for waste fractions of paper, metal, plastic and glass). Given the fact that waste, and particularly municipal waste, is still predominantly sent to landfill in Slovenia, the measures contained in the OP RKO are intended to redirect waste from landfills to other procedures, with priority placed on preparation for reuse and recycling.

The objectives of the OP RKO regarding preparation for the reuse and recycling of municipal waste are specified using two scenarios for waste paper, plastic, glass and metal and kitchen waste:

- 1) a scenario of the minimum amount that ensures achievement of the environmental objectives of Directive 2008/98/EC; and
- 2) a scenario of the practicable amount, where the proportion of separately collected kitchen waste is higher, which ensures a lower volume of mechanical/biological treatment of mixed municipal waste prior to its putting to landfill in order to achieve the environmental targets of Directive 1999/31/EC.

Under the guidelines of the OP RKO, a network of social enterprises must be established by 2020 charged with acting as intermediaries in the reuse and repair of used products (in particular, furniture, certain types of building fittings, and electrical and electronic equipment) which are no longer required by their holders but which they do not intend to discard. All separate fractions suitable for preparation for reuse must be directed to this network. The planned proportion of municipal waste to be delivered for preparation for reuse in 2020 will constitute approx. 0.5% of all collected municipal waste by volume (around 5,000 t/year).¹⁵

In the last few years a network of re-use and repair centres¹⁶ has been established on a private initiative in Slovenia for the following material flows:

- Textiles
- Furniture
- Household equipment
- Other.

The network will contribute to reach the 2020 recycling targets compared to the 2011 status (minimum amount scenario). REUSE Network operates with the financial support of the EU program of employment of vulnerable groups. REUSE Network includes 9 centres, is a member of the international network RREUSE, and works as a social enterprise (excluding support programs without co-financing for waste reduction).

Reuse Centre Ltd. Social Enterprise is the first social enterprise in Slovenia. It was registered in 2012 and performs the activities of reuse. Reuse Centre Ltd. operates as a social enterprise of type B by integrating target groups conducting the activities of reconstruction of equipment and accessories and implementing upcycling, which creates value-added products. The primary activity of the social enterprise is training disadvantaged persons and assisting their integration into society. Reuse Centre Ltd. has developed a new model for the implementation of socially responsible entrepreneurship in Slovenia which connects municipalities and public waste management companies, allowing for the development of new green jobs and promoting resource savings in practice.

The 'Order on the management of separately collected fractions in the public service of urban waste management' determines the minimum scale and content of separately collected fractions, which have to be assured by the local public municipal waste treatment service. This ordinance determines the minimum standards for the system of separate waste collection, so municipalities have the option to intensify the standards and determine even wider scope for their separate collection activities. The remaining waste (i.e. beside that which is separately collected) is collected as mixed municipal waste. The ordinance established also the requirements on infrastructure for the separate collection of the hazardous fractions of municipal waste.

Under the minimum amount scenario in the operational programme, 59.8% of all municipal waste will be collected separately for the purpose of reuse and recycling by 2020; under the

¹⁵ Report of the Republic of Slovenia on the implementation of Directive 2008/98/EC of the European Parliament and of the Council on waste 12 December 2010–31, December 2012

¹⁶ <http://www.cpu-reuse.com/>

practicable amount scenario, the proportion of municipal waste collected separately will rise to 63% by 2020.

In order to achieve the objectives applying to the preparation of municipal waste for reuse and recycling, the majority of municipalities exceeded the minimum standards for the infrastructure for the separate waste collection from the Ordinance on the 'door-to-door' waste reception system for the mixed packaging waste. Besides, public municipal waste collection services must receive bio-waste (kitchen waste and biodegradable garden waste from households) from waste producers under the 'door-to-door' waste reception system, waste paper and waste glass, including waste packaging at collection facilities and all separate municipal waste fractions at collection centres to which these waste can be delivered, including garden (e.g. branches) and bulky waste. The OP RKO also envisages an increase in the household composting of bio waste to around 8,000 tonnes/year by 2020.

The maximum frequency of collection for mixed packaging (paper, metal, plastic and composed packaging collected through a door to door system) is once every 2 weeks, with municipalities providing: a biowaste collection twice a week in small buckets; a weekly collection of plastic and cans in 60 l sacks; and a fortnightly collection of paper and card in a 140 l bin. There is a dense network of bring sites for the collection of glass containers and waste paper.

