

# Waste Management Plan of the Slovak Republic for 2016 – 2020

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OCTOBER 2015

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*Waste Management Plan of the Slovak Republic*

*for 2016 - 2020*

*approved on 14 October 2015 by the Government of the  
Slovak Republic*

*Resolution No.: 562/2015*

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## Introduction

The Waste Management Plan of the Slovak Republic (WMP SR) represents the most significant strategic document in waste management of the Slovak Republic (SR) for 2016 to 2020. It has been prepared in compliance with the requirements of sustainable growth. Its content corresponds to the requirements laid down in the legislative regulations of the SR and European Union (EU), in particular in Act No. 223/2001 Coll. on waste and on the amendment to certain acts as amended (hereinafter the "Act on Wastes") and Directive No. 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (hereinafter the "Waste Framework Directive").

The WMP SR for 2016 to 2020 is the fifth successive national plan laying down the basic requirements, objectives and measures focused on the area of waste management. It is based on the evaluation of the previous WMP SR for 2011 to 2015 and on the analysis of the current state and needs of waste management of the SR.

The WMP SR is prepared in the period of the approved Partnership Agreement on using EU Structural and Investment Funds in 2014 – 2020. The Partnership Agreement defines a strategy and priorities for effective and efficient investments amounting to EUR 15.3 billion for the very next ten years. The Plan also takes into account the approved Operational Programme Quality of Environment for the programme period 2014 – 2020, which, thanks to its focus, will take a

significant part in directing investments to the waste management infrastructure by 2020.

The WMP SR covers management of all wastes in accordance with the definition of waste in the Act on Wastes.

The binding part of the WMP SR is a binding document for the decision-making activities of the state administration bodies in waste management. The district offices in the seat of the region shall be obliged to work out plans of regions based on the objectives and measures set herein. The plan of the region will be worked out for a territory falling under the competence of the respective district office in the seat of the region.

The structure of the WMP SR for 2016 to 2020 corresponds to the requirements of Article 29 of the Waste Framework Directive. The Plan does not contain waste prevention measures pursuant to Article 29 of the Waste Framework Directive as these were adopted in a separate document with the title Waste Prevention Programme of the SR for 2014 – 2018, which was approved by the Government of the SR in Resolution No. 729/2013 dated 18 December 2013.

The WMP SR also takes into account the open negotiations of the European Commission regarding the closed (circular) economy and outlook plans of waste management strategy for 2025 and 2030 within the "waste package" under preparation, which should essentially change the way of waste management in favour of recycling and sustainable use of recyclable wastes in order to ensure the rational use of natural resources.

## 1. Basic Data

### 1.1. Name of the Body that Issued the WMP SR

Ministry of Environment of the Slovak Republic (MoE SR)

### 1.2. Registered Office of the Body that Issued the WMP SR

Nám. Ľ. Štúra č. 1, 812 35 BRATISLAVA

### 1.3. Population of the Slovak Republic

As at 31 December 2013, the population of the SR was 5,415,949.

The average population density is 110 people per km<sup>2</sup> and by regions, it ranges from 300 people per km<sup>2</sup> (Bratislava region) to 70 people per km<sup>2</sup> (Banská Bystrica region) (tab.1.1).

In demographic terms, the Bratislava region considerably differs from the other regions with its population density being almost three times higher in comparison with the Slovakian average. 54% of SR inhabitants live in towns and 46 % of SR inhabitants live in rural municipalities. Among the SR towns, Bratislava

has the highest population, i.e. 417,389. The population of other regional towns ranges from 239,797 (Košice) to 55,886 (Trenčín).

The urbanized environment of the SR is characterised in particular by seats with a population from 5,000 to 10,000. Towns perform an important economic function and they are centres with a high concentration of economic activities. The population and density of population in individual regions of the SR is shown by Table 1-1. Table 1-2 shows the structure of municipalities in terms of population.

**Table 1-1 The population and density of population in individual regions of the SR**

Region	Population	Population in %	Population per km <sup>2</sup>
Bratislava	618,380	11.4	300
Trnava	557,608	10.3	134
Trenčín	592,394	10.9	132
Nitra	686,662	12.7	108
Žilina	690,420	12.7	101
Banská Bystrica	656,813	12.1	70
Prešov	818,916	15.1	91
Košice	794,756	14.7	118
<b>SR</b>	<b>5,415,949</b>	<b>100.0</b>	<b>110</b>

Source: Statistical Office of the Slovak Republic

**Table 1-2 Structure of municipalities in terms of population**

Population (municipality size)	Number of municipalities
0 - 199	394
200 - 499	744
500 - 999	762
1,000 - 1,999	575
2,000 - 4,999	280
5,000 - 9,999	63
10,000 - 19,999	33
20,000 - 49,999	29
50,000 - 99,999	8
100,000 +	2
<b>Total</b>	<b>2,890</b>

Source: Statistical Office of the Slovak Republic

## 1.4. Territory Area

The SR is a landlocked Central European state with an area of 49,035.31 km<sup>2</sup> with the geographic position defined by boundary coordinates:

southern: 47° 43' 54'' N  
 northern: 49° 36' 52'' N  
 western: 16° 50' 05'' E  
 eastern: 22° 34' 04'' E

With its area, the SR is among small states of Europe (27th place). The neighbouring states of the SR include the Czech Republic, Hungary, Poland, Austria and Ukraine. Since 1 May 2004, all the neighbouring states of the SR have been EU Member States, except Ukraine. The area of individual regions in percentage ranges from 4.19 % to 19.28 %. The Bratislava region is the smallest one and the Banská Bystrica region is the biggest one (tab. 1-3).

**Table 1-3 Territory area in individual regions of the SR**

Region	Area in km <sup>2</sup>	Area in %
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Bratislava	2,052.62	4.19
Trnava	4,146.39	8.46
Trenčín	4,502.07	9.18
Nitra	6,343.75	12.94
Žilina	6,808.49	13.88
Banská Bystrica	9,454.11	19.28
Prešov	8,973.37	18.30
Košice	6,754.49	13.77
<b>SR</b>	<b>49,035.31</b>	<b>100.00</b>

Source: Statistical Office of the Slovak Republic

## 1.5. Ecological Characterization

In 2013, the share of agricultural land represented 49 % of the total area of land, the share of forest lands 41.1 % and the share of non-agricultural and non-forest lands 9.9 %.

**Table 1-4 Total values of land types as at 31 December 2013**

Land type	% of area
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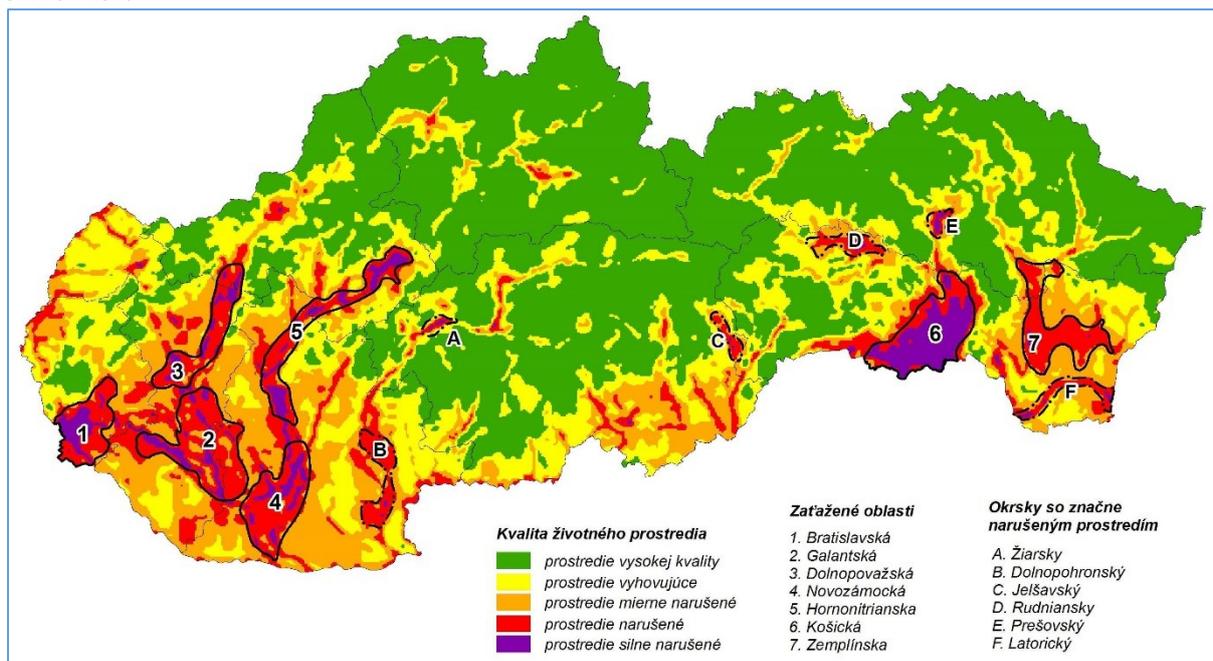
<b>Agricultural land</b>	49.00
<b>Forest lands</b>	41.10
<b>Water bodies</b>	1.93
<b>Built-up areas</b>	4.75
<b>Other areas</b>	3.22
<b>Total area</b>	100.00

Source: Geodesy, Cartography and Cadastre Authority of the Slovak Republic (pursuant to the State of the Environment Report of the SR for 2013)

The state of the environment of individual areas of the SR is characterised by the environmental regionalization of the territory, which distinguishes five degrees of quality of

the state of the environment. Graphically, the level of environmental quality in the territory of the SR is shown in Fig. 1-1. The environment of degree 5 - heavily disturbed, or degree 4 – disturbed is in seven burdened areas (Bratislava, Galanta, Dolné Považie, Nové Zámky, Horná Nitra, Košice, and Zemplín areas). There are six zones with a considerably disturbed environment (Žiar, Dolné Pohronie, Jelšava, Rudňany, Prešov and Latorica zones). The figure shows that the best environment is situated in the Žilina region and Prešov region, on the contrary, the Nitra region and the Trnava region have the most disturbed environment.

Fig. 1-1 Environmental quality with the demarcation of burdened areas and zones with a considerably disturbed environment



Ministry of Environment of the SR, Slovak Environment Agency

Kvalita životného prostredia	Quality of environment	Novozámocká	Nové Zámky
prostredie vysokej kvality	high-quality environment	Hornonitrianska	Horná Nitra
prostredie vyhovujúce	satisfactory environment	Košická	Košice
prostredie mierne narušené	moderately disturbed environment	Zemplínska	Zemplín
prostredie narušené	disturbed environment	Okrsky so značne narušeným prostredím	Zones with a considerably disturbed environment
prostredie silne narušené	heavily disturbed environment	Žiarsky	Žiar
Zaťažené oblasti	Burdened areas	Dolnopohronský	Dolné Pohronie
Bratislavská	Bratislava	Jelšavský	Jelšava
Galantská	Galanta	Rudňanský	Rudňany
Dolnopovažská	Dolné Považie	Prešovský	Prešov
		Latorický	Latorica

## 1.6. Economy Structure

The economy structure of the SR according to the Statistical Classification of Economic Activities in the European Community (SK NACE Rev.2)<sup>1</sup> presented by the share of individual economic activities and the corresponding number of employees is included in Table 1-5.

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<sup>1</sup> Regulation of the Statistical Office of the Slovak Republic No. 306/2007 Coll. issuing the Statistical Classification of Economic Activities

**Table 1-5 Number and share of employees and GDP creation in individual branches of economy of the SR**

Statistical Classification of Economic Activities in the European Community SK NACE Rev.2*		Number of employees in the economy of the SR in 2013	%	GDP creation in million €	%
A	Agriculture, forestry and fishing	58,686	3.2	2,710	3.7
B, C, D, E	Industry total	466,251	25.1	16,610	22.6
C	Manufacturing	418,201	22.5	13,589	18.5
F	Construction	90,132	4.9	5,704	7.7
G, H, I	Wholesale and retail trade; repair of motor vehicles and motorcycles; Transportation and storage; Accommodation and food service activities	492,032	26.5	14,778	20.1
J	Information and communication	47,828	2.6	3,100	4.2
K	Financial and insurance activities	33,198	1.8	2,435	3.3
L	Real estate activities	21,014	1.1	4,785	6.5
M, N	Professional, scientific and technical activities; Administrative and support service activities	163,645	8.8	5,136	7.0
O, P, Q	Public administration and defence; compulsory social security; Education; Human health and social work activities	438,860	23.7	9,553	13.0
R, S, T, U	Arts, entertainment and recreation; Other service activities	42,964	2.3	2,332	3.2
	Net taxes on products			6,450	8.7
	<b>Total</b>	<b>1,854,610</b>	<b>100</b>	<b>73,593</b>	<b>100</b>

Source: Slovstat (ESA 2010)

The highest number of employees in the SR is in manufacturing, which also represents the highest share in the creation of gross domestic products (GDP).

In 2013, GDP in the SR reached the level of € 73,593 million. The trends of total GDP and GDP per capita in the SR in 2010 – 2013 is shown in Table 1-6.

**Table 1-6 Gross domestic product in 2010 - 2013**

Year	2010	2011	2012	2013
GDP in the SR in mil. €	67,204	70,160	72,185	73,593

<b>GDP per inhabitant in € in current prices</b>	12,376	12,997	13,353	13,596
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Source: Statistical Office of the Slovak Republic

Table 1-7 shows the share of individual regions in GDP creation in 2010 – 2013. The highest share in GDP creation holds the

Bratislava region (27.25 % – 27.82 %), the lowest share holds the Banská Bystrica region (8.59% - 8.89 %).

**Table 1-7 The share of individual regions in GDP creation in 2010 – 2013**

Year	2010		2011		2012		2013	
	million €	%						
Bratislava region	18,667	27.78	19,393	27.64	19,674	27.25	20,471	27.82
Trnava region	7,821	11.64	8,044	11.47	8,293	11.49	8,239	11.20
Trenčín region	6,565	9.77	6,808	9.70	6,998	9.69	7,071	9.61
Nitra region	7,249	10.79	7,992	11.39	8,248	11.43	8,194	11.13
Žilina region	7,652	11.38	7,716	11.00	7,936	11.00	8,050	10.94
Banská Bystrica region	5,976	8.89	6,027	8.59	6,259	8.67	6,500	8.83
Prešov region	5,658	8.42	6,183	8.81	6,477	8.97	6,624	9.00
Košice region	7,615	11.33	7,997	11.40	8,299	11.50	8,443	11.47
<b>GDP in the SR in mil. €</b>	<b>67,204</b>	<b>100</b>	<b>70,160</b>	<b>100</b>	<b>72,185</b>	<b>100</b>	<b>73,593</b>	<b>100</b>

Source: Statistical Office of the Slovak Republic

## 1.7. The Period, for which the Plan is Issued

The WMP SR is issued for a period of **5 years**, i.e. for 2016 to 2020 and represents a basic conceptual document of waste management in the SR for the period. The WMP SR is a background document for the preparation of regional waste management plans for 2016 to 2020.

## 2. Characterisation of the Current State of Waste Management

### 2.1. Waste Production

The analysis of waste production and management in the SR has been carried out using the national regional information system on wastes (RISO) since 1995. RISO registers all reports from waste producers that report the determined data from their records to the respective district office through the form "Waste Production and Management Reporting" on an annual basis. The data from the reports are subsequently on-line entered into the RISO information system by the district offices.

The municipal waste statistics is provided by the Statistical Office of the Slovak Republic, where the database in accordance with the municipal waste definition is provided exclusively by municipalities. The statistical processing of wastes is carried out pursuant to Regulation of the Ministry of Environment of the Slovak Republic No. 284/2001 Coll. laying down the Waste Catalogue as amended (hereinafter the "Waste Catalogue"), which is fully in compliance with the European Waste Catalogue.

#### 2.1.1. General Waste Production and Management

##### Waste Production

The analysis of waste production and management is carried out for 2010 – 2013, as a follow-up to the previous WMP SR, which evaluated the period of 2005 - 2009. On average, 9.5 million tons of waste were

generated in the SR in 2010 – 2013. Traditionally, the biggest share is represented by industrial other waste. In the long term, the production of hazardous wastes has been decreasing.

**Table 2-1 General waste production in the SR in 2010 – 2013**

Waste category	2010	2011	2012	2013
Municipal waste (t)	1,808,506.05	1,766,990.48	1,747,569.05	1,744,428.65
Year-on-year increase/decrease (%)	+3.61%	-2.30%	-1.10%	-0.18%
Industrial other wastes (t)	7,294,942.35	8,137,713.37	6,548,981.85	7,750,050.87
Year-on-year increase/decrease (%)	+15.92%	+11.55%	-19.52%	+18.34%
Industrial hazardous wastes (t)	430,450.41	379,714.26	371,553.28	364,541.60
Year-on-year increase/decrease (%)	-11.19%	-11.79%	-2.15%	-1.89%
<b>Total</b>	<b>9,533,898.56</b>	<b>10,284,418.20</b>	<b>8,668,103.97</b>	<b>9,859,021.30</b>

<b>Year-on-year increase/decrease</b>	<b>+11.86%</b>	<b>+7.87%</b>	<b>-15.72%</b>	<b>+13.74%</b>
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Source: Ministry of Environment of the Slovak Republic, Statistical Office of the Slovak Republic

Waste production according to industrial activities represents an important part of waste production analysis. Table 2-2 presents waste quantities divided according to NACE activities (SK-NACE Rev.2 pursuant to Regulation (EC) No 1893/2006 of the European Parliament and of the Council). The

biggest quantities of wastes are produced in manufacturing (Section C), construction (Section F), in the area of electricity, gas, steam and air conditioning supply (Section D) and in the area of water supply; sewerage, waste management and remediation activities (Section E).

**Table 2-2 Production of waste by industrial activities**

Section	Name	Waste quantity (t)			
		2010	2011	2012	2013
A	Agriculture, forestry and fishing	530,635.47	535,946.74	549,390.77	265,604.94
B	Mining and quarrying	165,584.61	219,146.15	310,579.33	383,824.73
C	Manufacturing	2,723,811.92	3,155,988.44	2,644,941.77	2,428,589.18
D	Electricity, gas, steam and air conditioning supply	913,783.27	963,099.31	1,045,757.25	898,003.78
E	Water supply; sewerage, waste management and remediation activities	783,817.88	715,747.33	670,564.62	829,661.55
F	Construction	1,835,696.14	2,169,256.99	806,186.76	1,995,352.17
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	436,787.76	351,601.46	337,444.57	425,976.84
H	Transportation and storage	123,219.76	100,125.42	112,606.17	147,737.23
I	Accommodation and food service activities	4,634.79	2,001.03	3,234.32	10,398.42
J	Information and communication	3,469.37	4,032.95	4,599.74	3,360.84
K	Financial and insurance activities	411.44	424.76	532.29	366.73
L	Real estate activities	17,259.62	13,513.11	121,661.90	156,781.49
M	Professional, scientific and technical activities	17,759.54	73,996.79	98,091.79	177,165.87
N	Administrative and support service activities	10,414.52	16,054.14	12,093.88	24,452.35
O	Public administration and defence; compulsory social	19,633.72	26,517.69	21,497.40	25,312.25

	security				
P	Education	998.78	1,819.77	810.54	874.57
Q	Human health and social work activities	114,088.33	149,084.40	154,566.21	264,793.36
R	Arts, entertainment and recreation	227.69	274.28	1,205.23	9,351.90
S	Other service activities	1,009.91	1,933.55	1,513.09	1,481.37
X	Undetected	22,148.22	16,863.32	23,257.48	65,502.88
<b>Total</b>		<b>7,725,392.76</b>	<b>8,517,427.63</b>	<b>6,920,535.12</b>	<b>8,114,592.47</b>

Section	Name	Share in the general waste production (%)			
		2010	2011	2012	2013
A	Agriculture, forestry and fishing	6.87%	6.29%	7.94%	3.27%
B	Mining and quarrying	2.14%	2.57%	4.49%	4.73%
C	Manufacturing	35.26%	37.05%	38.22%	29.93%
D	Electricity, gas, steam and air conditioning supply	11.83%	11.31%	15.11%	11.07%
E	Water supply; sewerage, waste management and remediation activities	10.15%	8.40%	9.69%	10.22%
F	Construction	23.76%	25.47%	11.65%	24.59%
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	5.65%	4.13%	4.88%	5.25%
H	Transportation and storage	1.59%	1.18%	1.63%	1.82%
I	Accommodation and food service activities	0.06%	0.02%	0.05%	0.13%
J	Information and communication	0.04%	0.05%	0.07%	0.04%
K	Financial and insurance activities	0.01%	0.00%	0.01%	0.00%
L	Real estate activities	0.22%	0.16%	1.76%	1.93%
M	Professional, scientific and technical activities	0.23%	0.87%	1.42%	2.18%
N	Administrative and support service activities	0.13%	0.19%	0.17%	0.30%

O	Public administration and defence; compulsory social security	0.25%	0.31%	0.31%	0.31%
P	Education	0.01%	0.02%	0.01%	0.01%
Q	Human health and social work activities	1.48%	1.75%	2.23%	3.26%
R	Arts, entertainment and recreation	0.00%	0.00%	0.02%	0.12%
S	Other service activities	0.01%	0.02%	0.02%	0.02%
X	Undetected	0.29%	0.20%	0.34%	0.81%
<b>Total</b>		<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: Ministry of Environment of the Slovak Republic

## Waste Management

Waste disposal on landfills (D1) represents a long-term negative trend of waste management. Since 2010, the quantity of waste disposed on landfills has risen to a level of 5 mil. tons in 2013, which caused that the share of waste disposal on landfills in general waste management exceeded a level of 50 %. Without energy utilisation (D10), on average 55 thousand tons of waste are annually disposed by incinerating. The share of energy recovery (R1) in general waste management amounts to 3 %, which means about 300 thousand tons of waste annually.

Material recovery of wastes (R2-R11) has recorded a year-on-year increase, despite that

it does not show the expected values and in comparison with the previous year, the quantity of recycled waste has dropped by 0.5 million tons. In 2013, only 30% of waste was material-recovered. Other waste recovery (R12,R13) represents a 10-percent share in general management. Other waste disposal methods (D2-D9, D11-D15) represent five percent of general waste management and other waste management activities (Z,DO) represented a 2-percent share in general waste management in 2013.

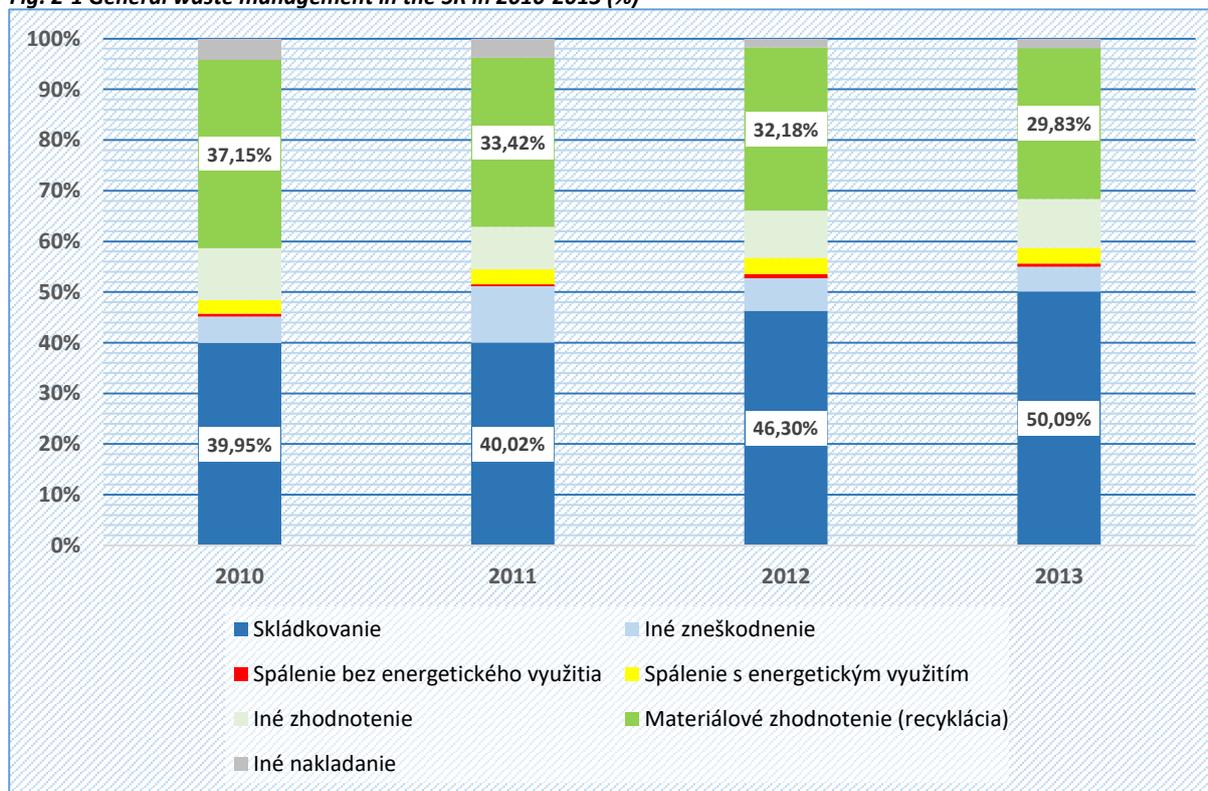
**Table 2-3 General waste management in the SR in 2010-2013**

Waste management method	2010	2011	2012	2013
Landfilling (t)	3,808,894.74	4,115,434.70	4,013,608.05	4,938,146.74
Year-on-year increase/decrease (%)	-6.67%	+8.05%	-2.47%	+23.04%
Other disposal (t)	497,921.84	1,143,460.19	558,432.06	484,813.60
Year-on-year increase/decrease (%)	-5.78%	+129.65%	-51.16%	-13.18%
Incineration without energy recovery (t)	51,856.44	41,681.29	71,308.66	59,048.46

Year-on-year increase/decrease (%)	+79.37%	-19.62%	+71.08%	-17.19%
Incineration with energy recovery (t)	256,975.45	303,579.54	275,579.90	309,001.63
Year-on-year increase/decrease (%)	-6.24%	+18.14%	-9.22%	+12.13%
Other recovery (t)	978,650.69	861,987.95	810,827.18	945,726.54
Year-on-year increase/decrease (%)	+14.28%	-11.92%	-5.94%	+16.64%
Material recovery (recycling) (t)	3,542,210.98	3,436,821.24	2,789,712.43	2,941,241.77
Year-on-year increase/decrease (%)	+42.56%	-2.98%	-18.83%	+5.43%
Other management (t)	397,388.67	381,453.20	148,635.91	181,042.36
Year-on-year increase/decrease (%)	+47.41%	-4.01%	-61.03%	+21.80%
<b>Total (t)</b>	<b>9,533,899.99</b>	<b>10,284,419.33</b>	<b>8,668,104.01</b>	<b>9,859,021.38</b>
<b>Year-on-year increase/decrease (%)</b>	<b>+11.86%</b>	<b>+7.87%</b>	<b>-15.72%</b>	<b>+13.74%</b>

Source: Ministry of Environment of the Slovak Republic

Fig. 2-1 General waste management in the SR in 2010-2013 (%)



Source: Ministry of Environment of the Slovak Republic

Skłádkovanie	Landfilling	Iné zneškodnenie	Other disposal
Spálenie bez energetického	Incineration without energy	Spálenie s energetickým	Incineration with energy

využitia	recovery	využitím	recovery
Iné zhodnotenie	Other recovery	Materiálové zhodnotenie (recyklácia)	Material recovery (recycling)
Iné nakladanie	Other management		

Group 17: Construction and demolition wastes (including excavated soil from contaminated sites) represented the highest share (up to 36%) in waste recycling in 2013. Wastes from Group 19: Waste facility and water treatment waste out of the production sites and wastes from the preparation of water intended for human consumption or water for industrial use represented a 15-percent share in waste recycling. The important groups of wastes taking part in general waste recycling also

include Group 10: Wastes from thermal processes (a 13-percent share in recycling), Group 3: Wastes from wood processing, furniture, pulp, paper and cardboard production (a 9-percent share in recycling), and Group 2: Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food processing (an 8-percent share in recycling). Municipal wastes represented almost seven percent of general waste recycling in 2013.

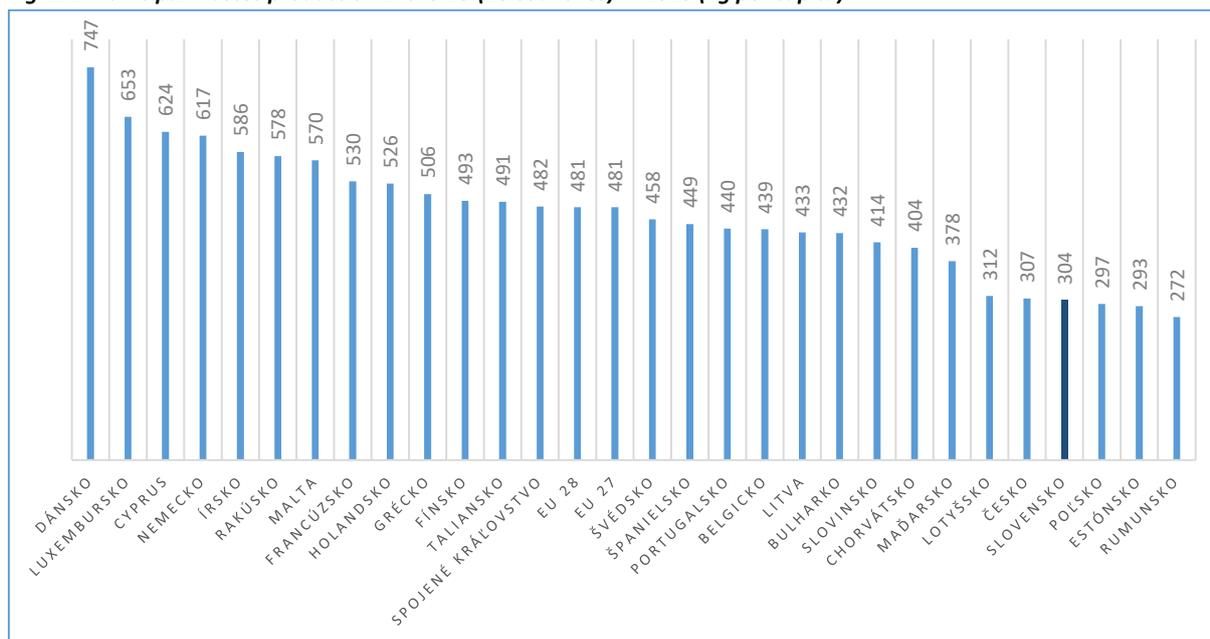
## 2.1.2. Municipal Wastes

### Municipal Wastes Production

Municipal wastes represent wastes from households produced in the territories of municipalities during activities of natural persons and wastes of similar features and composition, which are produced by a legal entity or a natural person-entrepreneur, except for the wastes produced during immediate performance of the activities representing the objects of the legal entity or natural person-entrepreneur; wastes from households also include wastes from properties serving to natural persons for their individual recreation, e.g. from gardens, cottages, houses or for parking or storage of a vehicle used for the needs of a household, in

particular from garages, garage places and parking places. Municipal wastes also mean all the wastes produced in a municipality in cleaning public roads and areas, which are owned or administered by the municipality, and also in maintaining public greenery including parks and cemeteries and other greenery on the lands of legal entities, natural persons and civil associations. In the conditions of the SR, the separate production of wastes from households is not monitored, therefore all the objectives and measures must be based on the evaluation of municipal wastes as a general group, which is specified by Code 20 in the Waste Catalogue.

**Fig. 2-2 Municipal wastes production in the EU (28 countries) in 2013 (kg per capita)**



Source: EUROSTAT

Dánsko	Denmark	Švédsko	Sweden
Luxembursko	Luxembourg	Španielsko	Spain
Cyprus	Cyprus	Portugalsko	Portugal
Nemecko	Germany	Belgicko	Belgium
Írsko	Ireland	Litva	Lithuania
Rakúsko	Austria	Bulharsko	Bulgaria
Malta	Malta	Slovinsko	Slovenia
Francúzsko	France	Chorvátsko	Croatia
Holandsko	The Netherlands	Maďarsko	Hungary
Grécko	Greece	Lotyšsko	Latvia
Fínsko	Finland	Česko	Czech Republic
Taliansko	Italy	Slovensko	Slovakia
Spojené kráľovstvo	United Kingdom	Poľsko	Poland
EU 28	EU 28	Estónsko	Estonia
EU 27	EU 27	Rumunsko	Romania

Production of municipal wastes directly depends on social-economic indicators, in particular on the amount of GDP. In this connection, it is necessary to point out the fact that in comparison with the EU (28 countries), the SR is among the countries with the lowest annual production of municipal wastes per capita. According to EUROSTAT data, in 2013, each inhabitant of the SR produced 304 kg of municipal waste. Only Poland, Estonia and Romania had a lower production. In comparison with the average of

the EU (28 countries), the SR reached only 63 % of municipal waste production in 2013. The countries with the highest production of municipal wastes include Denmark, Luxembourg and Cyprus. Since 2002, municipal waste production in the SR has been constant. The long-term observations show that on average, 1.6 million tons of municipal wastes are produced annually in the SR. Municipal waste production by regions from 2010 is shown in Table 2-4.

**Table 2-4 Production of municipal wastes in the SR by regions**

Region	Municipal wastes production (t)				Municipal wastes production (kg per capita)			
	2010	2011	2012	2013	2010	2011	2012	2013
Bratislava	324,004.77	268,588.41	258,494.14	262,437.38	515	443	422	424
Trnava	195,171.25	241,246.82	231,563.53	231,573.97	347	434	416	415
Trenčín	200,527.77	198,684.15	194,558.80	200,094.10	335	334	328	338
Nitra	260,100.79	262,702.10	256,937.72	251,713.61	369	381	373	367
Žilina	229,741.13	214,632.40	212,815.86	212,635.13	329	311	308	308
Banská Bystrica	176,794.74	176,751.76	180,882.64	171,532.10	271	268	275	261
Prešov	206,229.48	200,950.45	198,998.19	198,122.65	255	246	243	242
Košice	215,936.12	203,434.39	213,318.17	216,319.71	277	257	269	272

Source: Ministry of Environment of the Slovak Republic

Regions of Slovakia show considerable disparities in municipal waste production per capita, which proves the dependence of municipal waste production on the region's economic performance, in particular on the amount of GDP. In the long term, the Bratislava and Trnava regions have been the strongest regions in municipal waste production. They are the only regions exceeding the level of production of 400 kg per capita. The Nitra region is the third

strongest region, with municipal waste production exceeding 350 kg per capita. The Trenčín and Žilina regions annually produce over 300 kg of municipal wastes per capita. The regions of Banská Bystrica, Prešov and Košice show an annual municipal waste production at a level of about 250 kg per capita. The share of regions in general municipal waste production is shown in Table 2-5.

**Table 2-5 The share of regions in general municipal waste production (%)**

Region	2010	2011	2012	2013
Bratislava	17.92%	15.20%	14.79%	15.04%
Trnava	10.79%	13.65%	13.25%	13.28%
Trenčín	11.09%	11.24%	11.13%	11.47%
Nitra	14.38%	14.87%	14.70%	14.43%
Žilina	12.70%	12.15%	12.18%	12.19%

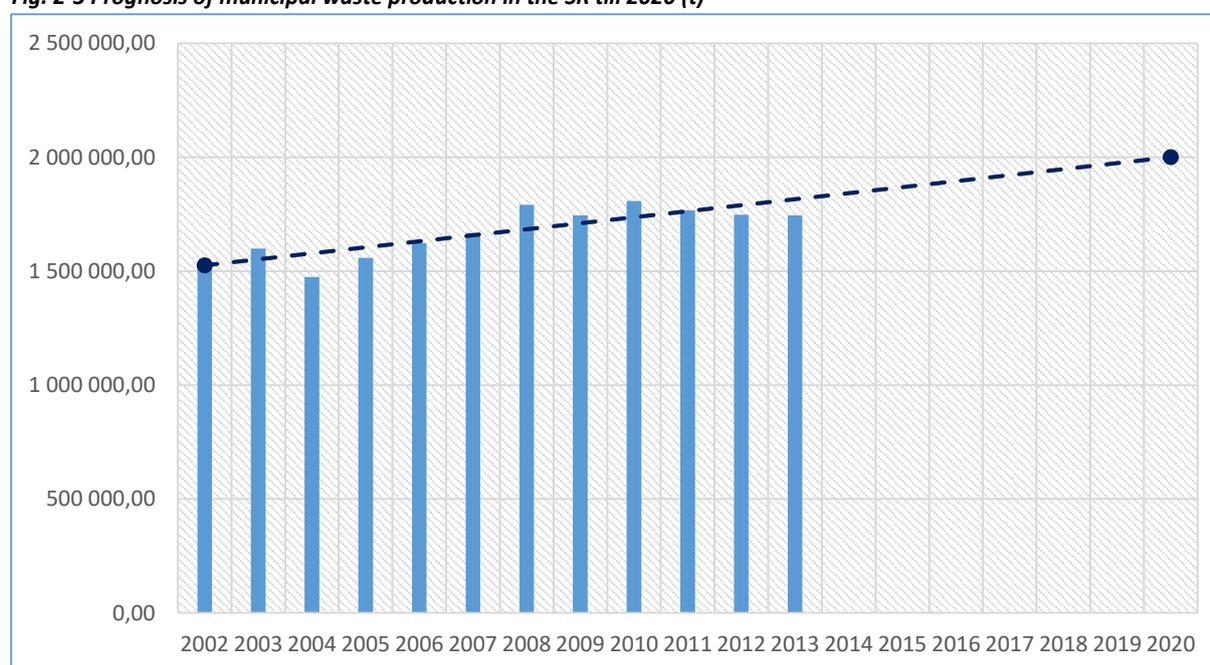
Banská Bystrica	9.78%	10.00%	10.35%	9.83%
Prešov	11.40%	11.37%	11.39%	11.36%
Košice	11.94%	11.51%	12.21%	12.40%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

Source: Ministry of Environment of the Slovak Republic

Based on the development of municipal waste production in the SR from 2002, municipal waste production till 2020 was estimated by

means of a linear trend line. It is estimated that in 2020 municipal waste production in the SR will reach about 2 mil. tons.

**Fig. 2-3 Prognosis of municipal waste production in the SR till 2020 (t)**



Source: Ministry of Environment of the Slovak Republic

### Municipal Waste Management

A high share of waste disposal by landfilling in the municipal sphere is the biggest negative aspect in waste management, which will have to be changed by essential measures in favour of recycling and re-use of wastes. Despite the decreasing trend of municipal waste landfilling, which dropped by 200 thousand tons in comparison with 2010, the dynamics of landfilling decrease is insufficient. In 2013, there was a year-on-year decrease of recycled municipal wastes by 25 thousand tons, which

is unacceptable for the future, in terms of the objectives set and in particular in terms of sustainable development and transition to a recycling society. Every year, 170 thousand tons of waste undergo energy recovery in the SR, with a dominant share of waste incineration facilities in Bratislava and Košice. The growing quantities of municipal wastes recovered through the recovery codes R12 and R13 point out the insufficient level of data collection, as it is very probable that the types

of municipal waste separated, which are stated within these codes, could have been recycled, which, however, cannot be proved

on the basis of the current information system on wastes.

**Table 2-6 Municipal waste management in the SR**

Waste management method	2010	2011	2012	2013
Material recovery (recycling) (t)	157,313.56	178,030.61	225,270.06	198,751.09
Year-on-year increase/decrease (%)	+15.23%	+13.17%	+26.53%	-11.77%
Energy recovery (t)	170,932.28	181,547.62	164,093.29	173,660.31
Year-on-year increase/decrease (%)	+44.11%	+6.21%	-9.61%	+5.83%
Other recovery (t)	34,600.41	62,945.77	55,621.51	112,257.79
Year-on-year increase/decrease (%)	+29.74%	+81.92%	-11.64%	+101.82%
Landfilling (t)	1,411,542.46	1,320,073.19	1,296,262.45	1,201,905.71
Year-on-year increase/decrease (%)	+0.07%	-6.48%	-1.80%	-7.28%
Incineration without energy recovery (t)	12,346.19	3,952.21	3,839.39	0.00
Year-on-year increase/decrease (%)	-	-67.99%	-2.85%	-
Other disposal (t)	9,625.81	9,188.13	776.61	29,031.03
Year-on-year increase/decrease (%)	+157.00%	-4.55%	-91.55%	-
Other management (t)	12,145.34	11,252.95	1,705.74	28,822.72
Year-on-year increase/decrease (%)	-75.42%	-7.35%	-84.84%	-
<b>Total (t)</b>	<b>1,808,508.51</b>	<b>1,766,990.70</b>	<b>1,747,568.14</b>	<b>1,744,429.54</b>
<b>Year-on-year increase/decrease (%)</b>	<b>+3.61%</b>	<b>-2.30%</b>	<b>-1.10%</b>	<b>-0.18%</b>

Source: Statistical Office of the Slovak Republic

In three regions (Trnava, Nitra and Žilina), the level of municipal waste landfilling exceeds 80 %. In the Trenčín and Prešov regions, the level of municipal waste landfilling is below 80 %. In the Košice region, municipal waste landfilling reaches the level of 50 %, and the Bratislava region can be evaluated as the best one,

where the quantity of municipal waste disposed on landfills reaches the level of 30 %. The low share of municipal waste landfilling in the Bratislava and Košice regions is caused by a high level of energy recovery of municipal wastes. In the Bratislava region, energy recovery of wastes amounts to over 40 %, in

the Košice region, energy recovery reaches 30 %. In all the regions, the level of recycling is at a very low level, only about 10 %. The Trenčín region represents an exception, with

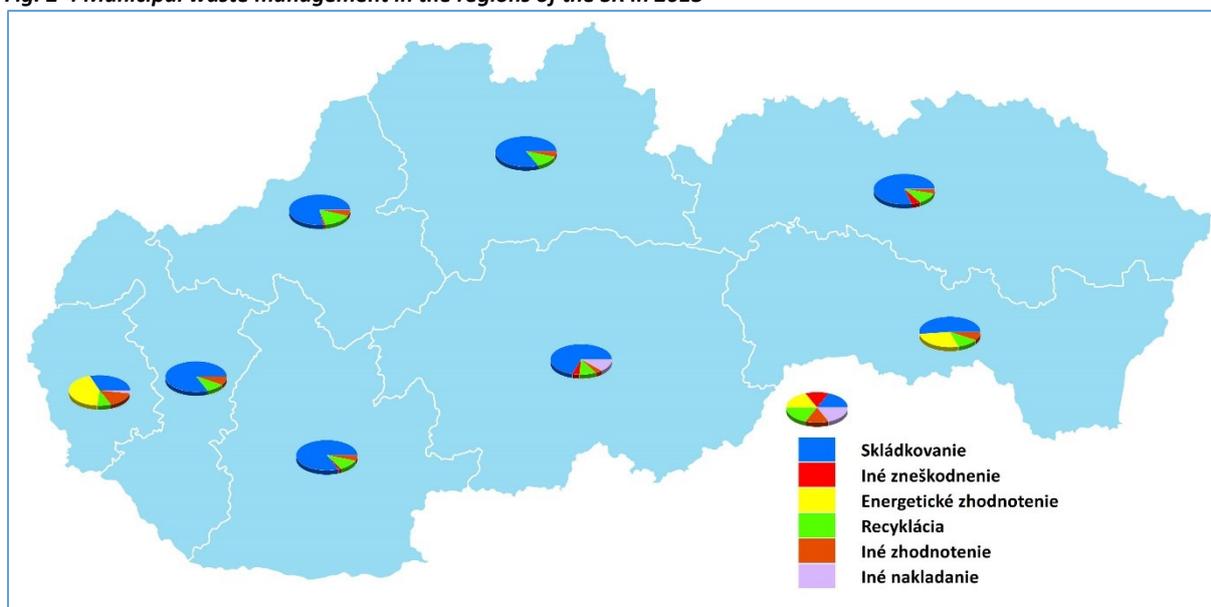
the share of municipal waste recycling reaching 16 %. Municipal waste management at the level of regions is shown in Table 2-7 and Fig. 2-4.

**Table 2-7 Municipal wastes management in the SR by regions (%)**

Region	Landfilling	Other disposal	Energy recovery	Recycling	Other recovery	Other management
Bratislava	32.01%	0.43%	41.02%	9.81%	14.45%	2.28%
Trnava	82.42%	0.56%	0.34%	9.79%	6.82%	0.08%
Trenčín	77.26%	1.16%	0.49%	16.19%	4.78%	0.12%
Nitra	82.79%	1.45%	0.02%	10.63%	4.41%	0.70%
Žilina	83.39%	0.02%	0.01%	11.82%	4.35%	0.40%
Banská Bystrica	68.54%	5.16%	0.02%	11.67%	3.93%	10.68%
Prešov	79.88%	5.80%	0.03%	10.37%	3.53%	0.39%
Košice	51.27%	0.12%	29.61%	11.77%	6.89%	0.33%

Source: Statistical Office of the Slovak Republic

**Fig. 2-4 Municipal waste management in the regions of the SR in 2013**



Source: Ministry of Environment of the Slovak Republic

Skládkovanie	Landfilling	Recyklácia	Recycling
Iné zneškodnenie	Other disposal	Iné zhodnotenie	Other recovery
Energetické zhodnotenie	Energy recovery	Iné nakladanie	Other management

## Separate Collection of Municipal Wastes

The purpose of the Waste Framework Directive is to move closer to a "recycling society" seeking to avoid waste generation and to use waste as a resource. The 7th Environmental Action Programme of the EU reads that waste will be safely managed as a resource, absolute waste generation and waste generated per capita will be in decline, energy recovery will be limited to non-recyclable materials, and landfilling of waste that can be recycled or composted will be effectively eliminated. Moreover, full implementation of Union waste legislation will be provided. This will include applying the waste management hierarchy (emphasising the waste prevention) and efficient application of market instruments and measures.