The municipal company which performs the public service of municipal waste collection has to assure that collection points are provided for the separate collection of:

- Paper and cardboard;
- Waste packaging glass;
- Waste packaging plastic and composites; and
- Waste packaging metals.

Collecting points for separately collected waste should normally be provided in residential areas, as well as at major stores and retail centers, health centers, hospitals, schools and kindergartens. Collection points should be organised for every 500 inhabitants in town areas and large housing settlements.

Recycling and composting together accounted in 2013 for 61% of waste treatment in Slovenia and 43% of waste generation¹⁷. Slovenia is on course to achieve the recycling target of 50 % by 2020. Also, it can be said to have established separate collection for paper, metal, plastic, glass (and other types of waste).

1.6.4 Separate Collection in the Centres for Separate Waste Collection

In accordance with the ordinance on the management of separately collected fractions in the public service of urban waste management, in the area of each and every municipality and settlement with more than 8,000 residents there has to be at least one collection centre. This is not true for those areas with less than 3,000 residents if the public service makes it possible that producers of municipal waste can deliver their waste to the collection centre of a nearby municipality. For settlements of more than 25,000 residents a minimum

¹⁷ Eurostat, March 2015. <http://ec.europa.eu/eurostat/documents/2995521/6757479/8-26032015-AP-EN.pdf/a2982b86-9d56-401c-8443-ec5b08e543cc>

of two collection centers have to be established, and for settlements of 100,000 residents or more, the number must be at least one for every 80,000 residents.¹⁸

The materials separately collected at these centres are:

- Paper and cardboard of all types and sizes, together with paper and cardboard waste packaging
- Glass of all sizes and shapes, together with glass waste packaging
- Plastic, together with plastic and composite waste packaging
- Waste metals, together with metal waste packaging
- Wood, together with waste wood packaging
- Clothing
- Textiles
- Cooking oil and grease
- Paints, inks, glues and pitches which do not contain hazardous substances
- Detergents without hazardous substances
- Batteries and accumulators, which are not classified in groups 16 06 01, 16 06 02 or 16 06 03
- Waste electric and electronic equipment without hazardous substances
- Bulky waste.

Collection of bulky waste is carried out at both collection centers and special collection spots.

Municipal waste sorting of at least sorting of paper, cardboard and other fractions—such as waste packaging and hazardous waste—must be established).

Municipal waste service companies have to ensure that waste packaging, which is treated separately in the centres for separate waste collection, or which comes from sorting plants, is regularly handed over to the company responsible for packaging and waste packaging handling. This is true also for packaging polluted with **hazardous waste**, which has to be separately collected in the centres and mobile collecting points or by sorting in the sorting plants. This service should be performed by the municipal company without compensation.

Separate collection of waste is increasingly carried out through a system of door to door collection, which has enabled a significant reduction in residual waste and an increase in the separately collected fractions.

1.6.4.1 Collection of Packaging Waste for Recycling

In Slovenia, the field of packaging waste is regulated by the Decree on packaging and packaging waste handling,¹⁹ which covers the requirements of Directive 94/62/EC on Packaging and Packaging Waste. Responsibility regarding the management of packaging waste is placed directly on manufacturers, packers, importers, distributors and end-users of products. In Slovenia, these can fulfil their obligations individually or through a collective compliance scheme.

These entities have to ensure the proper management of packaging waste and must meet prescribed environmental objectives. Packaging and packaging waste management in

¹⁸ <https://www.uradni-list.si/1/content?id=30158>, Article 15

²² <http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV6416>

Slovenia is regulated in accordance with “The Producer Responsibility Principle”. It is obligatory for all packaging producers to take responsibility for the packaging waste resulting from all those products they place on the market.

Packaging producers are defined as:

- Manufacturers (meaning a person who manufactures raw materials for packaging);
- Packers/fillers (meaning a person who puts goods into packaging);
- Importers (meaning a person who imports packaging or packaging materials into Slovenia); and
- Distributors (meaning a person who supplies packaging to a user or a consumer of that packaging, whether or not filling of the packaging has taken place at the time of the supply).

In accordance with the Packaging and Packaging Waste directive and national Decree on packaging and packaging waste handling, these responsibilities are also supplemented with goals:

- To ensure the recovery of packaging waste, including energy recovery, for a minimum of 60% of the total weight of packaging waste;
- To recycle between 55% and 80% of the total weight of packaging waste;
- To ensure the following recycling shares for individual types of packaging materials included in the total weight of packaging waste:
 - 60% of weight for glass
 - 60% of weight for paper and cardboard
 - 50% of weight for metals
 - 22.5% of weight for plastic (only material which is recycled back into plastic is included)
 - 15% of weight for wood

Packaging producers can choose between two possibilities²⁰:

- To organize their own system for collecting and recycling packaging waste (INDIVIDUAL SCHEME); or
- Join a collective compliance scheme, organized by a registered company, to ensure the collecting and recycling of packaging waste for multiple packaging producers.