Member States (MS) shall take measures to promote high quality recycling and, to this end, shall set up separate collections of waste where technically, environmentally and economically practicable and appropriate to meet the necessary quality standards for the relevant recycling sectors. By 2015, Member States were obliged to set up separate collection for at least the following: paper, metal, plastic and glass. Moreover, the Waste Framework Directive imposed the duty on Member States to take measures to encourage the separate collection of bio-waste with a view to the composting and digestion of bio-waste.

### Separate Collection of Municipal Wastes in the SR

The duty to set up separate collection of municipal wastes has been in force in the SR since 2004, with a transition period till 2010. The duty of municipalities to set up separate collection for biodegradable wastes was cancelled and re-adopted, which brought

great uncertainty for municipal area and had a partial adverse impact on the entire direction of waste management. At present, in the SR, municipalities have the duty to set up and ensure the performance of separate collection of municipal wastes for paper, plastic, metal, glass and biodegradable municipal wastes except those produced by kitchen operators. Despite that, the separate collection of municipal wastes can be considered insufficient and many municipalities fail to fulfil this duty in accordance with the set legal duty. For the sake of completeness it has to be added that the duty to set up separate collection of biodegradable municipal wastes is competed by a circle of exceptions to the fulfilment of this duty, which finally negatively affect the introduction of separate collection of biodegradable municipal wastes in municipalities.

### Separate Collection and Objective of Recycling

In accordance with the requirements of the Waste Framework Directive, in connection with the objective to reach the level of municipal waste recycling of 50% by 2020, an efficient system of separate collection needs to be created at least for the following types of municipal wastes: paper and cardboard, glass, plastic, metals, biodegradable waste from gardens, biodegradable kitchen waste, edible oil and fat, wood, electrical waste, waste batteries and accumulators, textile and clothes. For the purpose of monitoring the trends of separate collection, individual types of waste are included in five streams: "traditional components" of separate collection (paper, plastic, glass, metals), biodegradable municipal wastes (wastes from gardens, kitchen wastes, edible oil and fat and

wood), electrical waste, waste batteries and accumulators, clothes and textiles.

**Table 2-8 Development of separate collection of municipal waste components in the SR**

Type/stream of waste	2010	2011	2012	2013
Paper and cardboard (t)	48,163.33	44,718.66	58,924.82	64,021.61
Year-on-year increase/decrease (%)	+7.43%	-7.15%	+31.77%	+8.65%
Glass (t)	42,643.35	49,696.04	48,551.55	48,890.20
Year-on-year increase/decrease (%)	+10.71%	+16.54%	-2.30%	+0.70%
Plastic (t)	22,788.83	25,166.94	28,314.62	29,009.58
Year-on-year increase/decrease (%)	+15.19%	+10.44%	+12.51%	+2.45%
Metals (t)	10,006.77	13,605.48	12,247.77	5,208.86
Year-on-year increase/decrease (%)	-10.14%	+35.96%	-9.98%	-57.47%
<b>Total (4 "traditional components") (t)</b>	<b>123,602.61</b>	<b>133,187.32</b>	<b>148,039.18</b>	<b>147,130.37</b>
<b>Year-on-year increase/decrease (%)</b>	<b>+8.17%</b>	<b>+7.75%</b>	<b>+11.15%</b>	<b>-0.61%</b>
Biodegradable waste (t)	99,206.17	94,096.77	101,971.99	105,500.56
Year-on-year increase/decrease (%)	+19.88%	-5.15%	+8.37%	+3.46%
Electrical waste <sup>1)</sup> (t)	6,934.95	7,858.82	7,764.47	7,850.44
Year-on-year increase/decrease (%)	-9.40%	+13.32%	-1.20%	+1.11%
Waste batteries and accumulators <sup>2)</sup> (t)	318.93	211.05	427.77	488.50
Year-on-year increase/decrease (%)	-32.83%	-33.83%	+102.69%	+14.20%
Clothes and textile (t)	264.62	447.88	951.14	1,385.32
Year-on-year increase/decrease (%)	-16.49%	+69.25%	+112.36%	+45.65%
<b>Total all components (t)</b>	<b>230,327.14</b>	<b>235,801.66</b>	<b>259,155.76</b>	<b>262,355.37</b>
<b>Year-on-year increase/decrease (%)</b>	<b>+12.10%</b>	<b>+2.38%</b>	<b>+9.90%</b>	<b>+1.23%</b>

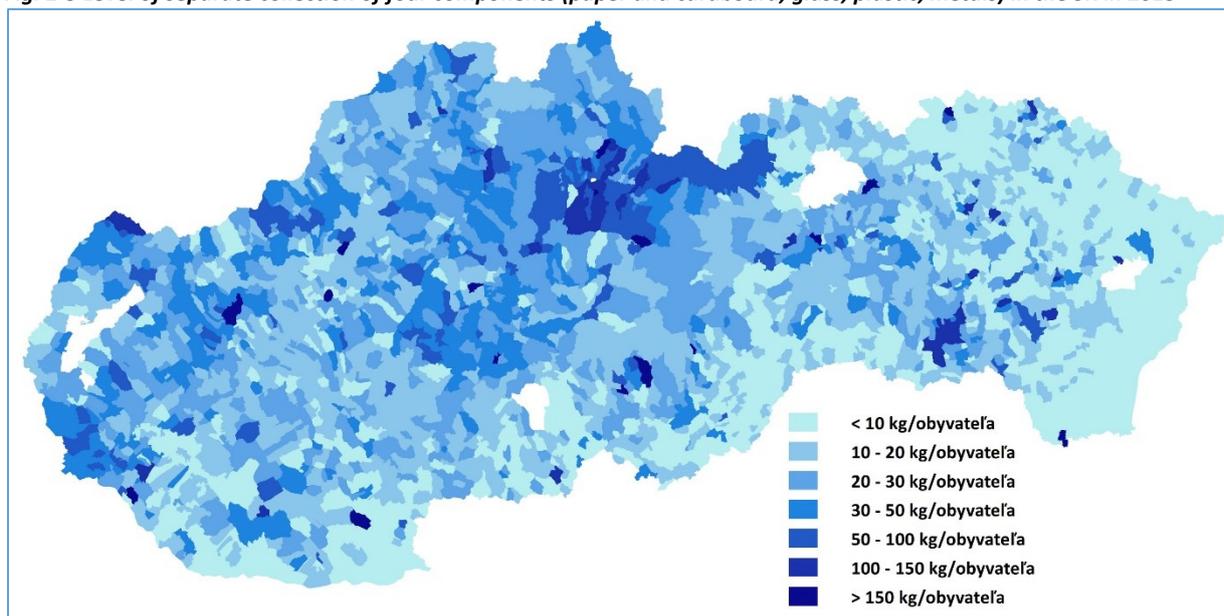
<sup>1)</sup>It includes only electrical waste from households reported by households (it does not include waste from households collected within take-back)

<sup>2)</sup> It includes only portable batteries and accumulators reported by households (it does not include portable batteries and accumulators collected within take-back)

When counting the separated quantities of typical components of municipal wastes, one inhabitant of the SR separated 27 kg of municipal wastes in 2013. If we take into account all the so-called "dry" components of municipal wastes, which are recyclable, one inhabitant of the SR separated 48 kg of municipal wastes in 2013. To fulfil the recycling objective, the level of separate collection must achieve at least 150-170 kg of separated components per capita. It will be

very difficult to achieve it till 2020. An increase in the rate of separate collection will require more efficient collection of all sortable components of municipal wastes, however, in particular biodegradable wastes, where the level of separate collection is very low despite the potential and contents of biodegradable wastes in mixed municipal waste. The level of separate collection of four components of municipal wastes in the SR in 2013 is shown in Fig. 2-5.

Fig. 2-5 Level of separate collection of four components (paper and cardboard, glass, plastic, metals) in the SR in 2013



Source: Ministry of Environment of the Slovak Republic

kg/obyvateľa	kg per citizen
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### Municipal Waste Composition and Separate Collection Potential

Table 2-9 Estimated potential of separate collection for individual components of municipal wastes

Component	Quantity (t)
Paper and cardboard	177,508
Glass	121,268
Plastic	151,002
Metals	34,394
Multilayer combined materials	17,845

Biodegradable municipal waste	679,458
<b>Total:</b>	<b>1,181,475</b>

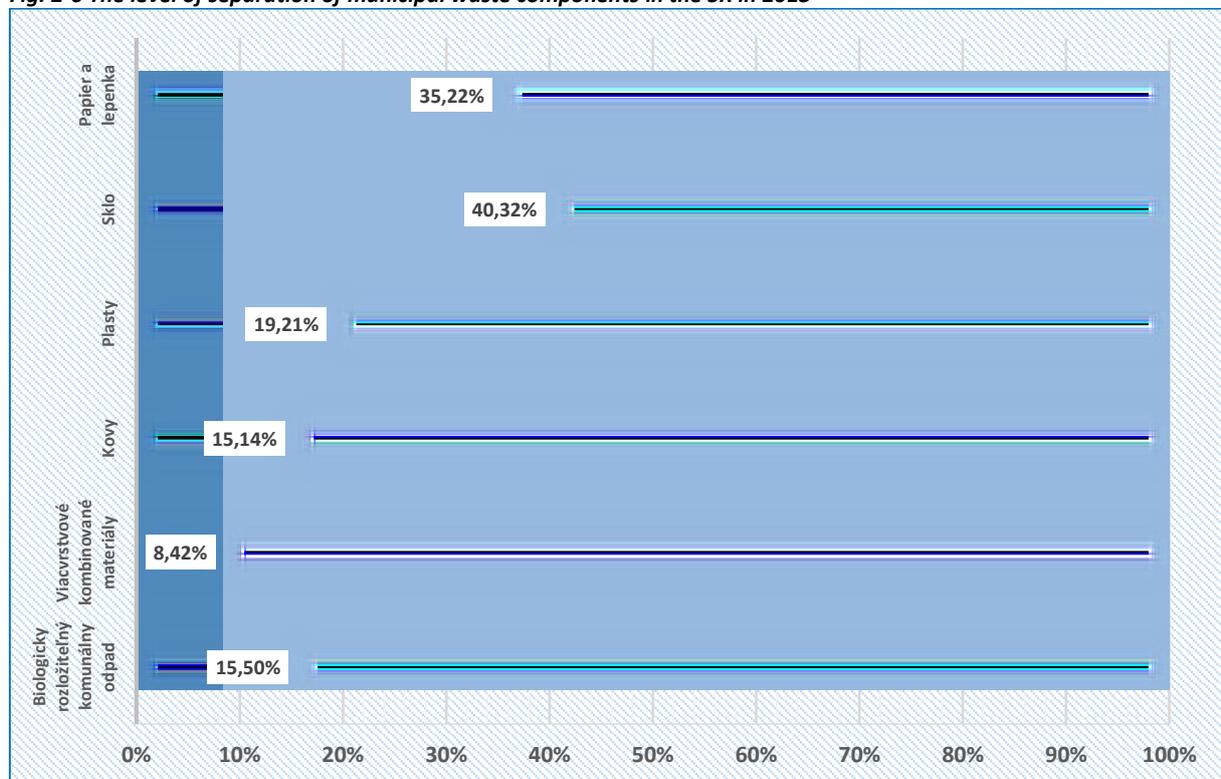
Source: Ministry of Environment of the Slovak Republic, Priatel'ia Zeme – SPZ (NGO)

The achievement of a high rate of municipal waste recycling requires the implementation of intensive and efficient separate collection systems depending on local conditions, degree of urbanization, density of population, and municipal waste composition, which can be

considerably different in individual regions. To assess the efficiency and potential of recyclable components, regular analyses of municipal waste composition will be necessary. For that purpose, a uniform methodology for the way of determination of municipal waste composition will have to be defined. The current analyses of municipal waste composition considerably differ and are based on the assessment of various parameters, which often cannot be used for the purpose of assessment of the potential of municipal waste material composition. It is important to distinguish between municipal waste composition and mixed municipal waste composition, which are the representative indicators of general management of municipal waste in the respective municipality or region. Efficient separate collection must mean a general drop in mixed municipal waste production, which also results in a change of

composition of mixed municipal waste. Analyses of mixed municipal waste composition have been carried out in various self-governments on an annual basis since 2005 by the non-governmental organisation Priatel'ia Zeme – SPZ. The analyses have been carried out for multiple residential buildings (KBV) and single-family residences (SFR). Based on the surveys in the area of mixed municipal waste composition and the current level of separate collection of municipal wastes, the potential of separate collection for six components of municipal wastes was determined – paper and cardboard, glass, plastic, metals, multilayer combined materials and biodegradable municipal wastes. The potential of separate collection of individual components of municipal wastes is shown in Table 2-9. The level of separation of individual components in 2013 is shown in Fig. 2-6.

**Fig. 2-6 The level of separation of municipal waste components in the SR in 2013**



Source: Ministry of Environment of the Slovak Republic

Biologicky rozložiteľný komunálny odpad	Biodegradable municipal waste	Plasty	Plastic
Viacvrstvé kombinované	Multi-layer combined materials	Sklo	Glass

materiály			
Kovy	Metals	Papier a lepenka	Paper and cardboard

The diagram clearly shows that glass wastes reached the highest level of separation from municipal wastes in 2013, i.e. over 40 %. The second highest level of separation from municipal waste was reached by paper and cardboard, i.e. 35 %. Plastic reached a 19-percent level of separation. Metals represent a specific commodity of municipal wastes, as the most part of them is handed over by natural persons directly to collection and

repurchase centres, which excludes the data from the reporting monitored by the Statistical Office of the SR. Thus, mostly metal packaging remains in municipal waste. Biodegradable municipal waste represents the biggest part of municipal wastes and at the same time, with its character, it is the most monitored component in terms of landfilling limitation. The level of its separation reached only about 15% in 2013.

### 2.1.3. Biodegradable Municipal Wastes

Biodegradable municipal wastes include all types of biodegradable wastes, which can be assigned to Group 20: Municipal Wastes according to the Waste Catalogue. Pursuant to the Waste Catalogue and the "Strategy for the implementation of the reduction of biodegradable waste going to landfills", the following types of municipal wastes are assigned to separated components of biodegradable municipal wastes:

- Paper and cardboard (including paper and cardboard packaging)
- Biodegradable kitchen and canteen waste
- Edible oil and fat

- Wood (including wood packaging)
- "Green" biodegradable waste
- Waste from markets

Based on long-term monitoring of statistical indicators of separate collection of biodegradable municipal wastes, a positive trend can be stated. Similarly to other separated components of municipal waste, the efficiency of separate collection of biodegradable municipal wastes will need to be considerably intensified, in particular for the purpose of achievement of the objectives in the area of reducing the quantity of biodegradable wastes disposed on landfills.

**Table 2-10 Development of separate collection of biodegradable municipal wastes in the SR**

Waste code	Waste type	2010	2011	2012	2013
200101	Paper and cardboard (t)	48,163.33	44,718.66	58,924.82	64,021.61
	Year-on-year increase/decrease (%)	+7.43%	-7.15%	+31.77%	+8.65%
200108	Biodegradable kitchen and canteen waste (t)	1,527.91	1,612.76	2,127.22	2,838.16
	Year-on-year increase/decrease (%)	-12.43%	+5.55%	+31.90%	+33.42%
200138	Wood (t)	1,555.95	1,676.93	2,459.08	3,512.35

Year-on-year increase/decrease (%)		+75.96%	+7.78%	+46.64%	+42.83%
200125	Edible oil and fat (t)	12.24	60.90	69.17	288.64
Year-on-year increase/decrease (%)		-7.13%	+397.55%	+13.58%	+317.29%
200201	Green biodegradable waste (t)	94,027.11	89,276.41	95,894.02	98,167.56
Year-on-year increase/decrease (%)		+13.62%	-5.05%	+7.41%	+2.37%
200302	Waste from markets (t)	2,083	1,470	1,423	694
Year-on-year increase/decrease (%)		+63.86%	-29.44%	-3.22%	-51.22%
<b>Total (t)</b>		<b>147,370.27</b>	<b>138,819.42</b>	<b>160,898.12</b>	<b>169,526.22</b>
<b>Year-on-year increase/decrease (%)</b>		<b>+12.07%</b>	<b>-5.80%</b>	<b>+15.90%</b>	<b>+5.36%</b>

Source: Statistical Office of the Slovak Republic

Besides the wastes fulfilling the definition of biodegradable municipal wastes, the Waste Catalogue also contains types, which cannot be classified as individual biodegradable wastes but they contain a high share of biodegradable wastes or organic component, and in accordance with the objectives of the Directive on the landfill of waste, it is necessary to reduce their landfilling. For the purpose of calculation of fulfilment of the limitation of biodegradable municipal waste landfilling, mixed municipal waste needs to be included, in particular because a considerable share of mixed municipal waste undergoes energy recovery in the existing incineration facilities for municipal waste.

Council Directive 1999/31/EC on the landfill of waste, in its Article 5, imposed the duty upon the EU Member States to set up a national strategy for the implementation of the reduction of biodegradable waste going to landfills, not later than two years after the date laid down in Article 18(1) of the Directive and notify the Commission of this strategy. This strategy shall ensure that:

- a) not later than five years after the date laid down in Article 18(1), biodegradable municipal waste going to landfills must be reduced to 75 % of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available;
- b) not later than eight years after the date laid down in Article 18(1), biodegradable municipal waste going to landfills must be reduced to 50 % of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available;
- c) not later than 15 years after the date laid down in Article 18(1), biodegradable municipal waste going to landfills must be reduced to 35 % of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available.

According to the original analysis included in the "Strategy for the implementation of the

reduction of biodegradable waste going to landfills", 695,000 tons of biodegradable municipal wastes were produced in the SR in 1995. Based on communication with the European Union, the data were reassessed and it was set that the initial value of the

quantity of the biodegradable municipal waste produced in the SR in 1995 reached a level of 944,000 tons. In accordance with the above-mentioned, the objectives of the reduction of biodegradable municipal waste going to landfills are quantified in Table 2-11.

**Table 2-11 Quantification of objectives of Directive 1999/31/EC for the reduction of biodegradable municipal waste going to landfills**

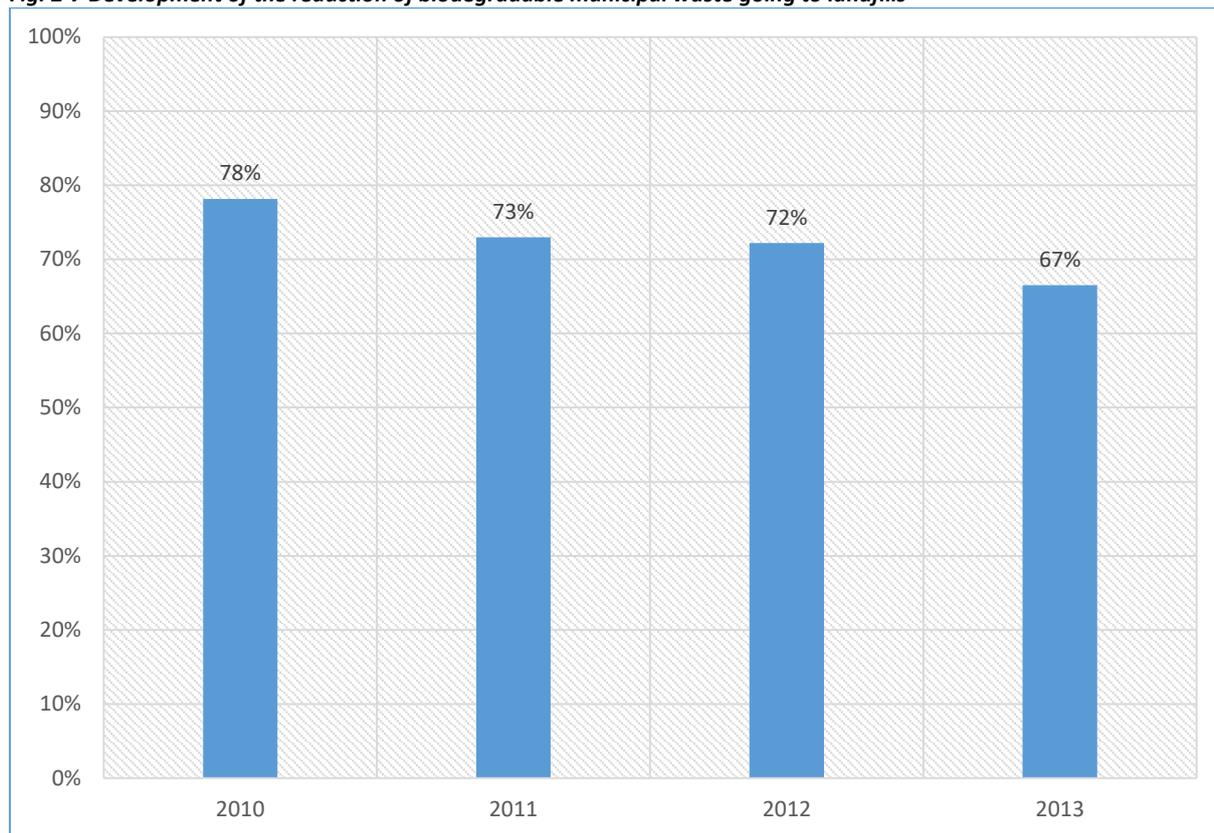
1995	Initial year and the quantity of BMW produced	944,000
Year	Objective	The quantity of BMW, which can go to landfills (in tons)
2010	75%	708,000
2013	50%	472,000
2020	35%	330,400

Source: Ministry of Environment of the Slovak Republic

The development of fulfilment of the objectives of the "Strategy for the implementation of the reduction of biodegradable waste going to landfills" is shown in Fig. 2-7. The SR does not fulfil the objectives of Directive 1999/31/EC in the area of the reduction of biodegradable waste going to landfills. According to the calculation of fulfilment of objectives, the objective for 2010 was achieved in 2011, and the objective for

2013 has not been fulfilled, the quantity of BMW disposed on landfills exceeded the obligation of the SR towards the EU by 17 %. The failure to fulfil the objectives of the Directive reflects the low level of separate collection of biodegradable municipal wastes. To fulfil the objective in 2020, the consistent intensification of separate collection of biodegradable municipal wastes will be among the main objectives of waste management.

**Fig. 2-7 Development of the reduction of biodegradable municipal waste going to landfills**



Source: Ministry of Environment of the Slovak Republic

#### 2.1.4. Biodegradable Industrial Wastes

Biodegradable wastes, which represent an important part of general waste production, need to be divided into two basic groups – municipal biodegradable wastes and the biodegradable wastes, which do not fulfil the definition of municipal wastes but they fulfil the definition of biodegradable wastes – industrial biodegradable wastes. The analysis of production and management of biodegradable municipal wastes is included in 2.1.3 Biodegradable Municipal Wastes. This part discusses only industrial biodegradable wastes without sewage sludge. Long-term

monitoring shows a decreasing trend of production of industrial biodegradable wastes. An essential drop was recorded in 2013, as a consequence of a legislative regulation, which excluded manure, straw or other natural agricultural or silvicultural material, which does not show hazardous features and is used in agriculture, silviculture or for energy generation from that material using processes or methods that neither damage the environment nor represent a threat to human health, from the Act on Wastes.