The collective compliance schemes in place are: Interseroh d.o.o.; SLOPAK d.o.o.; Unirec d.o.o.; Recikel d.o.o.; Gorenje Surovina d.o.o.; and Embkom d.o.o.

The most recent performance data for packaging are given below. In our view, there are reasons to doubt the figures for packaging waste placed on the market / in the waste stream. The total quantity of packaging waste is reported as 202kt in 2012. Taking into account the composition of municipal waste, however, the reported figure appears to be lower than would be expected under reasonable assumptions regarding the packaging content of municipal waste. The plastic packaging recycling rate is, in particular, extremely high by EU standards: our estimates would suggest it is more likely to be around half the reported rate.

²⁰ See <http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV6416>

1.6.5 Article 14: Costs of Waste Management

Article 25 of the Decree on packaging and packaging waste handling lays down the obligation to manage waste packaging. The receipt of waste packaging from public service providers, including the costs that a packaging waste management company is obliged to pay public service providers, the receipt of packaging waste directly from distributors or end-users, and the reuse, recovery or disposal of received packaging waste must be paid for by:

- Fillers, for packaging in which goods are packaged which they themselves use as end-users of the packaged goods or place on the market;
- Acquirers of goods, for packaging in which goods are packaged which they themselves use as end-users or place on the market;
- Packaging producers, for packaging not destined for the fillers referred to in the first indent which they place on the market or use themselves (service packaging);
- Acquirers of packaging, for packaging not destined for the fillers referred to in the first indent which they place on the market or use themselves (service packaging).

If the filler or acquirer of goods has not assumed the obligation of managing packaging waste for packaged goods, this obligation must be assumed by the trader supplying the goods to a distributor. The obligation to manage packaging waste does not apply to packaging exported to third countries or removed to Member States as packaging or as packaged goods.

Discussion at the workshop confirmed that the separately collected material is provided to the packaging companies free of charge – the public authorities are, for the most part not able to ask for money. An exception is the situation where the packaging company is not able to take the material for some reason, such that the authority would need to store it. Where the public utility is required to store such materials for more than 7 days the packaging company meets the cost of this storage. The packaging company also determines the revenue price obtained for the selling of the materials. Such a system means in effect that the local authorities are bearing a significant proportion of the costs of the packaging compliance scheme in Slovenia. Furthermore, there are indications that the packaging actors are not reporting the data correctly and that there is a considerable amount of packaging waste for which the producers are not contributing financially.

Other costs of waste management borne by the municipalities are regulated in accordance with the Decree of tariff system for public service on the environmental field.

Slovenian municipalities have introduced elements of variable charging for those on the door to door system:

- Some bin charges vary depending on the size of the receptacle – those opting to use smaller residual waste bins are charged less;
- Those opting for home composting are not charged for the biowaste bin.

It was also confirmed at the workshop that the cost of landfilling ranges from between €60-100 / tonne – this includes the cost of the pre-treatment at the MBT facilities. A tax of €11 / tonne is also applied to landfilled tonnages (discussed further in Section 1.7).

1.6.6 Article 22: Encouraging the Separate Collection of Biowaste

Under the Environmental Protection Act (ZVO-1), municipal waste is defined as waste from households or waste by nature or composition similar to it and generated by manufacturing, trade, service or other activities and from the public sector. Under point 1 of Article 3 of the

Decree on Waste, biological waste is defined as biodegradable waste from gardens and parks, food and kitchen waste from households, restaurants, catering activities and retail establishments, and comparable waste from food production establishments. Under point 2 of Article 3 of the Decree on waste landfill, biodegradable waste is any waste which may decompose aerobically or anaerobically, such as biodegradable kitchen waste and waste from parks and gardens, paper and cardboard and other municipal waste which decomposes when exposed to anaerobic or aerobic decomposition processes.

Under Annex 5 to the Decree on the Landfill of Waste, biodegradable waste includes:

- Waste paper, cardboard and textiles;
- Waste consisting of green biomass and natural wood generated as waste from gardens and parks;
- Waste food and organic waste;
- Waste from the processing of wood, and other waste consisting of wood, bark, cork and straw.

The Decree on biodegradable kitchen waste and garden waste management lays down the obligations and rules of conduct applying to biodegradable kitchen waste and green garden waste generated in households (municipal waste) and from the performance of a commercial activity. A household producer of biodegradable waste has the option of choosing household composting if they wish so or if they have the possibility of doing so; if they do household composting, their monthly biodegradable waste management fee is reduced. The compulsory public municipal waste collection service is obliged to encourage household producers of biodegradable waste to undertake household composting and to make them aware of the correct separate collection of biodegradable waste in accordance with the requirements of the above-mentioned decree. Biowaste is collected in general from households every fortnight in the winter, and every week in the summer.

A producer of non-household green garden waste must manage this waste in accordance with the Decree on waste; they may also compost it themselves. A producer of kitchen waste in the catering sector must separate this waste and deliver it to a waste collector. The collector must ensure that this waste is recovered in accordance with the Decree on the treatment of biodegradable waste and the use of compost or digestate. This Decree lays down requirements for the recovery of biodegradable waste into compost or digestate in a manner that is safe for the environment and for human health, and introduces a new procedure for defining end-of-waste (EoW) criteria, for the placing of compost or digestate on the market.

No measures were taken to promote the use of environmentally safe materials produced from bio-waste in the reporting period.

Obligatory treatment of biological household waste which originates from households, and kitchens or canteens from the industry, craft and service industries, is prescribed by the ordinance for the treatment of organic household waste. A producer of kitchen waste in the catering sector must collect waste food separately and deliver it to a waste collector, in accordance with the Decree on the treatment of biodegradable waste and the use of compost or digestate. The Decree lays down requirements for the recovery of biodegradable waste into compost or digestate in a manner that is safe for the environment

and for human health, and introduces a new procedure for defining end-of-waste (EoW) criteria, for the placing of compost or digestate on the market.

The Decree²¹ determines the minimum scale of obligatory municipal public service for the collection and transportation of municipal waste in the field of household waste treatment. It also determines the content of treatment, which has to be ensured for separately collected fractions of municipal waste classified with number 20 01 08, according to the regulation on the waste treatment.

Article 3 of the Decree defines the term household composter (a box for the composting of waste plants from gardens and household waste in a garden which belongs to one or more households with a joint garden with the exact purpose of using the compost in this same garden). The public service of collection and transport of municipal waste is obliged to provide to households which do not possess their own composter separate collection and release of biodegradable household waste under the terms described above.

The Operational Programme provides for the following:²²

- An increase in recycling of separately collected kitchen and green waste and the establishment of a market for good quality compost;
- An increase in composting/biogas installations to treat separately collected biowaste;
- Awareness raising on the proper handling of kitchen waste and home composting, and the provision of free composters.

According to the operational programme, the quantity of biodegradable waste collected separately by public service providers has increased noticeably in the reporting period:

- 2010: 58 617 t (7% of municipal waste collected)
- 2011: 78 092 t (11% of municipal waste collected)
- 2012: 91 116 t (14% of municipal waste collected)
- 2013: 104 372 t (16% of municipal waste collected)
- 2014: 108 458 t (16% of municipal waste collected).

As was indicated previously, almost 48 thousand tonnes of biowaste was treated in composting and biogas plants in 2014.

1.7 Summary of Policy Mechanisms and Instruments to Meet Targets

Environmental targets for waste management in Slovenia have been harmonised with EU targets.

As well as measures outlined above in respect of developing reuse networks, and prescribing minimum services for separate collection, Slovenia has a landfill tax. On the basis of Article 80 of the Environmental Act at the time (Official Journals of the RS No 32/93, 1/96, 9/99, 56/99, 22/00) the Government of the Republic of Slovenia in August 2001 adopted the *Decree on the waste disposal tax* (Official Journal of the RS 70/2001). The way

²¹ Waste Regulation, <https://www.uradni-list.si/1/content?id=121864>

²² http://www.mko.gov.si/fileadmin/mko.gov.si/pageuploads/zakonodaja/varstvo_okolja/operativni_programi/op_komunalni_odpadki.pdf

in which revenues are used was changed in 2004. The legal base for the revised tax was Articles 112 and 113 of the Environment Protection Act.