**Table 2-12 Production and management of industrial biodegradable wastes in 2010-2013 (t)**

Management	2010	2011	2012	2013
Material recovery	798,473.32	1,280,903.64	901,371.90	504,087.73

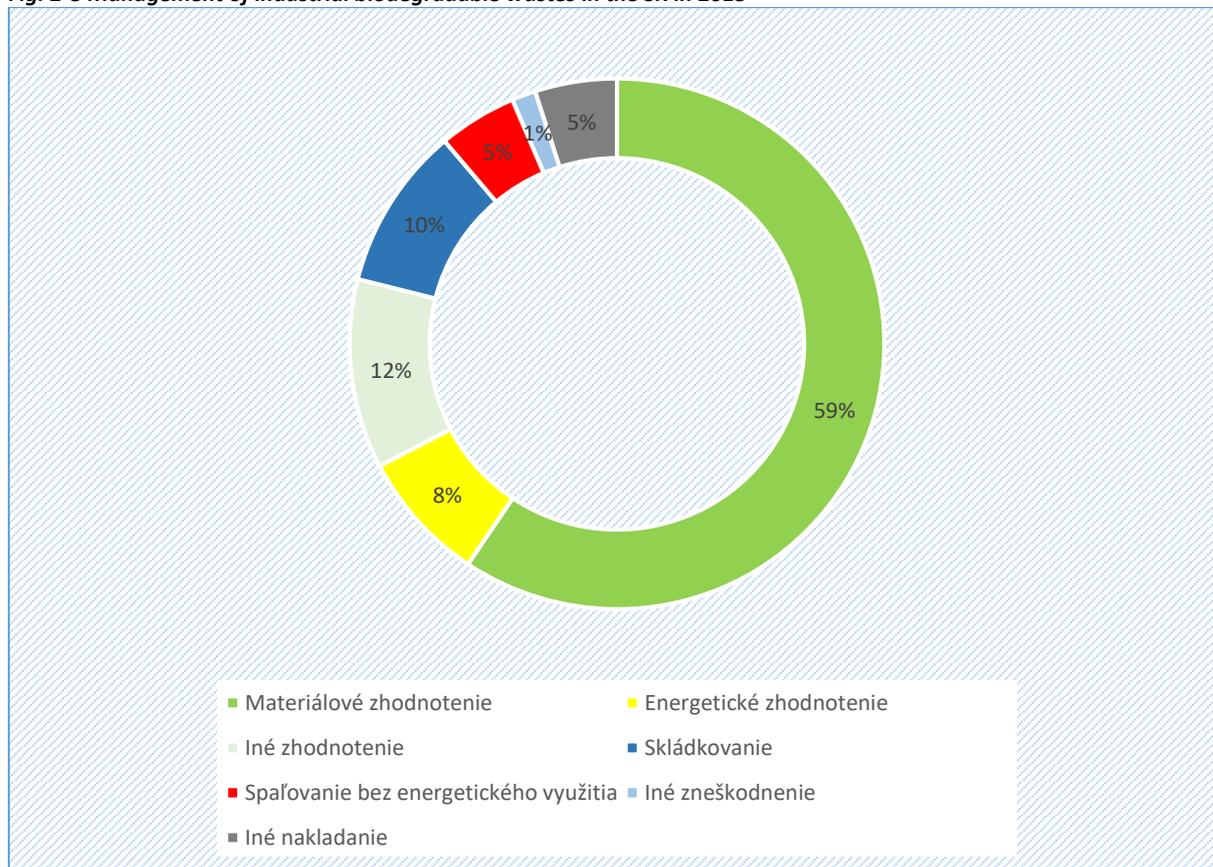
Energy recovery	67,749.54	77,067.01	61,628.41	67,806.12
Other recovery	123,861.86	137,823.89	133,200.14	97,806.42
Landfilling	45,813.51	32,411.55	85,875.16	84,206.57
Incineration without energy recovery	6,922.79	13,616.74	33,309.84	40,388.82
Other disposal	23,727.74	42,928.70	58,196.96	12,235.48
Other management	119,321.07	45,041.30	29,144.92	42,015.40
<b>Total</b>	<b>1,185,869.82</b>	<b>1,629,792.83</b>	<b>1,302,727.32</b>	<b>848,546.54</b>

Source: Ministry of Environment of the Slovak Republic

In general, management of industrial biodegradable wastes can be evaluated as satisfactory, and in comparison with municipal biodegradable wastes, as very good. In 2013, material recovery of industrial biodegradable wastes reached almost 60 %, energy recovery represented 8 % and disposal on landfills 8 %.

The trend in recovery of industrial biodegradable wastes can also be expected in the future, due to the increase in the number of facilities for their treatment, in particular biogas stations, which are able to process a wide range of types of biodegradable wastes.

Fig. 2-8 Management of industrial biodegradable wastes in the SR in 2013



Source: Ministry of Environment of the Slovak Republic

Materiálové zhodnotenie	Material recovery	Energetické zhodnotenie	Energy recovery
Iné zhodnotenie	Other recovery	Skládkovanie	Landfilling
Spaľovanie bez energetického využitia	Incineration without energy recovery	Iné zneškodnenie	Other disposal
Iné nakladanie	Other management		

### 2.1.5. Paper and Cardboard

Paper and cardboard represent a significant share in total waste production. According to several studies, the share of paper and cardboard in wastes is about 15-20 %. In order to monitor the entire stream of wastes, the paper and cardboard also include the quantities of wastes from paper and cardboard packaging as well as the quantities from separate collection of municipal wastes. On average, 240,000 tons of wastes from paper and cardboard are produced in the SR

and the trend of collected quantities is increasing. The increase in the quantities of wastes from paper and cardboard is connected with the increased level of separate collection. In 2013, the quantities of wastes from paper and cardboard from separate collection of municipal wastes reached a level of 64 thousand tons, which represents a 24-percent share in total production.

**Table 2-13 Production and management of wastes from paper and cardboard in the SR in 2010-2013 (t)**

Management	2010	2011	2012	2013
Material recovery	111,108.37	114,215.02	115,669.82	117,486.70
Energy recovery	2,049.66	1,940.33	433.89	811.16
Other recovery	107,100.57	93,316.73	122,900.89	135,817.40
Landfilling	7,938.42	7,339.35	5,807.83	9,566.10
Incineration without energy recovery	92.44	59.35	145.07	11.12
Other disposal	211.86	379.69	179.73	198.53
Other management	546.50	8,844.53	8,822.50	2,036.76
<b>Total</b>	<b>229,047.81</b>	<b>226,094.99</b>	<b>253,959.73</b>	<b>265,927.76</b>

Source: Ministry of Environment of the Slovak Republic

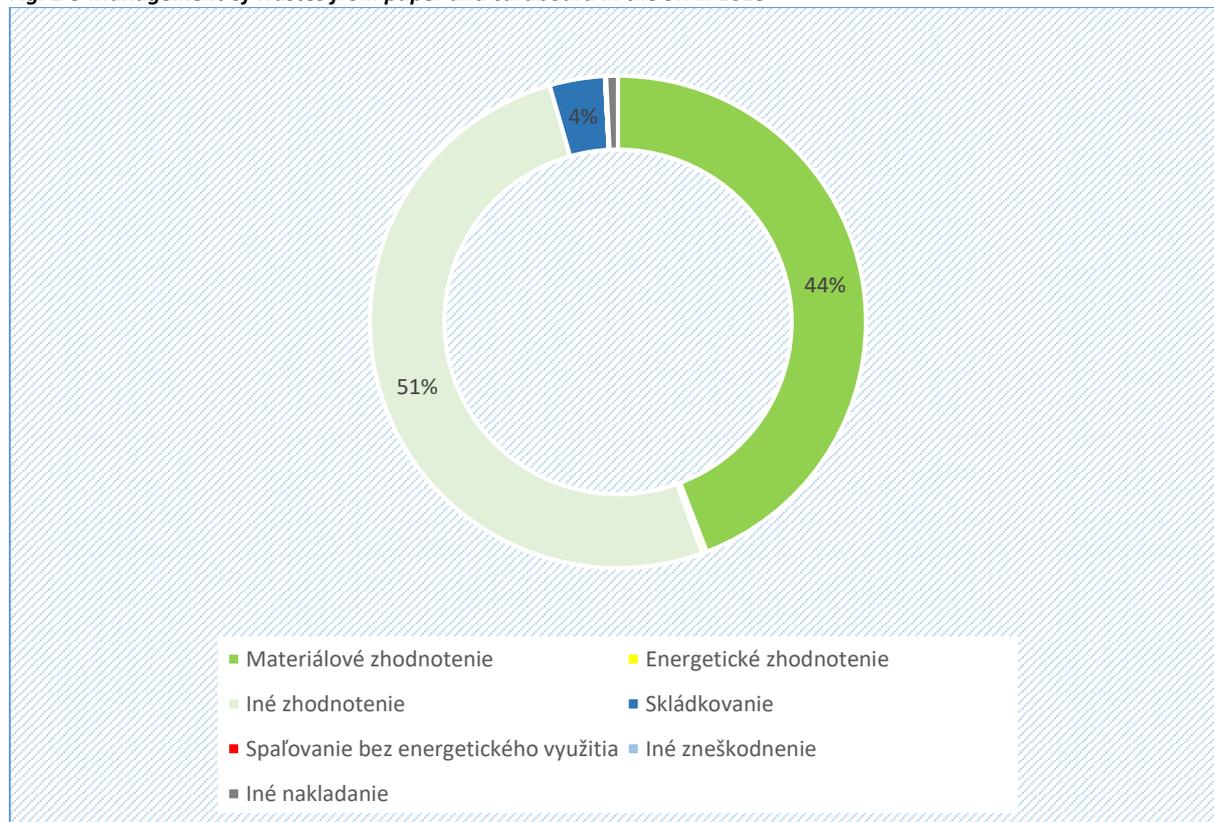
In the long term, material recovery has prevailed in the area of management of wastes from paper and cardboard. In 2013, 44 % of wastes produced from paper and cardboard were recycled. A high share of management of waste paper and cardboard

was assigned to R12 and R13 operations. These operations represent a share of 51% in overall management. The operation R12 includes all the types of waste treatment, for paper and cardboard these include in particular separation and pressing for the

purpose of further transportation and recovery. Only 4 % of wastes produced from

paper and cardboard were disposed on landfills.

**Fig. 2-9 Management of wastes from paper and cardboard in the SR in 2013**



Source: Ministry of Environment of the Slovak Republic

Materiálové zhodnotenie	Material recovery	Energetické zhodnotenie	Energy recovery
Iné zhodnotenie	Other recovery	Skládkovanie	Landfilling
Spaľovanie bez energetického využitia	Incineration without energy recovery	Iné zneškodnenie	Other disposal
Iné nakladanie	Other management		

## 2.1.6. Glass

On average, 85,000 tons of wastes from glass are produced annually in the SR. According to the data of the Statistical Office of the Slovak Republic, as much as 55% of the total quantity of wastes from glass is created by wastes from separate collection of municipal wastes. The waste type 10 11 03 "Waste glass-based fibrous materials" covers 26% of total wastes from glass. A significant difference between the data reported by waste producers within the RISO system and the data from the reports of obliged persons and

authorised organisations can be seen in the monitoring of waste glass packaging. Similarly to other commodities, an increase in the quantities of glass wastes produced can be expected with an improved efficiency of separate collection of municipal wastes in municipalities. If the separate collection of municipal wastes is more efficient and the level of separate collection of waste glass is increased by 50-70 thousand tons, the capacities for waste glass recovery in the SR will have to be reassessed.

**Table 2-14 Production and management of wastes from glass in the SR in 2010-2013 (t)**

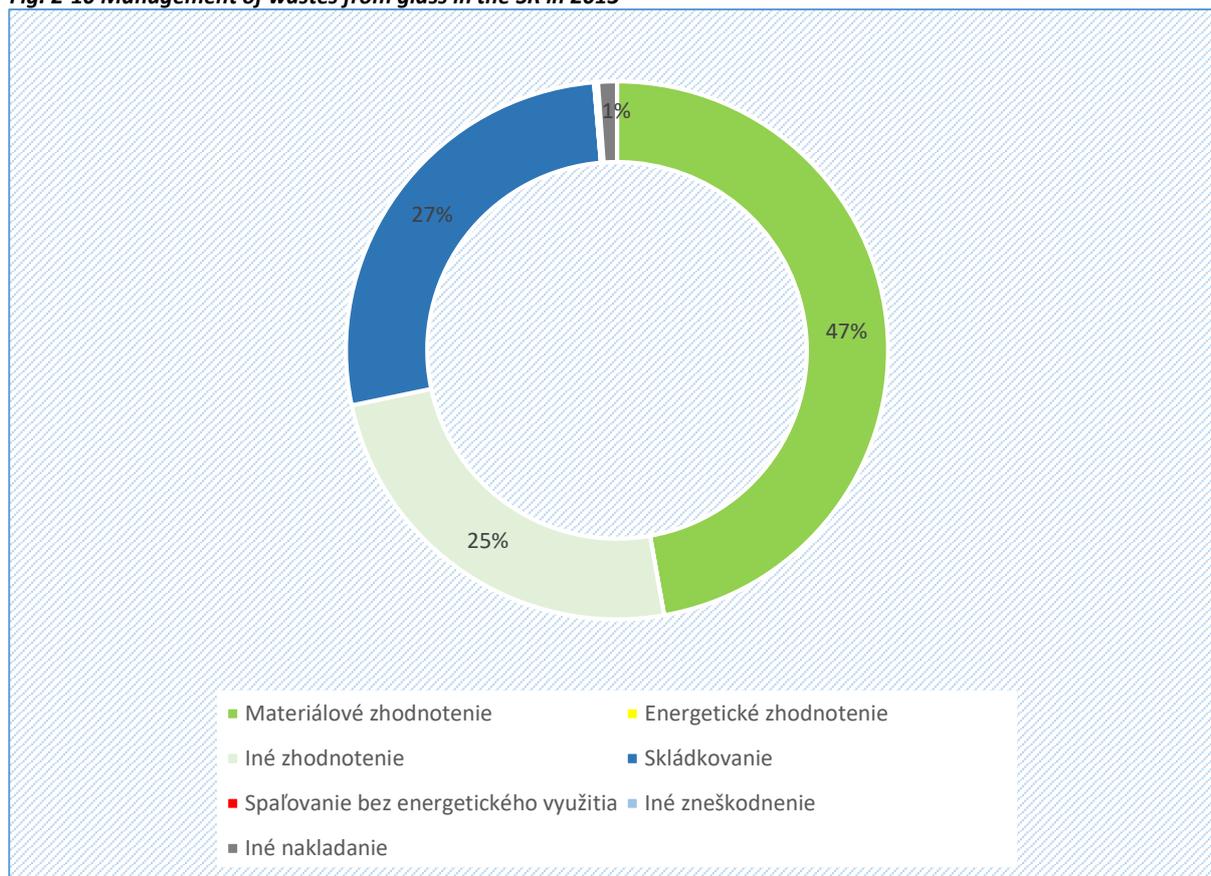
<b>Management</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Material recovery	44,063.62	48,695.51	53,606.15	41,952.11
Energy recovery	14.20	5.41	0.48	0.00
Other recovery	14,146.21	15,748.15	6,454.72	21,772.17
Landfilling	28,702.70	18,429.23	20,453.48	23,923.93
Incineration without energy recovery	2.96	9.72	0.54	0.12
Other disposal	135.49	160.01	36.31	205.89
Other management	898.36	682.04	230.50	996.38
<b>Total</b>	<b>87,963.54</b>	<b>83,730.06</b>	<b>80,782.18</b>	<b>88,850.60</b>

Source: Ministry of Environment of the Slovak Republic

In 2013, glass waste recycling reached a level of 47 %. If other recovery codes are included, the level of glass waste recovery reaches 72 %. However, there is a negative aspect - a high share of glass waste disposal on landfills, which will have to be reduced significantly in the following period. In 2013, as much as 27% of glass waste was disposed on landfills.

Currently, sufficient treatment capacities for waste glass are available in the SR. The only recycling facility in the territory of the SR is the company Vetropack, s.r.o., Nemšová. The position of this company, as the only facility for waste glass recovery in the SR, is dominant in the waste management system.

**Fig. 2-10 Management of wastes from glass in the SR in 2013**



Source: Ministry of Environment of the Slovak Republic

Materiálové zhodnotenie	Material recovery	Energetické zhodnotenie	Energy recovery
Iné zhodnotenie	Other recovery	Skládkovanie	Landfilling
Spaľovanie bez energetického využitia	Incineration without energy recovery	Iné zneškodnenie	Other disposal
Iné nakladanie	Other management		

### 2.1.7. Plastic

Similarly to paper wastes, the monitoring of plastic waste management methods include plastic packaging and plastic from separate collection of municipal wastes in the total production of plastic wastes. On average, 120,000 tons of plastic wastes are produced in the SR annually. The trend of plastic waste production is increasing. Waste type 07 02 13

represents the highest share (as much as 35 %) of plastic wastes. Packaging wastes represent 29 % of the total production of plastic wastes. Plastic wastes from the separate collection of municipal wastes represent 21% of total production of plastic wastes.

**Table 2-15 Production and management of wastes from plastic in the SR in 2010-2013 (t)**

Management	2010	2011	2012	2013
Material recovery	52,360.59	73,931.90	57,128.10	53,855.95

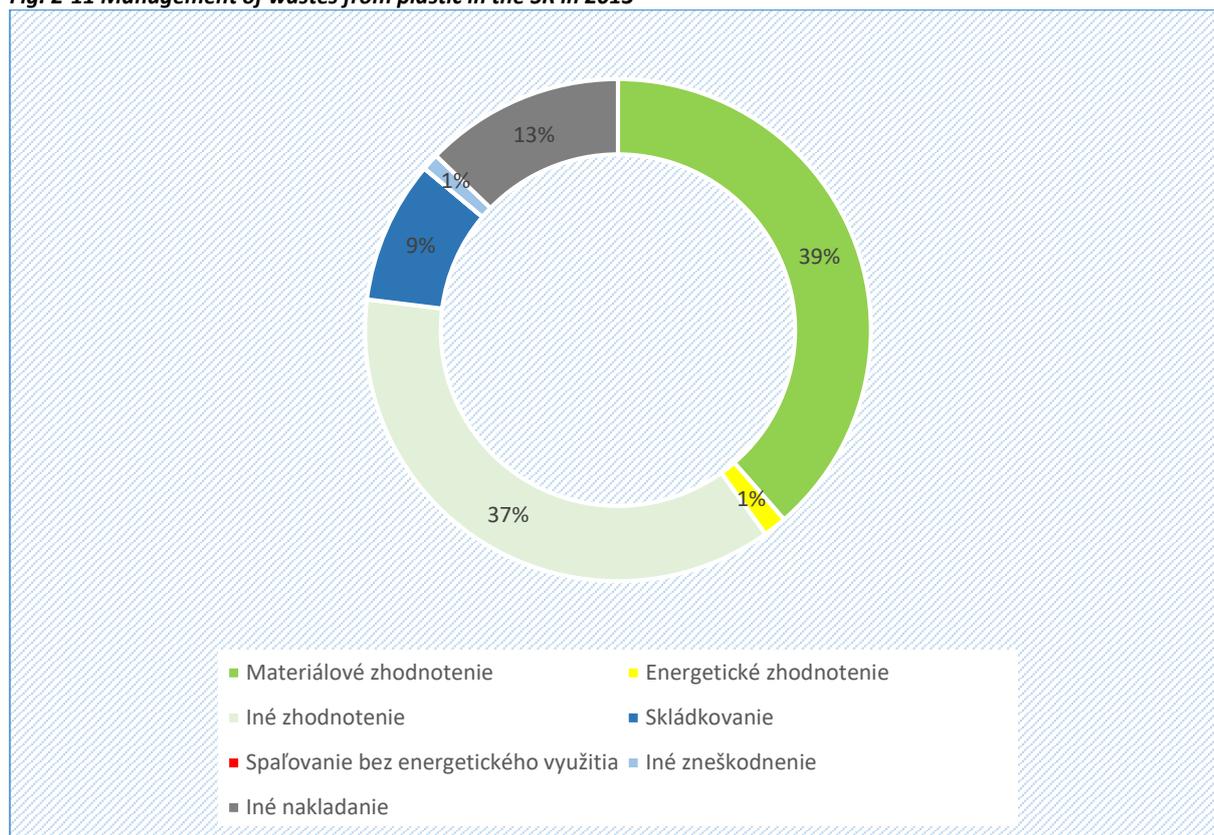
Energy recovery	2,755.91	835.84	1,010.33	2,093.58
Other recovery	26,276.65	30,730.27	31,717.87	51,418.12
Landfilling	23,728.32	13,272.75	11,086.63	12,800.78
Incineration without energy recovery	65.01	366.27	21.63	14.73
Other disposal	2,499.97	2,742.05	2,583.46	1,514.73
Other management	4,354.92	5,068.10	4,941.31	17,822.07
<b>Total</b>	<b>112,041.37</b>	<b>126,947.19</b>	<b>108,489.32</b>	<b>139,519.96</b>

Source: Ministry of Environment of the Slovak Republic

Material recovery represented the main method of plastic waste management in the SR in 2013. It took a 39-percent share in total plastic waste management. Other recovery, i.e. waste recovery through R12 and R13 operations, is the second most widespread way of plastic waste management. In 2013, plastic waste management using R12 and R13 operations was at the highest level for the monitored period and considerably

exceeded the 4-year average. The biggest quantity of plastic waste, as much as 74 thousand tons, was recycled in 2011. The annual average of material recovery of plastic waste reaches 60 thousand tons. Nine percent of plastic wastes were disposed on landfills. The overall management also includes a significant share of other plastic waste management, in particular gathering.

**Fig. 2-11 Management of wastes from plastic in the SR in 2013**



Source: Ministry of Environment of the Slovak Republic

Materiálové zhodnotenie	Material recovery	Energetické zhodnotenie	Energy recovery
Iné zhodnotenie	Other recovery	Skládkovanie	Landfilling
Spaľovanie bez energetického využitia	Incineration without energy recovery	Iné zneškodnenie	Other disposal
Iné nakladanie	Other management		

At present, several waste recovery facilities deal with recycling of plastic waste in Slovakia, from small facilities processing several dozens of tons of plastic waste annually to large facilities of national importance, processing or able to process thousands to tens of thousands of tons of plastic waste per year. The network of end-of-waste recycling facilities in the SR (R3) for plastic waste recovery can be considered overdimensioned.

Energy recovery of plastic waste is currently performed in five cement kilns. Within the framework of plastic waste recovery, first technological facilities have been constructed in the SR, which use catalytic chemical breakdown of plastic to low-molecular oily products close to crude oil fractions, which the operators of the facilities try to place on the market as fuel or as raw materials for the chemical industry.