Until 2010, the tax was based on a formula which related to whether or not the waste was inert, non-hazardous or hazardous, and the potential of the waste to generate methane. It was also possible to gain a reduction in the tax rate where gas was collected for the purpose of generating electricity. In 2010, the tax was revised (Decree on environmental tax for environmental pollution caused by waste disposal (Official Gazette RS, No. 70/2010). The tax no longer takes into account the potential of waste to generate methane. Now, the tax simply assigns a number of 'units of environmental burden' to each of inert, non-hazardous and hazardous waste (the numbers are 1, 5 and 10, respectively) and multiplies this figure by a tax rate per unit of environmental burden of €0.022. Hence, for a tonne of non-hazardous waste, the tax rate was (in 2011) €11 per tonne. Figures do show an increase of recycling since the landfill tax was introduced.²³

It was suggested to increase gradually the tax (it is envisaged that the unit load on the environment, which is used to calculate the tax rate, will be increased from existing 0.0022 € to 0,006 € in 2014 and to 0,008 € in 2015/2016 (which equates to €40 per tonne of non-hazardous municipal waste). Discussion in the workshop confirmed, however, that no firm plans had been put in place for increasing the tax, although this is something that will be further considered in 2016 when the current plan is updated.

Until 2010, the collected tax went into the state budget; since October 2010, the tax revenue from municipal landfills has gone to municipalities and the revenue from industrial landfills has gone to the state budget. The environmental tax on waste is gradually to be shifted from municipal to state funds and used to finance closure and rehabilitation of old dumpsites. There is the possibility of a raise in the landfill tax and the introduction of municipal taxes on mixed municipal waste.

1.8 Investment in Waste Management Infrastructure

In the Operational Programme on Municipal Waste Management (OP RKO), the areas of collection, preparation for reuse, recycling, treatment, energy recovery and disposal of municipal waste are addressed in relation to 12 regions across the entire country.

Slovenia's Operational Programme on Municipal Waste Management projects the quantity of municipal collected by municipalities for the period 2011 to 2020. The projection foresees the quantity of MSW collected by public services rising from 708,392 in 2011 to 726,027 tonnes in 2015 and 746,343 tonnes in 2020, as is shown in Table 1-2.²⁴ This reflects assumptions that the annual quantity of municipal waste collected during the period 2012–2020 within the public service will grow steadily, so that in 2020 it will be approximately 5.3 percent greater than the amount in 2011. It also provides for an increase in home composting of approx. 8,000 tonnes. For the period 2020–2030, an increase in municipal

²³ <http://www.cms-cmck.com/Hubbard.FileSystem/files/Publication/06f2315d-88d6-4e74-9add-a0e2c57ac543/Presentation/PublicationAttachment/9172a666-e76f-408e-95ff-a62b69a429c7/Waste%20Management%20in%20Central%20and%20Eastern%20Europe.pdf>

²⁴ *Eunomia (2013) for European Commission as reported within: Eunomia Research & Consulting / Copenhagen Resource Institute (2014) Development of a Modelling Tool on Waste Generation and Management – Appendix 1: Baseline Report, Final Report under Framework Contract ENV.C.2/FRA/2011/0020*

waste of 3 percent is predicted. This calculation appears to be based on a forecast made by the European Commission in its report on the implementation of the Thematic Strategy for prevention and recycling of waste, although it is not clear as to why this rate has been applied to Slovenia.

Table 1-2: Estimated Growth Collected MSW – Operational Plan

Year	Quantity of MSW Collected by municipalities (tonnes)	
	Tonnes	% year on year change
2011	708,392	-
2012	713,351	0.70%
2013	717,341	0.56%
2014	721,818	0.62%
2015	726,027	0.58%
2016	729,801	0.52%
2017	732,882	0.42%
2018	736,003	0.43%
2019	741,155	0.70%
2020	746,343	0.70%

Note: The above calculations refer only to MSW collected by Public services, and do not account for other MSW collected by private collection companies. In 2011, 170,649 tonnes of municipal waste were collected by such companies

The Operational Programme on Municipal Waste Management presents two scenarios for municipal waste management in Slovenia by 2020, which vary in respect of assumptions regarding the effectiveness of the separate collection of dry recyclables and biodegradable waste. The municipal waste management infrastructure requirements are based on these, and a network of facilities is envisaged, designed to give Slovenia self-sufficiency in the recovery and disposal of municipal waste. It should be noted that the draft Slovenian WMP includes a prediction for MSW generation in 2020 of 930 kt.²⁵

In order to ensure Slovenia's self-sufficiency in the treatment and disposal of mixed municipal waste, the OP RKO defines a network of landfills for the disposal of waste and of facilities for the treatment of mixed municipal waste, taking into account geographically conditioned social circumstances, and the need for landfills and treatment capacity.