### 2.1.8. Ferrous and Non-Ferrous Metals

With their quantity, wastes from ferrous and non-ferrous metals represent one of the most important streams of wastes. On average,

about 900 thousand tons of wastes from ferrous and non-ferrous metals are produced in the SR annually. In 2013, the biggest share

in the production of wastes from ferrous and non-ferrous metals was represented by the waste type 17 04 05 Iron and steel (24 %), the second biggest share was represented by the type 19 01 01 Iron and steel waste (21 %). The

biggest production of this waste stream was recorded in 2011, when it exceeded 1 million tons. The lowest production for the monitored period was recorded in 2013.

**Table 2-16 Production and management of wastes from ferrous and non-ferrous metals in the SR in 2010-2013 (t)**

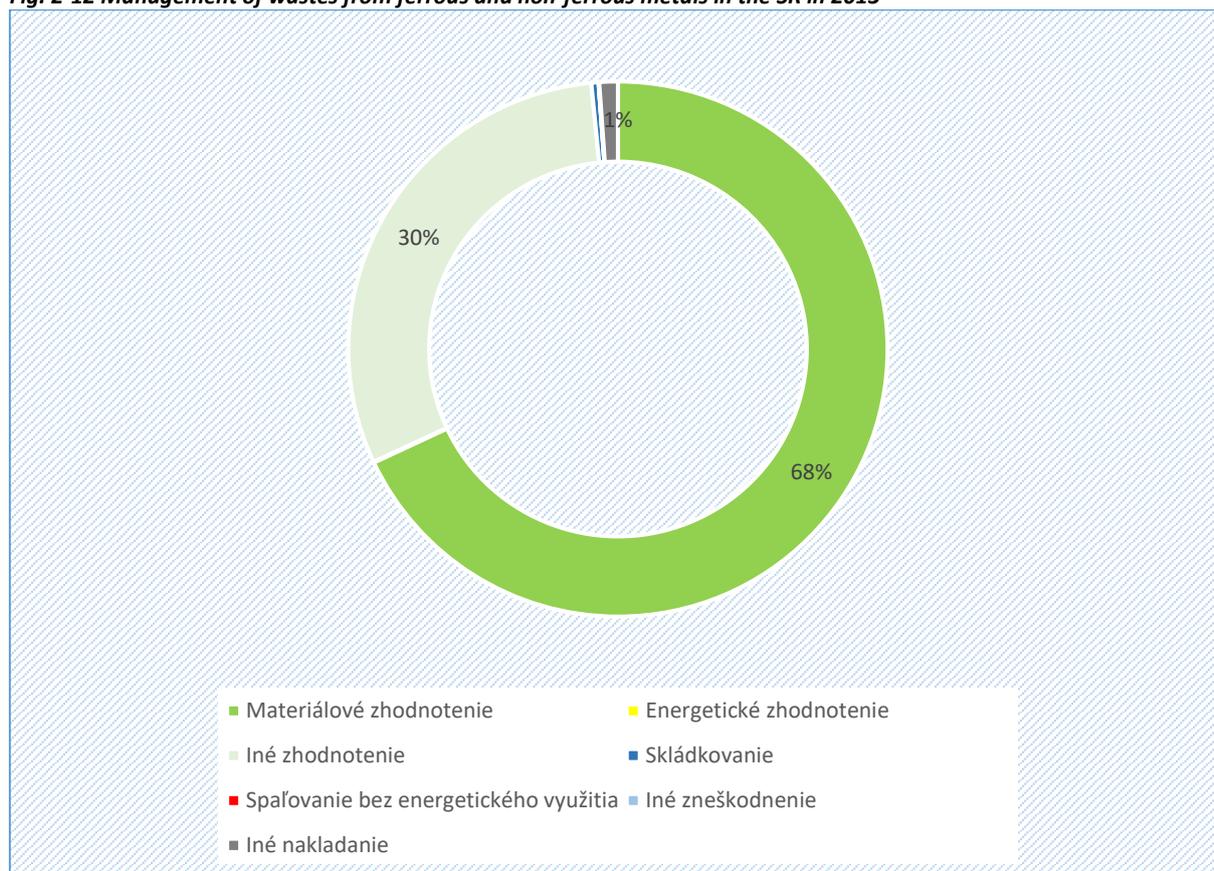
Management	2010	2011	2012	2013
Material recovery	514,965.72	685,476.51	677,245.80	509,154.10
Energy recovery	62.30	0.00	16.42	328.17
Other recovery	453,801.60	272,315.16	229,811.65	227,086.82
Landfilling	14,245.47	1,800.28	2,092.82	3,268.61
Incineration without energy recovery	5.48	1.51	1.53	1.36
Other disposal	56.55	552.55	2,077.29	260.12
Other management	13,572.08	48,046.04	44,206.10	8,337.73
<b>Total</b>	<b>996,709.21</b>	<b>1,008,192.04</b>	<b>955,451.59</b>	<b>748,436.90</b>

Source: Ministry of Environment of the Slovak Republic

With their features, wastes from ferrous and non-ferrous metals are among the very well recyclable wastes, which is also proved by the data on the ways of management of the wastes for the monitored period. In 2013, material recovery of wastes from ferrous and non-ferrous metals reached 68 %, and as much as 30 % of the waste was reported as recovered by other operations R12 and R13. It applies in particular to wastes from ferrous

and non-ferrous metals that the wastes reported as such end in the end-of-waste recycling facilities or are sold as raw materials, e.g. if they reach the end-of-waste state pursuant to Council Regulation No. 333/2011 or Commission Regulation No. 715/2013. The share of other ways of management of wastes from ferrous and non-ferrous metals in the overall management is minimal.

**Fig. 2-12 Management of wastes from ferrous and non-ferrous metals in the SR in 2013**



Source: Ministry of Environment of the Slovak Republic

Materiálové zhodnotenie	Material recovery	Energetické zhodnotenie	Energy recovery
Iné zhodnotenie	Other recovery	Skládkovanie	Landfilling
Spaľovanie bez energetického využitia	Incineration without energy recovery	Iné zneškodnenie	Other disposal
Iné nakladanie	Other management		

About 30 entities in the SR deal with recovery of wastes from ferrous and non-ferrous metals including cable waste treatment. Wastes from ferrous and non-ferrous metals

are a commodity with the densest network of collection and repurchase centres, which can be characterised as overdimensioned in many locations.

### 2.1.9. Packaging Waste

Packaging and packaging waste represent an integral part of consumer production. Production of packaging within the commodities such as glass, plastic and metals records a drop, the trend in the commodity paper and cardboard was increasing till 2012 and in 2013, a drop was recorded, too.

The quantity of recovered and recycled packaging waste has been calculated based on the data from the reports of obliged persons and authorised organisations. The most part of collected packaging waste in the commodity paper and cardboard is recovered by recycling out of the territory of the SR. The total quantity of recovered packaging waste

consists of the quantity of recycled packaging waste and of the quantity of packaging waste recovered through R1 operation (use principally as a fuel or other means to

generate energy) in waste incinerators with the use of energy or recovered in waste co-incineration facilities in the SR.

**Table 2-17 Production and management of packaging waste in the SR in 2010 - 2013**

Packaging material	2010				2011			
	The basis for the duty of collection, recovery and recycling	Recovered quantity of packaging waste	Recovery	Recycling	The basis for the duty of collection, recovery and recycling	Recovered quantity of packaging waste	Recovery	Recycling
	t	t	%	%	t	t	%	%
Glass	100,098	55,783	55.7	55.7	81,299	51,954	63.9	63.9
Plastic	105,779	48,668	46	45.3	106,624	57,248	53.7	49.9
Paper and Cardboard	152,061	80,085	52.7	50.8	177,741	145,449	81.8	80.2
Metals	37,106	16,569	44.6	40.6	26,857	18,388	68.4	58.3
Wood	41,146	6,019	14.6	8.3	50,843	15,370	30.2	26.3
Packaging material	2012				2013			
	The basis for the duty of collection, recovery and recycling	Recovered quantity of packaging waste	Recovery	Recycling	The basis for the duty of collection, recovery and recycling	Recovered quantity of packaging waste	Recovery	Recycling
	t	t	%	%	t	t	%	%
Glass	75,293	52,235	69.4	69.4	72,133	52,595	72.9	72.9
Plastic	104,551	64,006	61.2	57.0	97,784	60,334	61.7	55.1
Paper and Cardboard	184,144	157,226	85.4	84.7	182,143	147,591	81.0	79.7
Metals	23,585	16,005	67.9	67.8	22,788	15,715	69.0	68.9
Wood	52,951	21,479	40.5	36.7	60,155	28,387	47.2	36.4

Source: Ministry of Environment of the Slovak Republic

## 2.1.10. Construction and Demolition Waste

### Overall Production and Management of Construction and Demolition Waste

Construction and demolition wastes include wastes resulting from construction work, securing work, as well as the work performed during maintenance of constructions, modification of constructions or removals of constructions. As regards quantities, construction and demolition wastes represent the biggest waste stream. In 2010-2013, their

average annual production was at a level of 2.6 million tons. A more significant drop was recorded in 2012, when the production of construction wastes reached only about 1.6 million tons. The development of production and management of construction and demolition waste is shown in Table 2-18.

**Table 2-18 Production and management of construction and demolition wastes in 2010-2013 (t)**

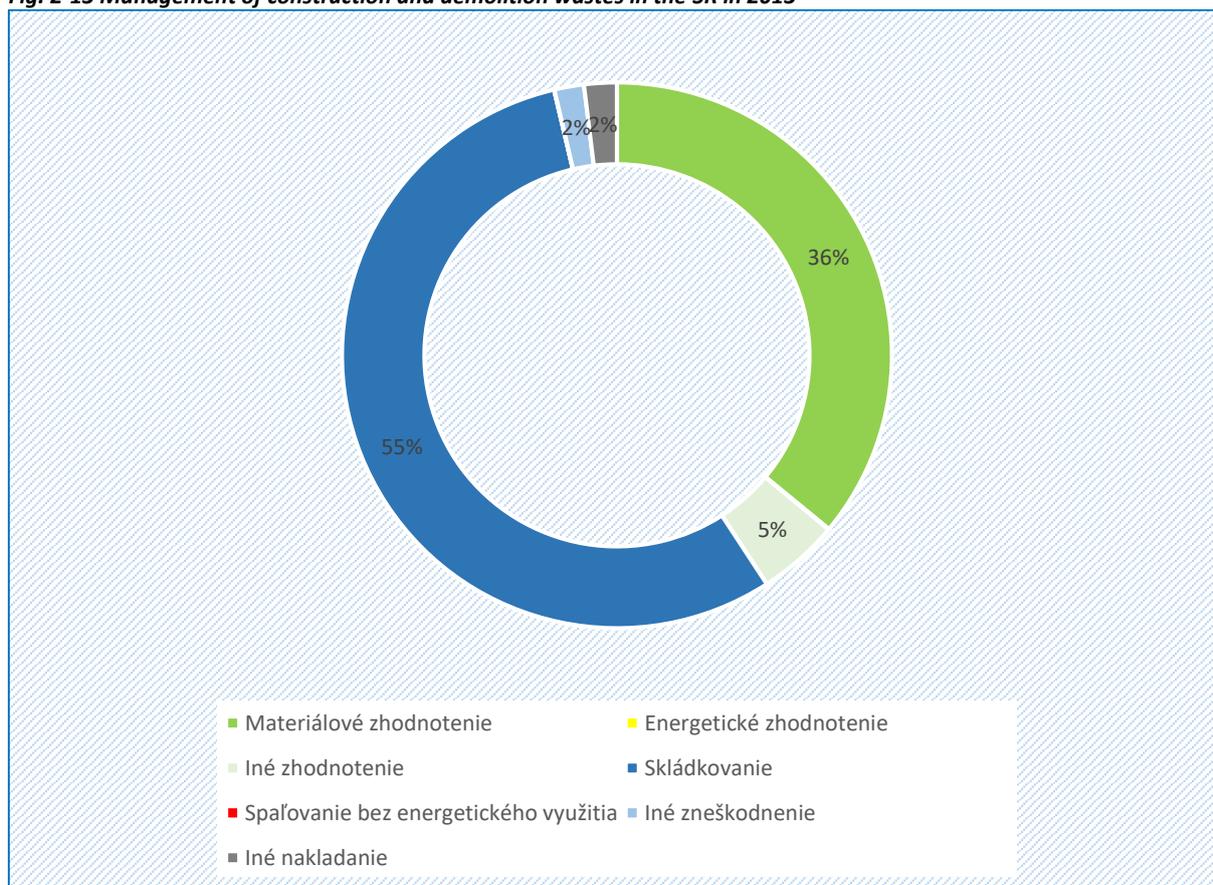
Management	2010	2011	2012	2013
Material recovery	1,633,381.51	985,795.27	714,534.88	1,059,220.51
Energy recovery	534.02	367.50	762.41	796.60
Other recovery	400,700.73	200,100.26	146,526.77	141,428.51
Landfilling	633,276.52	914,600.16	659,181.61	1,633,240.81
Incineration without energy recovery	225.46	374.53	134.64	434.08
Other disposal	60,002.70	639,163.48	60,811.83	51,142.81
Other management	155,639.98	242,924.51	35,055.35	56,594.21
<b>Total</b>	<b>2,883,760.91</b>	<b>2,983,325.71</b>	<b>1,617,007.48</b>	<b>2,942,857.51</b>

Source: Ministry of Environment of the Slovak Republic

The biggest share in construction and demolition waste production is represented by dredging spoil (17 05 06), which in 2013 accounted for 58 % of all construction waste generated. A high share (as much as 70 %) of dredging spoil was disposed on landfills in 2013. Total 55% of construction and demolition waste generated was disposed on landfills. Material recovery was applied to 36 % of construction waste produced. The

highest shares in construction waste recycling are covered by the waste types 17 01 01 Concrete, 17 04 05 Iron and steel, 17 05 04 Soil and stones other than those mentioned in 17 05 03 and the waste type 17 05 06 Dredging spoil other than those mentioned in 17 05 05. Five percent of construction waste generated were reported under other recovery codes.

**Fig. 2-13 Management of construction and demolition wastes in the SR in 2013**



Source: Ministry of Environment of the Slovak Republic

Materiálové zhodnotenie	Material recovery	Energetické zhodnotenie	Energy recovery
Iné zhodnotenie	Other recovery	Skládkovanie	Landfilling
Spaľovanie bez energetického využitia	Incineration without energy recovery	Iné zneškodnenie	Other disposal
Iné nakladanie	Other management		

### Construction Wastes and Objective of Recycling

Pursuant to Article 11 (2) (b) of the Waste Framework Directive, in order to comply with the objectives of the Directive, and move towards a European recycling society with a high level of resource efficiency, Member States shall take the necessary measures designed to achieve that by 2020, the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the list of waste is increased to a

minimum of 70 % by weight. In accordance with the EUROSTAT methodology, the entire volume of wastes produced in Group 17 - Construction and demolition waste - need to be included in the calculation of recycling objective for construction and demolition waste, except for hazardous types of construction waste, waste type 17 05 04 and 17 05 06. It must be mentioned that the current legal regulation of waste management of the SR does not contain the term "zasypávacie práce" (in English "backfilling"). It means an activity, when waste is used for terrain surface treatment, whose conditions

and requirements for performance will be regulated in new implementing legal regulations to Act No. 79/2015 Coll. on wastes and on the amendment to certain acts (hereinafter the "New Act on Wastes"). In 2010-2013, the level of construction and

demolition waste recycling has reached a level of 47 %. The highest level of recycling, 53%, was reached in 2012. The rates of construction waste recycling shown in Fig. 2-14 prove a high potential of recyclability of the majority of construction wastes.

**Fig. 2-14 Recycling rate of construction and demolition waste in the SR in 2010-2013**



Source: Ministry of Environment of the Slovak Republic

### 2.1.11. Waste Tyres

Production of waste tyres recorded a considerable increase in 2013, which caused that waste production exceeded 30 thousand tons. In 2013, production of waste tyres in the municipal waste was determined for the first

time, and 2.2 thousand tons of waste tyres were reported. The development of production and management of waste tyres is shown in Table 2-19.

**Table 2-19 Production and management of waste tyres for 2010-2013 (t)**

Management	2010	2011	2012	2013
Material recovery	5,776.85	8,361.83	6,661.29	23,450.59

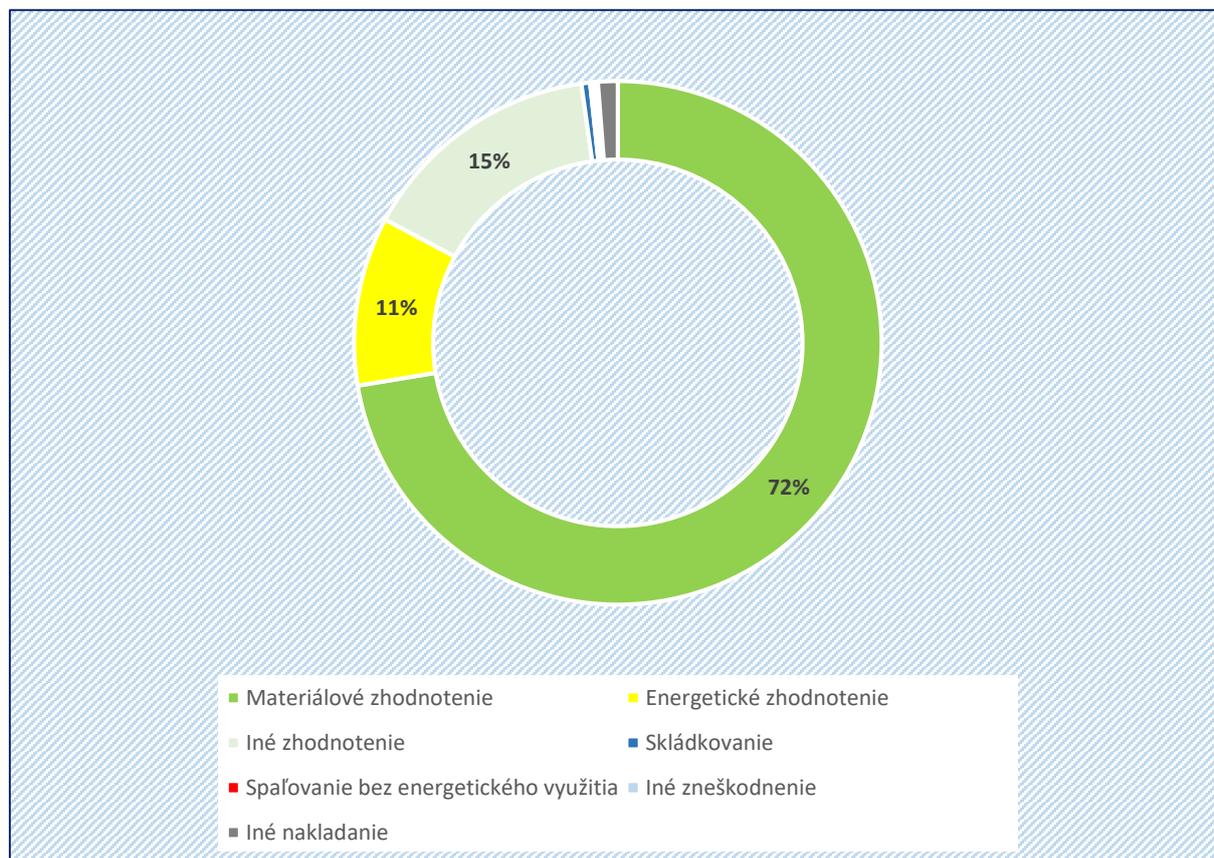
Energy recovery	1,113.54	3,839.23	2,626.43	3,375.69
Other recovery	3,045.48	3,871.57	5,136.42	4,854.74
Landfilling	91.60	0.00	100.96	171.71
Incineration without energy recovery	33.82	56.65	46.38	80.00
Other disposal	309.36	49.12	134.24	72.98
Other management	253.80	174.42	525.16	391.71
<b>Total</b>	<b>10,624.46</b>	<b>16,352.80</b>	<b>15,230.87</b>	<b>32,397.42</b>

Source: Ministry of Environment of the Slovak Republic

Material recovery has been prevailing in management of waste tyres in the long term. In 2013, the level of recycling of waste tyres reached 72 %. Energy recovery was applied to 11 % of waste tyres produced. Disposal of waste tyres on landfills is minimal. According to the Act on Wastes as well as the new Act on

Wastes, landfilling of waste tyres and shredded waste tyres is prohibited. The waste tyres that can be used as construction material in building a landfill, tyres from bicycles and tyres with an outer diameter exceeding 1,400 mm represent an exception from the above prohibition.

Fig. 2-15 Management of waste tyres in the SR in 2013



Source: Ministry of Environment of the Slovak Republic

Materiálové zhodnotenie	Material recovery	Energetické zhodnotenie	Energy recovery
Iné zhodnotenie	Other recovery	Skládkovanie	Landfilling
Spaľovanie bez energetického využitia	Incineration without energy recovery	Iné zneškodnenie	Other disposal
Iné nakladanie	Other management		

## 2.1.12. End-Of Life Vehicles

According to the Act on Wastes as well as the new Act on Wastes, vehicle means an M1 or N1 category vehicle, as well as a three-wheel motor vehicle, excluding motor tricycles. End-of life vehicle means a vehicle which is waste. The average number of treated end-of life vehicles in 2010-2013 amounted to about 36,000 pieces. The SR fulfils the binding limits and deadlines for the scope of re-use of parts of end-of life vehicles, recovery of wastes from the treatment of end-of life vehicles and

recycling of end-of life vehicles pursuant to the Government Order No.153/2004 Coll. laying down the binding limits and deadlines for the scope of re-use of parts of end-of life vehicles, recovery of wastes from the treatment of end-of life vehicles and their recycling. In 2013, the rate of re-use and recovery of end-of life vehicles reached 92.90 %, the rate of re-use and recycling of end-of life vehicles reached a level of 92.50 %.

**Table 2-20 Treatment of end-of life vehicles in the SR for 2010-2013**

Year	2010	2011	2012	2013
Number of treated end-of life vehicles (pcs)	35,174	39,171	33,469	36,858
Weight of treated end-of life vehicles (t)	27,396.29	30,340.59	26,372.94	29,678.31
Re-use and recovery of end-of life vehicles (t)	24,719.01	28,692.40	24,039.19	27,805.27
Re-use and recycling of end-of life vehicles (t)	24,215.75	28,261.79	23,711.01	27,451.13
Rate of re-use and recovery of end-of life vehicles (%)	90.23	94.57	91.15	93.67
Rate of re-use and recycling of end-of life vehicles (%)	88.39	93.15	89.91	92.50

Source: Ministry of Environment of the SR, Automotive Industry Association

End-of life vehicles are treated in the territory of the SR in 46 authorised facilities for end-of life vehicle treatment. The capacity of the current system of collection and treatment of

end-of life vehicles is sufficient, covering logistically, through collection facilities and mobile collection of end-of life vehicles, the entire territory of Slovakia.

### 2.1.13. Waste Batteries and Accumulators

Modern facilities with technologies recognised as Best Available Techniques (BAT), with treatment capacities exceeding the current needs have been constructed in the territory of the SR recently. The efficiency of the introduced system of management of waste batteries and accumulators is also confirmed by the fact that the SR reports a high rate of collection and recovery of waste batteries and accumulators and exceeds the minimum limits required by the EU.

Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC (hereinafter the "Directive on Batteries") sets for the EU Member States the goal to attain the minimum limits for the collection of portable batteries and accumulators at a level of 25 % by 26 September 2012 and 45 % by 26 September 2016. The percentage of the achieved level of collection represents the quotient of weight of collected waste batteries and accumulators divided by the total weight of batteries and accumulators placed on the market for the respective period.

Besides the above limits for collection, the Directive on Batteries imposes a duty on the EU Member States to achieve a minimum recycling efficiency for waste batteries and accumulators:

- a) 90 % by average weight of lead-acid batteries and accumulators, including recycling of the lead content to the highest degree that is technically feasible while avoiding excessive costs;
- b) 75 % by average weight of nickel-cadmium batteries and accumulators, including recycling of the cadmium content to the highest degree that is technically feasible while avoiding excessive costs;
- c) 60 % by average weight of other waste batteries and accumulators.

Recycling efficiency expressed in percentage per year represents the quotient of the mass of output fractions included in recycling of waste batteries and accumulators per calendar year divided by the mass of collected waste batteries and accumulators entering the process of recycling per calendar year. The data on the achieved level for the collection of portable batteries and accumulators and minimum recycling efficiency for waste batteries and accumulators are shown in Table 2-21. The data are taken from the Reports on the Achieved Collection Percentage for Portable Batteries and Accumulators and Reports on the Level of Recycling of Waste Batteries and Accumulators and on Achieving the Recycling Efficiency mentioned in Annex III Part B to Directive 2006/66/EC for 2011 – 2013, which were worked out by the Ministry of Environment of the SR.

**Table 2-21 Collection percentage, level of recycling and recycling efficiency in 2011 to 2013**

Type of	2011	2012	2013
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waste batteries and accumulators	Sale	Collection	Collection efficiency	Recycling efficiency	Recycling level	Sale	Collection	Collection efficiency	Recycling efficiency	Recycling level	Sale	Collection	Collection efficiency	Recycling efficiency	Recycling level
	[t]	[t]	[%]	[%]	[t]	[t]	[t]	[%]	[%]	[t]	[t]	[t]	[%]	[%]	[t]
<b>Portable</b>	980	422	45			1000	592	61			950	468	49		
<b>Lead</b>				96	4884				97	8741				93	5591
<b>Ni-Cd</b>				84	223				97	258				83	169
<b>Other</b>				98	404				90	538				89	450

Source: Ministry of Environment of the Slovak Republic

The data were collected based on qualified estimates of collective organisations, manufacturers and data reported by treatment facilities for waste batteries and accumulators. In compliance with Article 10 (1) of the Directive on Batteries, the data on collection and sale were presented only for portable batteries and accumulators.

Based on the available data it can be stated that the objectives for waste batteries and accumulators specified in compliance with the Directive on Batteries have been fulfilled. However, in evaluating the achieved results it is necessary to point out that the data on the

achieved collection percentage for 2011 to 2013 have been considerably exceeded in comparison with the limits mentioned in the Directive on Batteries. Main reasons include the insufficient transposition of the Directive on Batteries into the legal order of the SR, non-introduction of extended producer responsibility (the extended responsibility of producers of batteries and accumulators was introduced into the Act on Waste through its amendment No. 484/2013 Coll. with effect from 1 January 2014), and problems in obtaining data and subsequent verification of their correctness.

#### 2.1.14. Waste Electrical and Electronic Equipment

Waste electrical and electronic equipment (WEEE) represent a waste commodity, which is interesting in particular in terms of secondary raw materials, and it is a commodity, for which capacities to ensure efficient separate collection have been systematically constructed. The cooperation of municipalities, producers of electrical

equipment used in households associated in 18 collective organisations and the Ministry of Environment of the SR is correct and very flexible. In terms of fulfilment of the objectives set by Directive 2002/96/EC of the European Parliament and of the Council, the Ministry of Environment of the SR monitors and evaluates the fulfilment of objective of

household waste electrical and electronic equipment collection at a level of 4 kg/citizen and the fulfilment of the rate of recovery and rate of recycling for individual categories. The summary of fulfilment of these objectives is

included in Table 2-22 and Table 2-23. Household waste electrical and electronic equipment includes equipment assigned to Categories 1 - 7.

**Table 2-22 Electrical equipment placed on the market and collected in the SR for 2010-2013 (kg)**

Cat.	Name	2010		2011	
		Placed on the market	Collected total	Placed on the market	Collected total
1.	Large household appliances	25,203,886	12,325,433	24,656,042	12,458,114
2.	Small household appliances	4,766,517	1,745,202	4,988,665	1,878,156
3.	IT and telecommunications equipment	5,517,766	3,243,785	4,341,403	2,939,999
4.	Consumer equipment	6,071,630	2,544,873	4,747,936	2,962,522
5.	Lighting equipment	3,237,934	904,123	2,852,025	1,350,103
6.	Electrical and electronic tools	3,569,482	548,834	3,578,118	1,327,974
7.	Toys, leisure and sports equipment	522,378	30,793	423,177	223,320
<b>Household electrical equipment total</b>		<b>48,889,593</b>	<b>21,343,043</b>	<b>45,587,366</b>	<b>23,140,188</b>
<b>Electrical waste collected kg/citizen</b>		<b>3.93</b>		<b>4.26</b>	
8.	Medical devices	144,186	2,865	111,575	99,395
9.	Monitoring and control instruments	134,002	14,377	147,616	143,329
10.	Automatic dispensers	84,025	0	213,471	217,751
Cat.	Name	2012		2013	
		Placed on the market	Collected total	Placed on the market	Collected total
1.	Large household appliances	26,209,004	11,372,146	24,395,854	11,299,131
2.	Small household appliances	5,287,429	2,071,057	5,500,372	2,000,291
3.	IT and telecommunications equipment	4,456,980	2,834,515	4,337,170	3,628,675
4.	Consumer equipment	4,604,063	3,221,975	4,143,598	2,664,938

5.	Lighting equipment	2,632,581	1,271,159	2,872,924	1,190,683
6.	Electrical and electronic tools	3,695,179	1,154,752	3,793,582	1,211,298
7.	Toys, leisure and sports equipment	416,598	217,911	556,941	126,574
<b>Household electrical equipment total</b>		<b>47,301,834</b>	<b>22,143,515</b>	<b>45,600,441</b>	<b>22,121,590</b>
<b>Electrical waste collected kg/citizen</b>		<b>4.09</b>		<b>4.08</b>	
8.	Medical devices	149,340	144,703	149,817	149,817
9.	Monitoring and control instruments	155,145	142,289	168,459	155,132
10.	Automatic dispensers	279,867	240,091	160,990	157,081

Source: Ministry of Environment of the Slovak Republic

**Table 2-23 Rate of recovery and recycling of electrical wastes in the SR for 2010-2013**

Cat.	Name	2010		2011	
		Rate of recovery	Rate of recycling	Rate of recovery	Rate of recycling
1.	Large household appliances	87.53%	87.16%	88.96%	88.75%
2.	Small household appliances	85.20%	83.12%	87.40%	84.77%
3.	IT and telecommunications equipment	90.32%	88.63%	88.87%	87.20%
4.	Consumer equipment	89.40%	86.68%	89.49%	85.42%
5.	Lighting equipment	78.88%	74.98%	97.00%	91.00%
6.	Electrical and electronic tools	84.52%	81.00%	74.62%	71.34%
7.	Toys, leisure and sports equipment	86.89%	83.31%	86.02%	84.64%
8.	Medical devices	85.10%	84.13%	87.18%	85.85%
9.	Monitoring and control instruments	87.85%	79.51%	86.42%	84.52%
10.	Automatic dispensers	93.74%	92.31%	88.10%	86.24%
Cat.	Name	2012		2013	
		Rate of recovery	Rate of recycling	Rate of recovery	Rate of recycling
1.	Large household appliances	90.69%	89.65%	93.8 %	92.73

2.	Small household appliances	85.75%	82.53%	85.9 %	68.55
3.	IT and telecommunications equipment	89.18%	88.14%	89.9 %	89.2 %
4.	Consumer equipment	88.81%	85.96%	91.90 %	84.54 %
5.	Lighting equipment	92.00%	91.00%	91.23 %	90.61 %
6.	Electrical and electronic tools	90.39%	87.66%	81.03 %	78.01 %
7.	Toys, leisure and sports equipment	83.06%	79.87%	78.92 %	75.09 %
8.	Medical devices	85.83%	85.12%	92.10 %	91.78 %
9.	Monitoring and control instruments	88.31%	87.17%	80.15 %	78.66 %
10.	Automatic dispensers	91.41%	90.51%	93.48 %	92.67 %

Source: Ministry of Environment of the Slovak Republic

Since 2011, the SR has been fulfilling the objective of WEEE collection from households 4 kg/citizen. As it can be seen in Table 2-22, with respect to the fact that the number of inhabitants does not change considerably, the annual objective of collection for the SR amounts to about 22,000,000 kg of WEEE from households, which is fulfilled by the producers of EEE associated in collective organisations according to their market share. Household EEE producers fulfil their duties through 18 collective organisations.

All the collected WEEE is treated in the SR, and since 2013 also in treatment facilities out of the SR. In assessing the applications for cross-border transportation of wastes from the territory of the SR to other MS and applications for export from the territory of the SR to other MS, the Ministry of

Environment of the SR assesses in particular the observance of the specified rate of recovery and rate of recycling. In the treatment facilities operated in the SR, the achieved rate of recovery and rate of recycling is higher than the set indicators pursuant to Government Order of the SR No. 206/2010 Coll. and pursuant to information from the European Commission, they are higher than the EU average. Pursuant to the Act on Wastes and pursuant to the objectives of Directive 2002/96/EC of the European Parliament and of the Council, the Ministry of Environment of the SR does not collect the data of treatment facilities, they are checked directly by EEE producers in accordance with the principles of extended producer responsibility.

### 2.1.15. Waste Oils

Pursuant to the Act on Wastes and the new Act on Wastes, waste oils mean all the mineral lubricating oils, synthetic lubricating oils or industrial oils, which are not suitable for the originally intended use anymore, in particular

the used lubricating oils from combustion engines, transmission oils, lubricating oils, oils for turbines and hydraulic oils. The average production of waste oils varies around 12.7 thousand tons per year. In 2013, 16 thousand

tons of waste oils were produced in the SR, years. which is the highest quantity in the last four

**Table 2-24 Production and management of waste oils in 2010-2013 (t)**

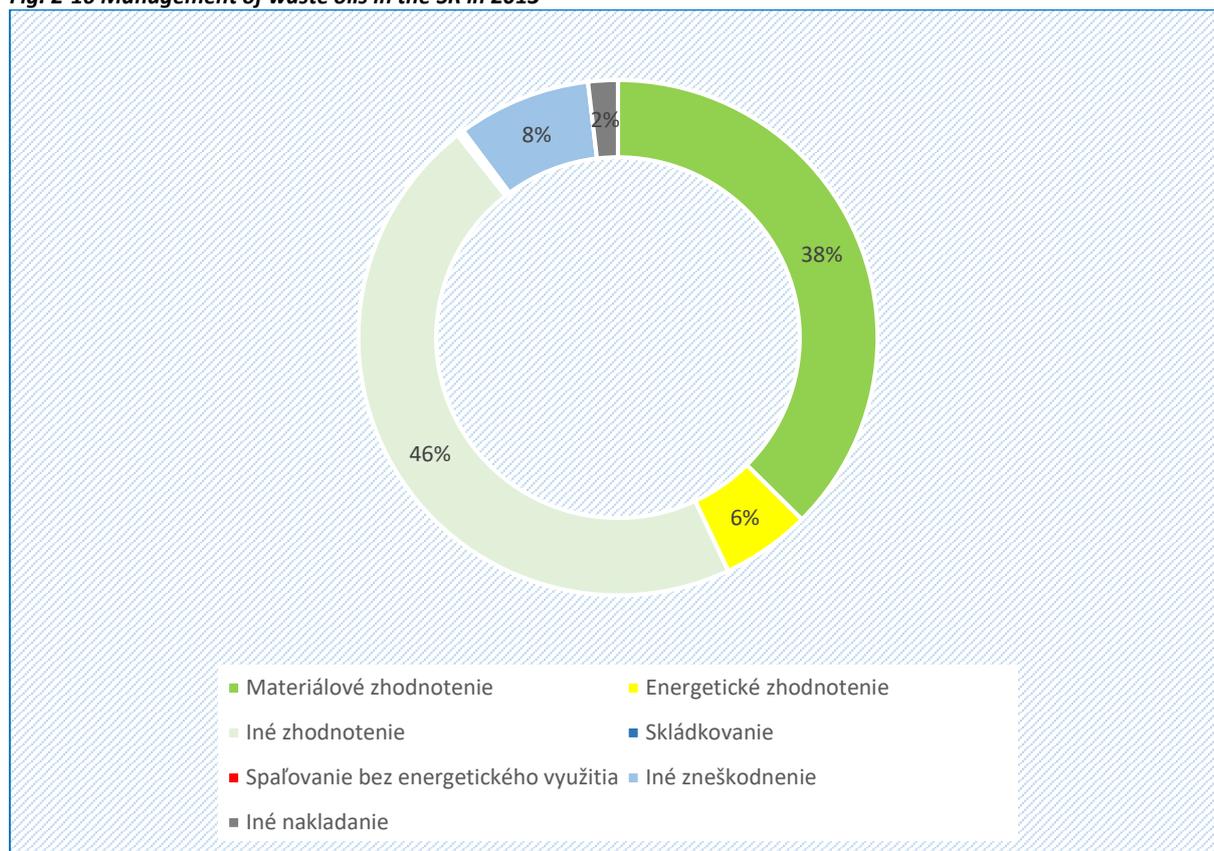
Management	2010	2011	2012	2013
Material recovery	3,536.68	4,535.46	3,774.25	6,025.61
Energy recovery	490.56	780.98	1,768.87	892.97
Other recovery	4,601.26	4,452.65	4,907.46	7,456.44
Landfilling	152.56	157.17	168.08	32.28
Incineration without energy recovery	316.47	78.15	23.23	39.33
Other disposal	779.20	1,269.33	1,567.62	1,337.19
Other management	105.57	1,175.64	112.10	296.98
<b>Total</b>	<b>9,982.30</b>	<b>12,449.39</b>	<b>12,321.59</b>	<b>16,080.81</b>

Source: Ministry of Environment of the Slovak Republic

Material recovery of waste oils is the activity representing an important share in management of waste oils. This fact results from the sufficient treatment capacities for material recovery of waste oils. Despite that, the rate of recycling of waste oils is insufficient. In 2013, 38% of waste oils were material-recovered. Other recovery, represented by R12 and R13 codes of

management, represents a high share in management of waste oils. The activity R13 covered as much as 4.7 thousand tons of waste oils, which is the highest quantity for the monitored period. Energy recovery was applied to 6 % of waste oils produced. The share of waste oils disposed on landfills did not exceed 1% in 2013.

**Fig. 2-16 Management of waste oils in the SR in 2013**



Source: Ministry of Environment of the Slovak Republic

Materiálové zhodnotenie	Material recovery	Energetické zhodnotenie	Energy recovery
Iné zhodnotenie	Other recovery	Skládkovanie	Landfilling
Spaľovanie bez energetického využitia	Incineration without energy recovery	Iné zneškodnenie	Other disposal
Iné nakladanie	Other management		

## 2.1.16. Polychlorinated Biphenyls and Equipment Containing Polychlorinated Biphenyls

Pursuant to the Act on Wastes, until 31 December 2013, the stock-taking of equipment containing polychlorinated biphenyls (PCB) was performed by the Slovak Environment Agency, Waste Management and Environmental Management Centre. The stock-taking represents the result from reporting of PCB containing equipment holders. From the beginning of stock-taking in 2001 to the end of 2013, 306 holders

registered themselves in the list and the total number of reported pieces of PCB containing equipment amounted to 49,420. At the end of 2013, the information system of PCB containing equipment still included 4,833 pieces of equipment, whose holders had failed to fulfil the PCB containing equipment holder's duty in accordance with the above act to decontaminate or dispose the equipment no later than by 31 December 2010.

**Table 2-25 Results of stock-taking of contaminated equipment in the information system IS – KZ from the beginning of stock-taking to the end of individual years**

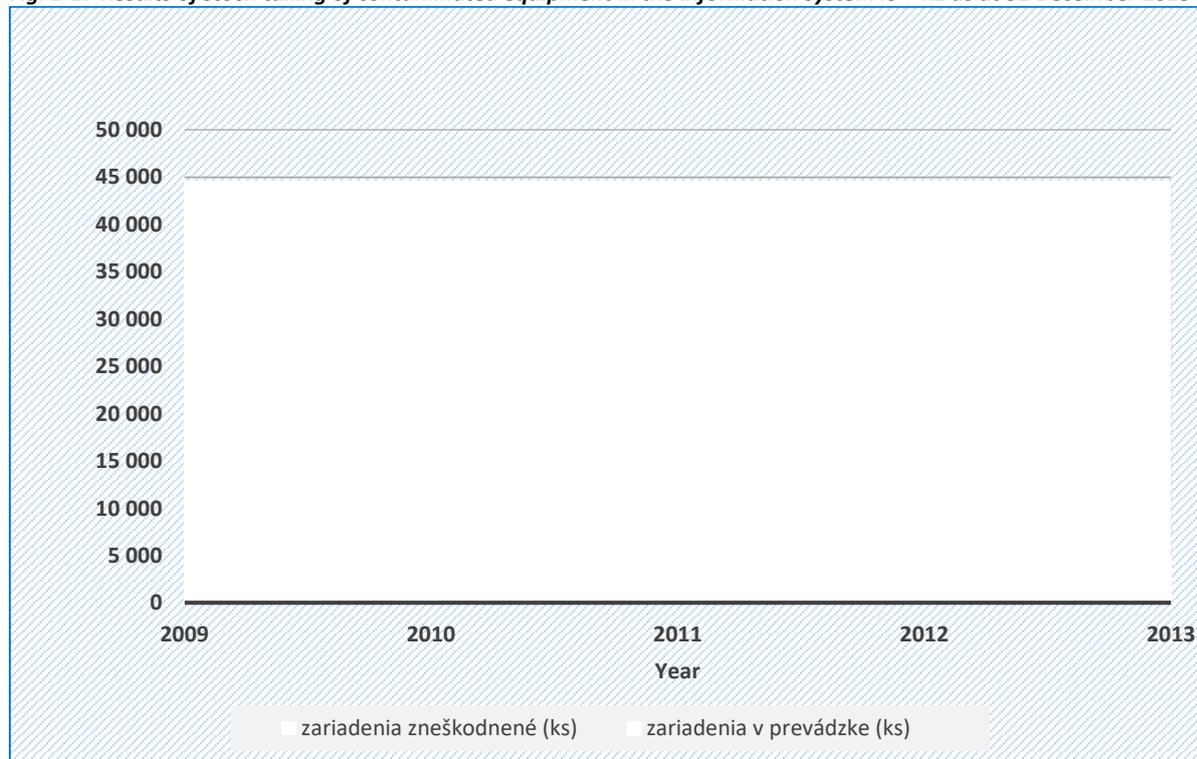
Year	2009	2010	2011	2012	2013
total number of reported equipment (pcs)	48,758	49,149	49,174	49,197	49,420
equipment in operation (pcs)	16,993	8,344	6,049	5,522	4,833
equipment disposed (pcs)	31,765	40,805	43,125	43,675	44,587

Source: Ministry of Environment of the Slovak Republic

The results of stock-taking as at 31 December 2013 show that the information system of PCB containing equipment still includes records of 10 % of the total quantity of reported PCB containing equipment . Although many of them contain a volume of PCB lower than 5 dm<sup>3</sup>, pursuant to Council Directive 96/59/EC of 16 September 1996 on the disposal of

polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT), in the case of power capacitors, the threshold of 5 dm<sup>3</sup> shall be understood as including all the separate elements of a combined set. The holders of the equipment act in conflict with n'both national and European legislation.

**Fig. 2-17 Results of stock-taking of contaminated equipment in the information system IS – KZ as at 31 December 2013**



Source: Ministry of Environment of the Slovak Republic

Year	Rok		
zariadenia zneškodnené (ks)	disposed equipment (pcs)	zariadenia v prevádzke (ks)	equipment in operation (pcs)

## 2.2. Landfills of Waste

In accordance with Council Directive 1999/31/EC of on the landfill of waste, which was transposed to the legal order of the SR by the Act on Wastes and by Regulation No. 310/2013 Coll. implementing certain provisions of the Act on Wastes, landfills of waste are divided into three classes:

- landfills for inert waste
- landfills for non-hazardous waste

- landfills for hazardous waste

In 2013, 124 landfills were in operation in the SR. Most of landfills are assigned to the class covering the landfills for non-hazardous waste, including the landfills for municipal wastes. In 2013, 95 landfills of this class were in operation. In terms of regional needs the Žilina region must be pointed out, where there are no capacities for hazardous waste landfilling.

**Table 2-26 Number of landfills of waste in operation in the SR in 2013**

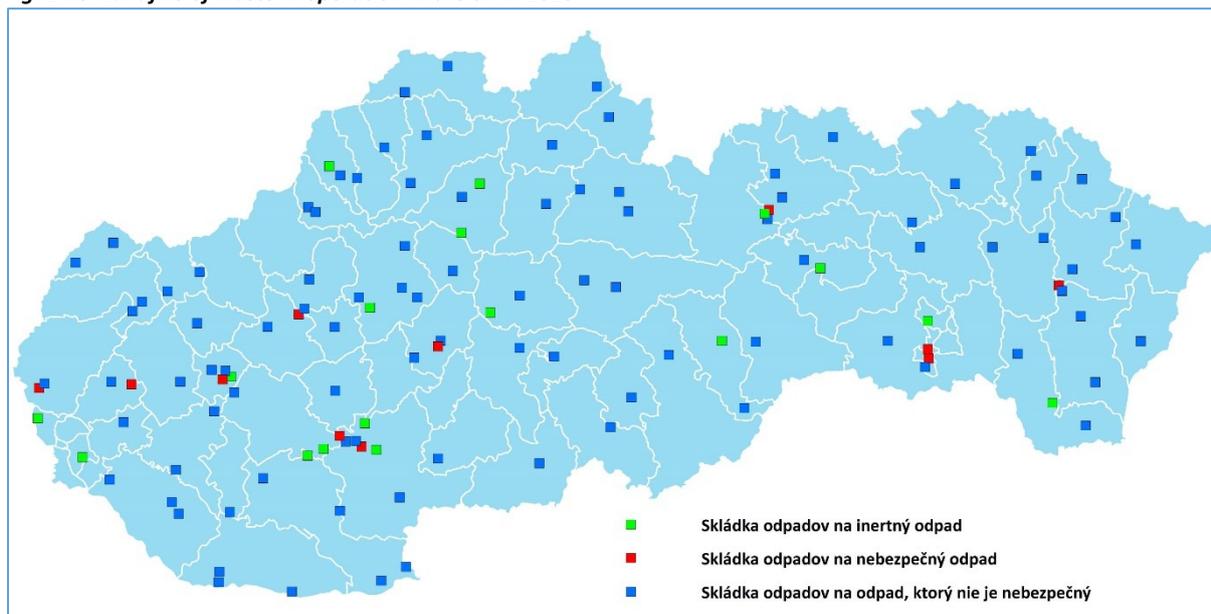
Region	Landfill for inert waste	Landfill for non-hazardous waste	Landfill for hazardous waste	Total number of landfills
Bratislava	2	3	2	7
Trnava	1	13	1	15
Trenčín	2	13	1	16
Nitra	4	14	2	20
Žilina	2	14	0	16
Banská Bystrica	2	13	1	16
Prešov	1	15	1	17
Košice	4	10	3	17
<b>Total</b>	<b>18</b>	<b>95</b>	<b>11</b>	<b>124</b>

Source: Ministry of Environment of the Slovak Republic

Recently, a gradual decrease in the number of landfills of waste has been recorded, which is connected both with the building and technical requirements for the construction of landfills of waste, which many of the landfills

did not meet and had to be closed, and with the filling of the capacity of the landfills in operation. Layout of the landfills in operation of waste is shown in Fig. 2-18.