It is intended that Slovenia would be self-sufficient in the treatment of mixed municipal waste. The Ministry confirmed at the workshop that Slovenia would have 322,000 tonnes operational permitted treatment capacity (including new MBT plants) by the end of 2015 and an additional 55,000 tonnes of capacity is permitted but is not yet built). 2014 data indicates that there was 314,000 tonnes of mixed MSW collected. The MBT plants produce RDF using an aerobic/anaerobic biological process and also stabilise output to landfill.

Regarding MSW management, Slovenia plans to increase MBT treatment capacity from 73.8 kt in 2011 to 298.3 kt in 2020 (+304%); accounting for 33% MBT treatment of municipal

²⁵ BiPRO, 2014; Detailed evaluation report for assessing the waste management plan of *Slovenia – National 3* December 2014, EC

waste generated. The Table below shows planned and implemented MBT facilities in Slovenia; Figure 4 shows the location of the planned MBT sites. Two sites, in Nova Gorica and Leskovec, did not bring forward projects in the manner originally planned. We note, in passing, that the total amount of municipal waste in Slovenia has shown a tendency to decline from 2012 onwards, which is also confirmed by Eurostat²⁶. Data on treatment capacity from the draft WMP is presented in Table 1-3. The plan also provided information on the projected generation treatment and capacity which is shown in Table 1-4.

Table 1-3: Municipal Waste Treatment Capacity from 2014

MBT LOCATION	Slovenia
	MBT capacity (tonnes/year)
Simbio d.o.o. (Celje)	61,500
Snaga d.o.o. (Ljubljana)	175,500
Cero Puconci d.o.o (Prekmurje)	27,500
Kostak d.d. (Lower Sava)	45,000
Kocerod d.o.o. (Slovenj Gradec)	16,600
Ceroz d.o.o. (Hrastnik)	13,000
Komunala Slovenska Bistrica d.o.o. (Styria)	10,800
JK Komunala Laško d.o.o. (Savinja)	2,700
Total capacity	352,600

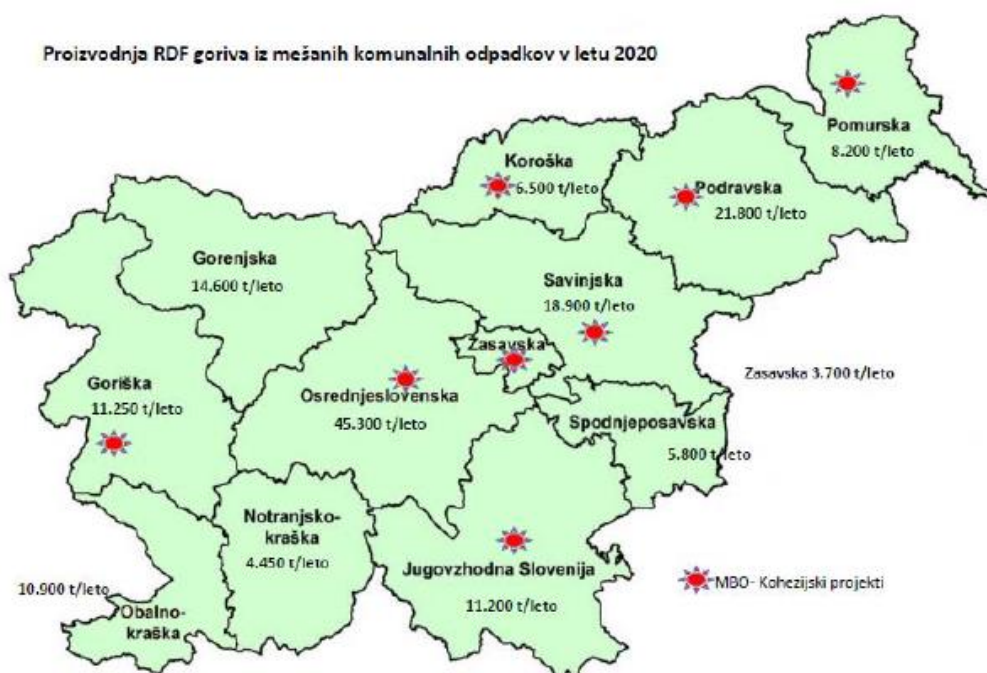
Table 1-4: Projected generation

	Projected generation of MW	MBT capacity needed (Scenario 1)	Incineration capacity needed (Scenario 1)
2014	891,708	314,760	
2020	903,625	261,340	78,631
2030	935,587	251,802	80,164

The operational program for municipal infrastructure amounted to around 491 million euros. To subsidize the investment in infrastructure for the processing and disposal of municipal waste during the period 2007–2013, 155 million euros was made available from EU cohesion funds. In the period 2014–2020, another 100 million euros of cohesion funding is expected in order to complete the projects. Other funds will come from state and municipal budgets. The operational program also provides for public-private partnerships.