**Fig. 2-18 Landfills of waste in operation in the SR in 2013**



Source: Ministry of Environment of the Slovak Republic

Skládka odpadov na inertný odpad	Inert waste landfill	Skládka odpadov na odpad, ktorý nie je nebezpečný	Non-hazardous waste landfill
Skládka odpadov na nebezpečný odpad	Hazardous waste landfill		

The vacant capacities of landfills of waste as at the end of 2013 are based on the landfill registration sheets, where the operators generally fill in the vacant capacity of the cell in operation or landfill stage.

Therefore, the total vacant capacity of landfills of waste is usually several times higher than the data of operators of landfills of waste included in landfill registration sheets

depending on the degree of landfill licensing in accordance with Act No. 24/2006 Coll. on environmental impact assessment and on the amendment to certain acts as amended, the Act on Wastes, the new Act on Wastes or Act No. 39/2013 Coll. on integrated environmental pollution prevention and control and on the amendment to certain acts.

**Table 2-27 Vacant capacities of landfills of waste as at 31 December 2013**

Region	Landfill for inert waste	Landfill for non-hazardous waste	Landfill for hazardous waste	Total capacity m <sup>3</sup>
Bratislava	47,639	595,170	86,587	729,396
Trnava	16,589	2,067,012	2,554	2,086,155
Trenčín	2,655,560	1,176,194	127,810	3,959,564
Nitra	330,778	645,362	26,282	1,002,422
Žilina	7,970	1,191,608	0	1,199,578
Banská Bystrica	179,556	1,134,455	101,412	1,415,423
Prešov	36,991	680,237	25,425	717,228

Košice	385,998	9,250,502	129,613	9,766,112
<b>Total capacity m<sup>3</sup></b>	<b>3,661,081</b>	<b>16,740,540</b>	<b>499,682</b>	<b>20,875,879</b>

Source: Ministry of Environment of the Slovak Republic

## 2.3. Waste Incinerators

In 2013, a total number of 13 waste incinerators were in operation in the SR. The number of incineration facilities in operation is affected in particular by fulfilling the strict conditions for air protection specified by Act No. 137/2010 Coll. on air as amended. In terms of waste incinerator categorisation, two incinerators are intended for municipal waste incineration. These include OLO, a.s. Bratislava and KOSIT, a.s. Košice, which also use the energy generated as a source of heat while

fulfilling the condition of energy efficiency pursuant to Article 21 (9) of the Act on Wastes and they are considered facilities for energy recovery of wastes with the code of management R1. Five waste incinerators serve to incinerate hazardous industrial waste: SLOVNAFT, a.s. Bratislava, Duslo a.s. Šaľa, A.S.A. Slovensko, s.r.o., odštepny závod Žilina, Archív SB, s.r.o. Liptovský Mikuláš, FECUPRAL s.r.o., Prešov.

**Table 2-28 List of waste incinerators in operation in the SR in 2013**

Region	District	Operator	Facility capacity (t)	Quantity of wastes incinerated in 2013 (t)
<b>Municipal waste incinerators</b>				
Bratislava	Bratislava	Odvoz a likvidácia odpadu a.s.	163,500	119,502
Košice	Košice	KOSIT a.s.	75,000	66,208
<b>Industrial waste incinerators</b>				
Bratislava	Bratislava	SLOVNAFT, a.s.	28,500	12,512
Nitra	Šaľa	DUSLO, a.s.	10,000	4,844
Žilina	Kysucké Nové Mesto	.A.S.A. Slovensko spol. s r.o.	1,500	1,348
Žilina	Liptovský Mikuláš	Archív SB, s.r.o.	900	692
Prešov	Prešov	FECUPRAL s.r.o.	950	388
<b>Hospital waste incinerators</b>				
Trenčín	Trenčín	University Hospital Trenčín	280	266
Trenčín	Prievidza	Hospital with an Outpatient Clinic Prievidza, with the seat in Bojnice	300	96
Trenčín	Myjava	Hospital with an Outpatient Clinic Myjava	150	11

Žilina	Čadca	Kysuce Hospital with an Outpatient Clinic	336	66
Žilina	Martin	Martin University Hospital	858	219
Rendered fat incinerators				
Žilina	Žilina	VAS s.r.o.	-	0

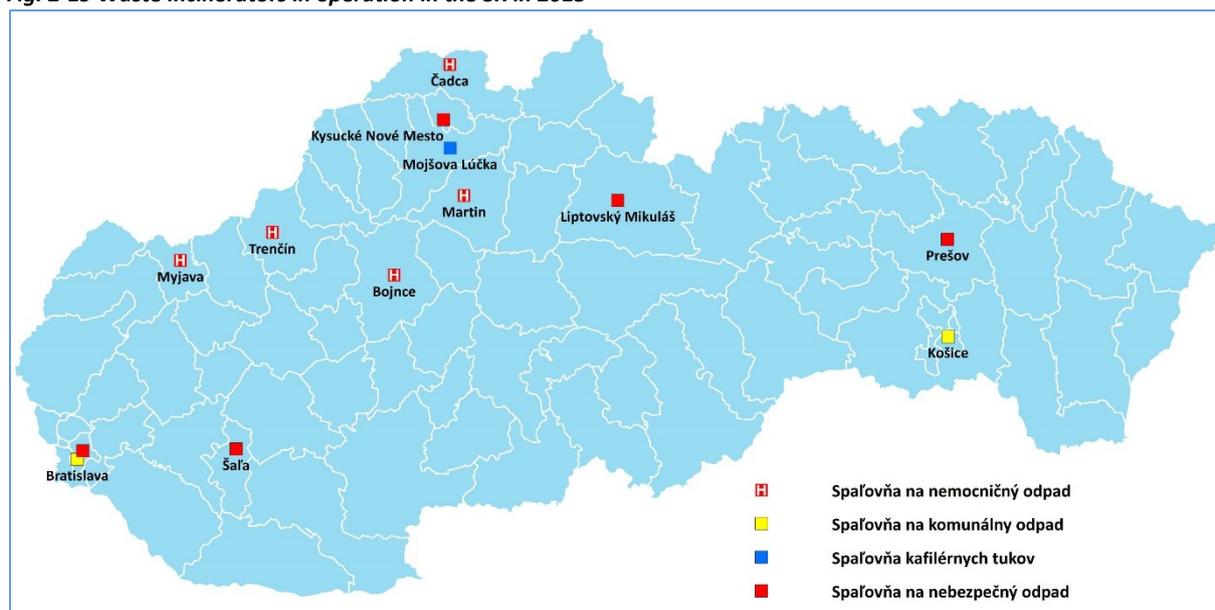
Source: Ministry of Environment of the Slovak Republic

Five hospital waste incinerators were available for the waste from healthcare facilities in 2013: University Hospital Trenčín, Hospital with an Outpatient Clinic Prievidza, with the seat in Bojnice, Hospital with an Outpatient Clinic Myjava, Kysuce Hospital with an Outpatient Clinic Čadca and Martin University Hospital.

The operation of the company VAS s.r.o. is a specific incineration facility, as it is the only

rendering facility in Slovakia, which treats all animal by-products, Category 1, 2, and 3 material in accordance with Regulation (EC) No. 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002.

Fig. 2-19 Waste incinerators in operation in the SR in 2013



Source: Ministry of Environment of the Slovak Republic

Spaľovňa na nemocničný odpad	Hospital waste incinerator	Spaľovňa kafilérnych tukov	Rendering fat incinerator
Spaľovňa na komunálny odpad	Municipal waste incinerator	Spaľovňa na nebezpečný odpad	Hazardous waste incinerator

## 2.4. Waste Co-Incineration Facilities

Waste co-incineration is used in four companies: Holcim (Slovensko), CEMMAC a.s., Považská cementáreň a.s. Ladce and

Carmeuse Slovakia s.r.o. There are five waste co-incineration facilities in total, as the company Holcim (Slovensko), a.s. operates

two facilities, at Rohožník and at Turňa nad Bodvou. Three properties of wastes are used in co-incineration – energy content of wastes, content of metals that improve the properties of the end product, and ash content, which results in material recovery of wastes and environmental protection by

decreasing the extraction of natural raw material and reducing the emissions of greenhouse gases CO<sub>2</sub>. Co-incineration of wastes in cement kilns is a waste-free technology, which must meet strict emission limits in terms of air protection.

**Table 2-29 List of waste co-incineration facilities in operation in the SR in 2013**

Region	District	Operator	Facility capacity (t)	Quantity of wastes incinerated in 2013 (t)
Bratislava	Malacky	Holcim (Slovensko), a.s.	198,000	147,840
Trenčín	Trenčín	CEMMAC, a.s.	26,900	22,356
Trenčín	Ilava	Považská cementáreň, a.s. Ladce	400,000	30,059
Košice	Rožňava	Carmeuse Slovakia s.r.o.	63,072	13,194
Košice	Košice - okolie	Holcim (Slovensko), a.s.	345,912	25,255

Source: Ministry of Environment of the Slovak Republic

An adequate infrastructure of facilities producing alternative solid fuels, preferably from wastes produced in the territory of the SR, which will be intended for co-incineration in accordance with the EU legislation,

represents a prerequisite for waste use in the co-incineration process. In this area, no adequate treatment capacities are in operation in the SR and most part of wastes for that purpose is imported from abroad.

## 2.5. Transboundary Movements of Wastes

With respect to its international character, transboundary shipments of wastes, import of wastes, export of wastes and transit of wastes (hereinafter the "transboundary movements of wastes") is based on uniform rules that facilitate an optimum supervision and control of individual shipments focusing on the protection of the environment, health of people and living organisms. In 2010 to 2013, the transboundary movements of wastes were regulated by both national and international legislation.

### Legal regulations of the European Community

On 1 May 2004, the SR became EU member and since then, all EU regulations have applied to it directly. For the area of transboundary movements of wastes, initially this included Council Regulation (EEC) No 259/93 of 1 February 1993 on the supervision and control of shipments of waste within, into and out of the European Community as amended. Since 12 July 2007, new Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of

waste (hereinafter "Regulation No. 1013/2006") has been in force, including Commission Regulation (EC) No. 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) No. 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD Decision on the control of transboundary movements of wastes does not apply. The above regulations have been binding on and directly applicable to all EU Member States since the date of their accession to the EU without the need of their transposition into national legislation.

### **Basel Convention**

The Basel Convention on the control of transboundary movements of hazardous wastes and their disposal was signed in Basel on 22 March 1989. The instrument of the accession of the Czech and Slovak Federal Republic to the Convention was deposited with the Secretary General of the United Nations on 24 July 1991. The Convention came into force for the Czech and Slovak Federal Republic on 5 May 1992. Notification of succession of the SR to the Convention took place on 28 May 1993, with effect from 1 January 1993.

The contact points ensuring the duties resulting from the membership of the SR in the Basel Convention include the Ministry of Environment of the SR, Department of Waste Management, which performs the function of Competent Authority, and the Slovak Environment Agency, Waste Management and Environmental Management Centre, which fulfilled the function of Focal Point till 31 December 2013. The Ministry of Environment of the SR has been fulfilling the function of both Competent Authority and Focal Point since 1 January 2014.

The Basel Convention regulates the rules of shipment of hazardous wastes in order to achieve the minimising of movements of wastes in compliance with the principle that each State has to ensure in its territory the disposal of hazardous wastes produced in it. Hazardous waste import, export and transit is only possible with the consent of all countries concerned, and each MS has the right to fully ban the import of hazardous wastes to its territory.

### **Accession Treaty**

Pursuant to Treaty of SR Accession to the EU, as well as in compliance with Article 63 (3) of Regulation No. 1013/2006, until 31 December 2011, all shipments to Slovakia of waste for recovery listed in Annexes III and IV and shipments of waste for recovery not listed in those Annexes shall be subject to the procedure of prior written notification and consent. By way of derogation from Article 12 of this Regulation, the competent authorities shall object to shipments of waste for recovery listed in Annexes III and IV and shipments of waste for recovery not listed in those Annexes destined for a facility benefiting from a temporary derogation from certain provisions of Directives 94/67/EC and 96/61/EC, Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste, and Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants during the period in which the temporary derogation is applied to the facility of destination.

### **National legislation**

The Act on Wastes as well as the new Act on Wastes regulate certain specifics resulting from Regulation No. 1013/2006 to Member States, which need to be regulated by a

national legal regulation. The Act on Wastes as well as the new Act on Wastes regulate in particular the details regarding the designation of a competent authority for the transboundary movements of wastes, designation of a correspondent, limitations and prohibitions regarding the transboundary movements of wastes, as well as the conditions and method of establishment of a financial guarantee. Further, in terms of the transboundary movements of wastes, the Act on Wastes as well as the new Act on Wastes regulate the competences of control authorities, sanctions and requirements from practice regarding a better performance of transboundary movements of wastes.

In the monitored period, the decisions issued for the transboundary movements of wastes depended on the treatment capacities as well as on the validity of transitional measures, which resulted from the accession treaties of individual Member States of the EU. The number of issued decisions for the transboundary shipment of wastes from other EU MS to the territory of the SR and import of wastes from a non-EU MS to the territory of the SR in 2010 and 2011 considerably exceeded the number of decisions issued for the transboundary shipment of wastes from the territory of the SR to other EU MS and export of wastes from the territory of the SR to a non-EU MS. The above difference was caused due to the validity of a transitional period for the SR until 31 December 2011, subsequently, after the end of the transitional period for the SR, the numbers of the issued decisions for individual shipments evened out. Table 2-30 shows the number of issued decisions for the transboundary shipment of wastes in 2010 to 2013.

**Table 2-30 Number of issued decisions for the transboundary shipment of wastes in 2010 to 2013**

Year	Import	Re-import	Export	Transit
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2010	131		26	19
2011	112	1	33	29
2012	42		36	35
2013	49		38	48

*Source: Ministry of Environment of the Slovak Republic*

The really transported quantities of wastes executed on the basis of the issued decisions for the transboundary shipment of wastes from other EU MS to the territory of the SR, for import of wastes from a non-EU MS to the territory of the SR, for the transboundary shipment of wastes from the territory of the SR to other EU MS and export of wastes from the territory of the SR to a non-EU MS in 2010 to 2013 corresponded to waste quantities included in Table 2-31.

**Table 2-31 The really transported quantities of wastes in 2010 to 2013**

Year	Import (t)	Export (t)
2010	421,639	180,395
2011	363,435	219,315
2012	151,989	156,680
2013	176,395	51,734

Category other and hazardous wastes classified according to the Waste Catalogue were transported to the territory of the SR and from the territory of the SR. Table 2-32 shows the really transported quantities of waste assigned to "other" category and Table 2-33 includes the really transported quantities of waste assigned to "hazardous" category. The quantities were permitted by decisions issued in the respective years.

**Table 2-32 The really transported quantities of other wastes in 2010 to 2013**

Year	Import (t)	Export (t)
2010	420,304	176,121
2011	363,080	214,933
2012	151,761	151,693
2013	176,036	45,022

**Table 2-33 The really transported quantities of hazardous wastes in 2010 to 2013**

Year	Import (t)	Export (t)
2010	1,335	4,274
2011	355	4,382
2012	228	4,987
2013	359	6,712

In 2011 to 2013, it was possible to execute transboundary shipment of wastes from/to other EU Member States as well as the import and export of wastes from/to non-EU Member States. The transboundary shipment of wastes from/to other EU Member State considerably exceeded the import or export of wastes from/to non-EU Member States, and in the monitored period, no export of wastes from the SR to non-EU Member States was executed. The really transported quantities of wastes to the territory of the SR from other EU Member States and imported quantities of wastes to the territory of the SR from non-EU Member States are included in Table 2-34 and the really transported quantities of wastes from the SR to other EU Member States and the really exported quantities of wastes from the SR to non-EU Member States are included in Table 2-35. The quantities were permitted by decisions issued in the respective years.

**Table 2-34 The really transported quantities of wastes to the territory of the SR from other EU Member States**

*and imported quantities of wastes to the territory of the SR from non-EU Member States in 2010 to 2013*

Year	Import (t)	
	from EU	from non-EU
2010	419,204	2,434
2011	362,804	632
2012	151,989	0
2013	176,395.050	0.000

**Table 2-35 The really transported quantities of wastes from the SR to other EU Member States and the really exported quantities of wastes from the SR to non-EU Member States in 2010 to 2013**

Year	Export (t)	
	to EU	to non-EU
2010	180,394	0
2011	219,315	0
2012	156,680	0
2013	51,733	0

In 2010 to 2014, the transboundary shipment of wastes, import of wastes, and export of wastes were permitted only for the purpose of material or energy recovery of wastes. Table 2-36 shows the really transported quantities of wastes to the territory of the SR from other EU Member States and imported quantities of wastes to the territory of the SR from non-EU Member States for the purpose of energy and material recovery of wastes in the monitored period.

Table 2-37 shows the really transported quantities of wastes from the territory of the SR to other EU Member States and exported quantities of wastes from the territory of the SR to non-EU Member States for the purpose

of energy and material recovery of wastes in the monitored period.

**Table 2-36** *The really transported quantities of wastes to the territory of the SR from other EU Member States and imported quantities of wastes to the territory of the SR from non-EU Member States for the purpose of recovery in 2010 – 2013*

Year	Material recovery (t)	Energy recovery (t)	Other recovery (t)
2010	274,082	147,526	31
2011	199,392	163,663	381
2012	0.000	151,989	0
2013	375	176,020	0

**Table 2-37** *The really transported quantities of wastes from the territory of the SR to other EU Member States and exported quantities of wastes from the territory of the SR to non-EU Member States for the purpose of recovery in 2010 – 2013*

Year	Material recovery (t)	Energy recovery (t)	Other recovery (t)
2010	180,314	81	0
2011	219,315	0	0
2012	156,680	0	0
2013	51,668	44	22

### 3. Evaluation of the Previous Plan

The fulfilment of the set objectives of the Waste Management Plan for 2011-2015 is evaluated till 2013, when, at the time of preparation of a new plan, the latest official data on the production and management of wastes from the Regional Information System on Wastes (RISO) as well as the data on production and management of municipal wastes processed by the Statistical Office of the Slovak Republic, were available.

The main objectives of waste management in **the municipal sphere** have not been fulfilled. In particular, the recycling of municipal wastes is at a low level and based on the development, it is supposed that the objective of recycling to reach a level of 35% by 2015 will not have been fulfilled. This fact is closely related to the rising, however, still **insufficient level of separate collection**, in particular for paper and cardboard, glass, plastic and metals. The situation in the separate collection and recovery of **biodegradable municipal wastes** can be evaluated as absolutely unsatisfactory. In 2013, landfilling was not reduced to a level of 50 % in comparison with 1995. Despite great investments in the infrastructure of facilities for biodegradable waste recovery, the level of their recovery is very low, and we can definitely state that only a new legislative regulation of waste management, intensification of separate collection and stricter control of municipalities' duties in the area of collection and recovery of biodegradable municipal wastes can bring a more essential change.

The objectives of recovery of **sewage sludge** from treatment of municipal waste waters and waste waters with properties similar to municipal waste waters are fulfilled continuously.

The objectives in the area of collection and treatment of **waste electrical and electronic equipment** are fulfilled. Since 2010, the SR has been fulfilling the duty to collect and treat 4kg of waste electrical and electronic equipment per citizen. In this area, a high rate of waste recovery and recycling can also be stated, by about 10 % higher than in other Member States.

All the set objectives in the area of collection **of waste portable batteries and accumulators, waste automotive and industrial batteries and accumulators**, as well as of the minimum recycling efficiency of these batteries and accumulators were fulfilled in 2013. The fulfilment of the objectives is also expected in the following period.

The **area of collection and treatment of end-of life vehicles** can also be evaluated positively, the objectives of re-use, recovery and recycling of end-of life vehicles are also fulfilled. At present, the SR has a sufficient number of facilities for the collection and treatment of end-of life vehicles and each inhabitant of the SR can hand over their end-of life vehicle to an authorised facility for the treatment of end-of life vehicles directly, through a collection network or through the mobile collection directly at the place of the end-of life vehicle's owner.

Based on the monitored development of waste tyres management, the objective for the recovery **of waste tyres** will be probably fulfilled. The new legislative regulation, according to which waste tyres will be subject to extended producer responsibility, is supposed to facilitate it.

In the area of **waste oils**, the objectives of energy and material recovery probably will not have been fulfilled by 2015. Too ambitious

objectives, in particular for the energy recovery of waste oils, represent one of the reasons. The objectives will have to be reassessed and set realistically on the basis of the real development of waste oil management.

For **packaging waste**, the rate of recovery and recycling of packaging waste for paper, glass, plastic, metal and wood for 2012 has been fulfilled and is further continuously fulfilled. The total rate of recycling for packaging waste reached a level of 65.92 %.

Besides the objectives of municipal waste recycling, the objective of recycling for **construction and demolition wastes** is among the main priorities of the waste management strategy in accordance with the requirements of the Waste Framework Directive. Based on the development of construction and demolition waste recycling it can be expected that the objective of recycling will have been

fulfilled in 2015, with a real perspective of recycling objective fulfilment by 2020 at the required level of 70 %.

The objectives for wastes containing **PCB and PCB containing equipment** are continuously fulfilled. Pursuant to the Act on Wastes and new Act on Wastes, contaminated equipment holders are obliged to report the holding and changes related to holding and management of the equipment.

For the fulfilment of the set objectives, 100 measures in total had been proposed. By the specified deadlines, 29 measures have been implemented. For two measures, there is a real assumption that they will have been implemented. Fifty-three measures are implemented continuously. Four proposed measures have been implemented partially. Twelve measures are not implemented or their implementation is not expected by the specified deadline.

**Table 3-1 Evaluation of the measures of the previous plan**

The measure has been implemented	29
The measure will have been implemented	2
The measure is implemented continuously	53
The measure has been implemented partially	4
The measure is not implemented	3
The measure has not been implemented	9

A detailed evaluation of the proposed objectives and measures of the previous plan is shown in Tables 3-2 and 3-3.