²⁶ http://ec.europa.eu/eurostat/statistics-explained/index.php/Municipal_waste_statistics

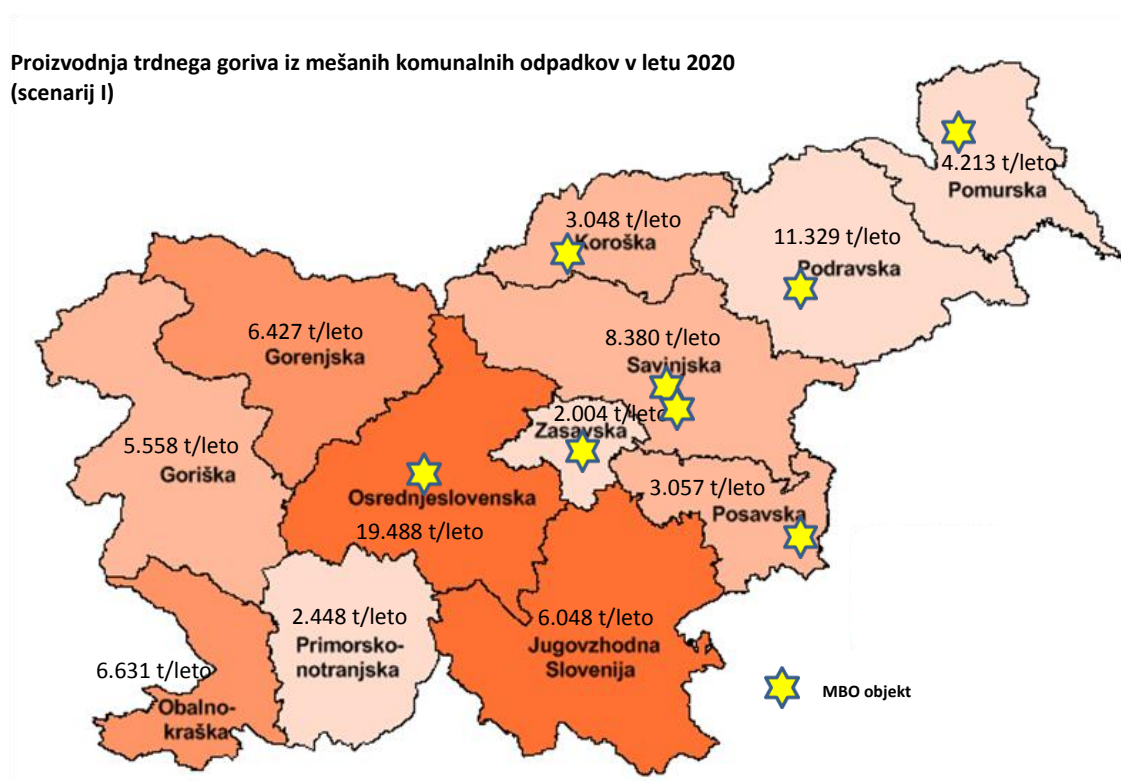
Figure 4: Location of Proposed MBT Facilities in Slovenia



Note: tonnages represent the projected quantity of RDF in 2020 under the 'extent practicable' scenario.

Source: Ministry of Agriculture and Environment Slovenia (2013) Operational Programme for Municipal Waste Management, 13 March 2013,

http://www.mko.gov.si/fileadmin/mko.gov.si/pageuploads/zakonodaja/varstvo_okolja/operativni_programi/o_p_komunalni_odpadki.pdf



As a result of the plan, the 'target on diversion of biodegradable waste' (50% reduction) will be fulfilled by 2020, and probably, by 2016 (so the application for the 4 year derogation may not have been necessary).

A number of composting facilities, with a total capacity of 138,000 tonnes/year by 2020, are under construction. The OP RKO also envisages, by 2020, an increase in the household composting of kitchen waste to around 8 000 tonnes/year. It is difficult to understand whether there is sufficient capacity for biowaste treatment at present because there are some discrepancies in the data such as that is reported in the operational programme and that reported to Eurostat. The relative amounts of food and garden waste are also not known with certainty – the Ministry confirmed at the workshop that these amounts are estimated - and as such it is also not possible to determine whether composting is the best treatment method for this material, or whether anaerobic digestion would be preferable.

2.0 Summary

Considerable progress appears to have been made in recent years against the targets in the directives, such that Slovenia has a good chance of fulfilling the recycling target of 50% by 2020. In view of the amendments to legislation, the establishment of regional waste management centers, and the presence of a landfill tax, landfilled quantities of waste are expected to decrease.

Positive aspects of Slovenia's performance include the following:

- An updated waste management plan for Slovenia is due to be adopted early next year including the waste prevention plan which was not previously in place.
- Legislation to ensure separate bio-waste collection is in place and door to door collection systems have now been implemented in areas all municipalities. This dictates certain aspects of the collection system, such as the frequency of collection points. However, many authorities have put in place collection systems that exceed the requirements of the legislation, and some areas such as Ljubljana are performing very well. There is a very active NGO sector and as a result of this, a number of areas (including the city of Ljubljana) have developed Zero Waste policies, with more currently working towards the same achievement.
- There has been some introduction of pay as you throw systems, although the approach taken is a relatively simple one, focusing on the application of charges to the residual and biowaste bins.

Potential issues include the following:

- The governance of EPR schemes could be improved: local authorities bear a significant proportion of the cost of the EPR systems in respect of the separate collection system, and the EPR costs also do not cover the material collected through residual waste element or that which ends up as litter. Furthermore, there are indications that the packaging actors are not reporting the data correctly and that there is a considerable amount of packaging waste for which the producers are not contributing financially.
- There is a general lack of financial incentives to improve performance at a local level, with no fines or sanctions imposed at a local level if recycling targets are not met.
- Although a landfill tax is in place, the level of the tax is still relatively low, and there is no levy or tax on other forms of residual waste treatment, including thermal treatments or outputs from MBT systems other than those destined for landfill.

- Prices for key aspects of the system such as waste treatment are fixed by government, and local authorities do not have freedom in respect of setting charges for waste collection and treatment.
- There is a preparation for reuse target, but it is not clear what supporting measures have been put in place to ensure this is met.
- The data on waste management is lacking in clarity, and some work needs to be done to improve transparency. In some cases there are issues of consistency between different sources, it is difficult to interpret the approach undertaken when deriving the figures, and some definitions used by the statisticians are not clearly indicated. Following on from this, concerns about the quality of the recycling data have been raised by court of auditors. The performance data on biowaste collection systems is also unclear. This means it is difficult to be sure how good performance of the systems currently is, and thus the extent to which the targets have actually been met. It is also unclear how much treatment capacity will be needed in the future for the treatment of biowaste.

3.0 Information Sources

BiPRO, 2014; Detailed evaluation report for assessing the waste management plan of Slovenia – National 3 December 2014, EC

Decree on the treatment of biodegradable waste (Official Gazette No.62/08 and99/13)

Decree on the treatment of biodegradable waste and the use of compost or digestate (Official Gazette, No. 99/13 and 56/15);

Decree on waste (Official Gazette, No. 37/15 and 69/15);

Decree on biodegradable kitchen waste and garden waste management (Official Gazette, No. 39/10);

EEA Report, 2013, Managing municipal solid waste. A review of achievements in 32 European countries. EEA Report, NO 2/2013

EEA Report, 2013, Managing municipal solid waste. A review of achievements in 32 European countries. EEA Report, NO 2/2013
Environmental protection act (Ur.l. RS, št. 39/2006, 56/15) Official Gazette of the Republic of Slovenia No. 21/2001

Eunomia (2013) for European Commission as reported within: Eunomia Research & Consulting / Copenhagen Resource Institute (2014) Development of a Modelling Tool on Waste Generation and Management – Appendix 1: Baseline Report, Final Report under Framework Contract ENV.C.2/FRA/2011/0020

European Commission Detailed evaluation report – Slovenia – National (Final Version)
Detailed assessment of Waste Management Plans – first batch, BiPRO, 2014

Municipal Waste Compliance-Promotion Exercise 2014-2015, Proposal to DG Environment of the European Commission under Framework ENV.C.2/FRA/2013/0023 SI-STAT data portal,

Waste Regulation (Ur.l. RS, št. 37/2015)