**Table 3-2 Detailed evaluation of the objectives of the previous plan**

<b>Evaluation of Objectives</b>			
Objective	State 2013	Evaluation	Comment on the evaluation
By 2015, to increase the preparation for re-use and recycling of waste from households such as paper, metal, plastic and glass and if possible, from other sources if such sources contain waste similar to the waste from households, to at least 35 % of weight of the waste produced, i.e. more than 720,000 tons.	In 2013, the preparation for re-use and recycling of waste covered 11.39% of overall municipal waste management. The rate of re-use and recycling of municipal waste was calculated on the basis of methodology 4 according to Annex No.1 to Decision 2011/753/EU.	In 2015, the objective probably will not have been fulfilled.	The fulfilment of the objective of re-use and recycling of municipal waste is limited by the rate of separate collection of municipal waste, which despite the growing quantities of sorted components of municipal waste does not reach the required level.
By 2013, to reduce the quantity of biodegradable municipal wastes disposed on landfills to 50 % of the total quantity (weight) of biodegradable municipal wastes produced in 1995, i.e to maximum 347,500 tons.	In 2013, 316,206 tons of biodegradable municipal wastes were diverted from waste landfilling. The objective of reducing the quantity of biodegradable municipal wastes disposed on landfills for 2013 has not been fulfilled, the quantity of biodegradable municipal wastes disposed on landfills was exceeded by 17 %.	The objective has not been fulfilled.	The diversion of biodegradable municipal waste from landfilling is possible only by introducing an efficient system of separate collection for the purpose of material recovery. An increase in the rate of energy recovery of municipal waste represents another possibility.
To introduce the separate collection of biological wastes in order to perform composting or anaerobic treatment of waste; for food waste, to ensure the recovery of 90 % of wastes produced, and out of it, to use 80% for biogas production and 20% for compost production.	In 2010 to 2013, the introduction of the separate collection of biological wastes was supported by the resources of the Environmental Fund and financial resources of the EU within the framework of the Operational Programme Environment. A considerable part of the resources was also invested in treatment facilities – composting facilities and biogas stations.	The objective has been fulfilled partially	The objective of food waste recovery and use of waste for biogas and compost production cannot be evaluated.
To treat the biological waste in the way fulfilling a high level of environmental protection.	Biodegradable waste is treated in the waste recovery facilities holding the consent to waste recovery operation pursuant to Article 7 of the Act on Wastes.	The objective is fulfilled continuously	All the biodegradable waste recovery facilities must be operated on the basis of the consent issued by the respective state administration authority of waste

			management and must have the operating documentation of the facility in place. New implementing regulations to the new Act on Wastes regulating the basic requirements for biodegradable waste treatment facilities are under preparation.
An increase in the share of recovery of sewage sludge from treatment of municipal waste waters and waste waters with properties similar to municipal waste waters for the purpose of improvement of soil properties at least to 85% of the total quantity of sewage sludge produced by treatment of municipal waste waters and waste waters with properties similar to municipal waste waters, i.e. at an approximate level of 100,000 tons.	In 2013, over 135,000 tons of sewage sludge from treatment of municipal waste waters and waste waters with properties similar to municipal waste waters underwent material recovery.	The objective is fulfilled continuously	In the area of sewage sludge from treatment of municipal waste waters and waste waters with properties similar to municipal waste waters for the purpose of improvement of soil properties, a special strategy for the management of sewage sludge from treatment of municipal waste waters will have to be adopted.
For waste electrical and electronic equipment (electrical waste), to collect at least 4 kg of electrical waste from households per citizen per year.	In 2013, producers represented by collective organisations fulfilled the specified duty of electrical waste collection. In total, 22,122 tons of electrical waste were collected, which represents 4.09 kg per citizen.	The objective is fulfilled continuously	Since 2010, the SR has been fulfilling the duty to collect and treat 4kg of waste electrical and electronic equipment per citizen.
For electrical waste, to ensure the annual rates of recovery and recycling of electrical wastes for individual electrical waste categories.	In 2013, the rates of recovery and recycling were fulfilled for each electrical waste category pursuant to Government Order of the SR No. 388/2005 Coll. laying down the limits for electrical waste recovery and re-use and recycling of components, materials and substances as amended by Government Order of the SR No. 206/2010 Coll.	The objective is fulfilled continuously	The value of electrical waste recovery and recycling in the SR exceeds the average value of the EU by 5 – 10 %.
For packaging waste, to ensure the annual rates of recovery and recycling of packaging waste for paper, glass, plastic, metal and wood for 2012 and the	In 2013, the rate of recycling for packaging wastes according to material composition was as follows: - Glass 72.91 %	The objective has been fulfilled	The quantity of recovered and recycled packaging waste has been calculated from the reports of obliged persons and

<p>following years.</p>	<ul style="list-style-type: none"> <li>- Plastic 55.08 %</li> <li>- Paper and cardboard 79.70 %</li> <li>- Metals 68.91 %</li> <li>- Wood 36.45 %</li> </ul> <p>The total rate of recycling for packaging waste reached a level of 65.92 %.</p>		<p>authorised organisations. The total quantity of recovered packaging waste is higher by about 3.5% and consists of the quantity of recycled packaging waste and of the quantity of packaging waste recovered through R1 operation (use principally as a fuel or other means to generate energy) in waste incinerators with the use of energy or recovered in waste co-incineration facilities in the SR.</p>
<p>For waste batteries, to achieve the minimum limits for the collection of portable batteries and accumulators 25 % by 26 September 2012 and 45 % by 26 September 2016; for automotive and industrial batteries and accumulators 96 % to 98 %. To achieve a minimum level of recycling efficiency for waste batteries.</p> <p>For all the collected batteries and accumulators, to ensure their treatment by an authorised supplier of treatment services (within the framework of regulations in force in the respective EU country).</p>	<p>All the set objectives in the area of collection of waste portable batteries and accumulators, waste automotive and industrial batteries and accumulators, as well as of the minimum recycling efficiency of these batteries and accumulators were fulfilled in 2013. The recycling efficiency for waste batteries in 2013 was as follows:</p> <ul style="list-style-type: none"> <li>- lead-acid batteries and accumulators 93 %,</li> <li>- nickel-cadmium batteries and accumulators 83 %,</li> <li>- other waste batteries and accumulators 89 %.</li> </ul>	<p>The objective is fulfilled continuously</p>	<p>In 2013, there was a significant positive shift in the collection and evaluation of data on waste batteries and accumulators collection, treatment and recycling, based on which it can be declared that the SR fulfils the objectives pursuant to Directive 2006/66/EC.</p>
<p>For end-of life vehicles, to ensure the take-over of all end-of life vehicles no later than by 1 January 2015, to ensure the fulfilment of limits for re-use, recovery and recycling.</p>	<p>In 2013, the authorised facilities for the treatment of end-of life vehicles took over 34,408 end-of life vehicles for treatment.</p>	<p>The objective is fulfilled continuously</p>	<p>At present, the SR has a sufficient number of facilities for the collection and treatment of end-of life vehicles and each inhabitant of the SR can hand over their end-of life vehicle to an authorised facility for the treatment of end-of life vehicles directly, through a collection network or through the mobile collection directly at the place of the end-of life vehicle's owner.</p>

<p>For waste tyres, to ensure no landfilling of waste tyres and to achieve the objectives of waste tyres recovery for 2015.</p>	<p>In 2013, material recovery covered 72% of waste tyres produced and energy recovery covered 10% of waste tyres.</p>	<p>In 2015, the objective probably will have been fulfilled</p>	<p>Landfilling of waste tyres and shredded waste tyres is prohibited pursuant to the Act on Wastes and new Act on Wastes. Waste tyres can be used as construction material in building a landfill. Based on the data on the production and management of waste tyres it is highly probable that the objective of waste tyres recovery will have been fulfilled in 2015.</p>
<p>For the construction and demolition waste, by the end of 2015, to increase the preparation for re-use, recycling and recovery of construction waste (except for the waste 17 05 04 "O category soils and stones") to at least 35% of weight of the waste produced.</p>	<p>In 2013, 47% of construction wastes were recycled.</p>	<p>In 2015, the objective probably will have been fulfilled</p>	<p>The recycling objective for construction and demolition wastes was calculated based on the EUROSTAT methodology, which does not include hazardous wastes, the waste 17 05 04 soils and stones other than those mentioned in 17 05 03, and the waste 17 05 06 dredging spoil other than those mentioned in 17 05 05 in the recycling amount.</p>
<p>For the wastes containing polychlorinated biphenyls and equipment contaminated by polychlorinated biphenyls, by the end of 2015, to prepare conditions so that by the end of 2028 it will be possible to ensure environmentally acceptable management of waste liquids and equipment contaminated by PCB with the content exceeding 0.005 percent of PCB, and by the end of 2015, to prepare conditions so that by the end of 2025 it will be possible to ensure the identification, marking and disposal of equipment containing:</p> <p>a) more than 10 % of PCB and with a capacity exceeding 5 litres,</p>	<p>The conditions for the identification and management of wastes containing polychlorinated biphenyls and equipment contaminated by polychlorinated biphenyls are regulated by Article 40a of the Act on Wastes.</p>	<p>The objective is fulfilled continuously</p>	<p>Pursuant to Article 40a of the Act on Wastes, contaminated equipment holders are obliged to report the holding and changes related to holding and management of the equipment.</p>

<p>b) more than 0.05 % of PCB and with a capacity exceeding 5 litres,  c) more than 0.005 % of PCB and with a capacity exceeding 0.05 litres.</p>			
<p>By 2015, to reach the limits of energy and material recovery of waste oils, in the ratio 60% of material recovery and 40% of energy recovery.</p>	<p>In 2013, 37% of waste oils were material-recovered. Energy recovery was applied only to 6 % of waste oils.</p>	<p>In 2015, the objective probably will not have been fulfilled.</p>	<p>The objective of material and energy recovery of waste oils is non-realistic and it has to be reassessed. It has to be noted that 18% of waste oils were treated by R12 activity and as much as 29% was covered by R13 activity.</p>

**Table 3-3 Detailed evaluation of the measures of the previous plan**

Evaluation of Measures					
Measure	Title of the measure	Responsibility	Implementation deadline	Evaluation	Comment on the evaluation
O.1.	No later than by 12 December 2013, to prepare a set of measures focused on waste prevention and to adopt a Waste Prevention Programme in the SR till 2020 in accordance with the requirements of Articles 29 and 31 of the new Waste Framework Directive	Ministry of Environment of the Slovak Republic	12 December 2013	The measure has been implemented	The Waste Prevention Programme of the SR for 2014 – 2018 was approved by Government Resolution of the SR No. 729 dated 18 December 2013. The Programme contains about 50 measures, and in addition to the Ministry of Environment of the Slovak Republic, other government departments covering the extraction of raw materials, production, distribution and sale of goods and services also have to deal with them. Implementation evaluation
O.2.	To prepare a draft new legal regulation in waste management, which will be harmonised with the EU legislation	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	A new Act on Wastes was worked out and approved by the National Council of the Slovak Republic on 17 March 2015 by Resolution No.1631. The new Act on Wastes came into effect on 1 January 2016.
O.3.	To assess the efficiency of the existing tool of planning in waste management, and to propose a review of the legal regulation regarding waste management plans	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	The efficiency of the tool of waste management plans has been assessed. The new Act on Wastes omitted the waste producer's plan, which was evaluated as a redundant and inefficient planning tool representing an administrative load of the business environment. Even in the absence of their own plan, the waste producer is obliged to observe the regional plan and the waste management hierarchy. Likewise the duty of municipalities to prepare their own plans if they produce 350 tons of municipal wastes per year or if their population exceeds 1,000 was regulated.
O.4.	To support the introduction of new technologies based on low-waste or cleaner technologies.	Ministry of Economy of the Slovak Republic	On an annual basis	The measure is implemented continuously	The support of transfer of innovative technologies by the Ministry of Economy of the SR executed within the framework of the Operational Programme Competitiveness and Economic Growth, was applied to

					all cases for the intents receiving a positive decision pursuant to Act No. 24/2006 Coll. on environmental impact assessment and on the amendment to certain acts as amended. At the same time, based on the approved evaluation criteria, additional points were assigned to the projects contributing to the reduction of environmental pollution.
O.5.	To support research and development in the area of new technologies of waste management	Ministry of Education, Science, Research and Sport of the Slovak Republic	On an annual basis	The measure is implemented continuously	The Ministry of Education, Science, Research and Sport of the Slovak Republic supported eight projects focused on waste management.
O.6.	In approving the operations of new technologies for waste recovery or disposal, to take into account the requirements of best available techniques in accordance with the European legislation; to take into account the requirements of complete waste treatment from the beginning to the maximum stage of waste recovery	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	In approving the operations of new technologies for waste recovery or disposal, the requirements of best available techniques are taken into account. E.g. in the area of WEEE, the measure is implemented continuously. During inspection in authorised operations, the workers of the Ministry of Environment of the SR, Department of Waste Management, emphasise the control of material flow to the end-of-waste status or recycling of the respective fraction. They also control the evidence that the wastes from electrical waste treatment are handed over to persons authorised pursuant to Article 19 of the Act on Wastes.
O.7.	To create conditions for determining the end-of-waste status for selected wastes by direct material use and for energy recovery, for which such specifications have not been established in the form of EU Council Regulations (such as Regulation No. 333/2011), which will enable to reduce waste quantities and support the use of wastes as products or secondary raw materials	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure is implemented continuously	The institute of end-of-waste status was introduced into the legislation of the SR in Article 2b of the Act on Wastes, by Amendment No. 343/2012 Coll. The institute of end-of-waste status is also taken over by the new Act on Wastes, which also contains an empowering provision allowing adopting end-of-waste criteria for the waste stream, where the criteria have not been set at the EU level. The criteria, which would enable the end-of-waste status for selected wastes beyond the ambit of European legal regulations, have not been prepared yet. However,

					the end-of-waste criteria in relation to the wastes, from which fuels will be produced, are under preparation.
O.8.	To support the use of materials obtained by waste recycling in accordance with the requirements of European regulations	Ministry of Environment of the Slovak Republic, Ministry of Economy of the Slovak Republic	Continuously	The measure is not implemented	In 2011-2015, no scheme or mechanism supporting the use of recycled materials was created.
O.9.	To support innovative technologies, which will allow utilising the activities of waste recovery R2 – R11, so that at the output of such activity the share of raw material is increased and not the share of waste	Ministry of Environment of the Slovak Republic, Ministry of Economy of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure is implemented continuously	<p>In the programme period 2007 - 2013, within the process of evaluation of applications for the provision of a non-repayable financial contribution through the Operational Programme Environment, the advantage was given to the technologies meeting BAT requirements.</p> <p>In the programme period 2014 – 2020, within the scope of the Operational Programme Quality of Environment, Investment Priority 1, Priority Axis 1: "1.1 Investing in the waste sector to meet the requirements of the Union's environmental acquis and to address needs, identified by the Member States, for investment that goes beyond those requirements“, within the project selection process the innovative aspect of technologies going beyond the EU standards will be considered, where applicable under the existing legislation, or possibly within the project selection process such solutions will be favoured allowing to approach or to meet the most ambitious standards resulting from the EU legislation in the respective field if the EU legislation defines the range of values to be followed. In the Operational Programme Quality of Environment, the priority will be given to those technologies consistent with the criteria for determining the best available techniques (BAT) - comparison of the proposed technology of waste recovery or recycling with the relevant BREF documents,</p>

					e.g. "Reference Document on Best Available Techniques for the Waste Treatments Industries".
O.10.	To introduce life cycle elements into the product policy	Ministry of Environment of the Slovak Republic	Continuously	The measure is not implemented	The introduction of life cycle element into the product policy requires the interdepartmental cooperation of the Ministry of Environment of the Slovak Republic and the Ministry of Economy of the Slovak Republic, whose competences cover Act No. 529/2010 Coll. on environmental design and use of products (Eco-Design Act).
O.11.	In producing products, to support the replacement of materials containing hazardous substances by less dangerous materials if technically and economically possible; to support research and development in this area	Ministry of Environment of the Slovak Republic, Ministry of Education, Science, Research and Sport of the Slovak Republic	Continuously	The measure is implemented continuously	Ministry of Education, Science, Research and Sport of the Slovak Republic supported two projects focused on research and development in this area.
O.12.	To support placement of construction materials produced with material or energy recovery of wastes on the market	Ministry of Environment of the Slovak Republic, Ministry of Transport, Construction and Regional Development of the Slovak Republic	Continuously	The measure is implemented continuously	To fulfil the measure, at the level of the Ministry of Environment of the Slovak Republic and of the Ministry of Transport, Construction and Regional Development of the Slovak Republic, working meetings took place with representatives of the Association for Construction Material Recycling Development (a member of the European Quality Association for Recycling, e.V. (EQAR) to find the possibilities of measure implementation. Both parties promised further cooperation that will be initiated in particular by the Association as the implementation entity.
O.13.	To support the instruments of the environmental policy such as	All departments	Continuously	The measure is implemented	The Ministry of Environment of the Slovak Republic applies the principle of green public procurement, where

<p>environmental management, green public procurement, cleaner production programmes etc.</p>			<p>continuously</p>	<p>for 2012 Indicator 1 (the share of the number of green contracts in all contracts in public procurement) = 4.9% and Indicator 2 (the share of the value of green contracts in the value of all contracts in public procurement) = 0.1%; "green office" principle in the following areas:</p> <p>A) Waste separation and recycling – collection points concentrating the pick-up of separated waste components, such as plastic, paper, glass, and metals, are established on each floor of the building. The Ministry provides for the pick-up of electrical waste, toners, etc. on the contract basis. We request confirmations of ecological disposal of waste, which significantly contributes to re-use of secondary raw materials and minimising of waste disposed on municipal waste landfills.</p> <p>B) Cleaning agents - the premises of the Ministry are cleaned by ecological cleaning agents and their use has no adverse environmental impacts.</p> <p>C) Office supplies and office technology - Any purchased equipment must meet the latest standards of energy efficiency of ENERGY STAR trademark, copying machines must include the option of two-sided printing on A4 size paper, on the basis of additional software (printers, multi-function equipment), the public procurement requirements ensure the compatibility of technology and paper. In public procurement and direct purchases of electrical appliances, as regards energy labels, we request the class with higher energy savings (A, A+).</p> <p>D) Paper and paper products - electronic correspondence and archiving, the use of two-sided printing of documents is preferred. In purchasing office paper, the requirement for PEFC certificate and for the EU Ecolabel – an environmental label of the EU is applied.</p> <p>- this was included in the previous evaluation.</p> <p>The new Act on Wastes introduces a relief for the entrepreneurs performing authorised treatment</p>
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					<p>activities and at the same time certified in the Environmental Management and Audit System pursuant to a special regulation (EMAS). The relief consists in omitting the submission of an expert opinion once per five years and in the possibility of a longer extension of authorisation validity.</p> <p>Within the framework of the Operational Programme Competitiveness and Economic Growth, the Ministry of Economy of the SR created a scheme for the support of innovations, introduction of quality management systems, protection of industrial rights and introduction of technical standards into the production practice and services, within which the assistance is directed to the environment of introduction of quality management methods by introducing the pre-certification and certification process, protection of industrial rights, trademarks and support of purchase of industrial rights related to new technological solutions. At the same time, the Ministry endeavours to improve the environmental behaviour through an increase in the level of application of green public procurement tools within the department and organisations falling under the department's competences. The level and way of application of such tools is monitored and evaluated on an annual basis through a questionnaire survey, which the Ministry of Economy of the SR and the organisations falling under its competences send to the Ministry of Environment of the Slovak Republic.</p> <p>Within the fund for the support of art, culture development strategy, subsidy system and other activities, the Ministry of Culture of the SR supports green public procurement, cleaner production programmes etc.</p> <p>The Ministry of Finance of the SR supports the</p>
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					<p>instruments of the environmental policy in particular by consistent separation of wastes and recovery of electrical waste. In public procurement, the Ministry includes conditions for eco-friendly goods into the conditions and specifications of goods and requests the submission of environmental certificates.</p> <p>The Ministry of Foreign and European Affairs includes into the conditions and specifications of goods, the conditions for the environmental management system in the area of contract subject pursuant to standard ISO 14001:2004, which ensures suitable and controlled ways of communication in the company and outwards in the area of environmental management – i.e. as regards environmental protection.</p> <p>The Ministry of Foreign and European Affairs supports the instruments of the environmental policy such as environmental management, green public procurement, cleaner production programmes and it fulfils the measure continuously.</p> <p>The Ministry of Justice applies environmental waste management in public procurement within the special conditions. Separate collection of wastes is executed within the department. For unusable property of the State, which cannot be used as a secondary raw material, the department ensures its disposal in compliance with the Act on Wastes.</p> <p>The Ministry of Interior supports the instruments of the environmental policy such as environmental management, green public procurement, cleaner production programmes as follows:</p> <ul style="list-style-type: none"> <li>- in executing public procurement, the Department of Public Procurement requests from the tenderers the proving of professional competence by listing the measures of environmental management to be used in contract performance, and the submission of a</li> </ul>
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					<p>quality certificate issued by an independent institution confirming the fulfilment of certain environmental management measures. These measures are required for all contracts above the limit falling under the competences of the Ministry of Interior (e.g. procurement of vehicles, procurement of toners, etc.),</p> <ul style="list-style-type: none"> <li>- the endeavour to reduce paper consumption - the use of two-sided printing, giving priority to electronic mail over paper mail, if possible, introduction of electronic approval of invoices,</li> <li>- waste sorting - secondary raw materials are offered to authorised organisations to be recovered and recycled,</li> <li>- the endeavour to improve the energy performance of buildings – 83 buildings and 75 ordered project documentations underwent the energy audit.</li> </ul> <p>The Ministry of Health supports the instruments of the environmental policy such as environmental management, green public procurement, cleaner production programmes and it fulfils the measure continuously.</p> <p>The Ministry of Transport, Construction and Regional Development of the Slovak Republic ensures public procurement of goods, services and construction work through the procedures pursuant to Act No. 25/2006 Coll. on public procurement and on the amendment to certain acts as amended. In public procurement the tenderers have to prove their professional competence within environmental management with respect to the contract subject, to an adequate extent and in compliance with the principles of the Public Procurement Act.</p> <p>In the tender documentation for contracts, the Ministry</p>
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					<p>of Labour, Social Affairs and Family also includes the requirements for the contract subject or participation conditions in the form of FSC certificates, if applicable.</p> <p>The Ministry of Education, Science, Research and Sport of the Slovak Republic supported seven projects in this area. The Ministry ensured public procurement of goods and services through the procedures pursuant to Act No. 25/2006 Coll. on public procurement and on the amendment to certain acts as amended. The conditions based on the approved documents are required in the tender documentation in the part of requirements for tenderers and in the requirements for the subject of procurement. In 2014, no tenders were executed, which could contain the requirements specified in the measure O.13.</p>
O.14.	For proposals for the construction of new landfills of wastes, to always assess in detail the need of such construction in the region. The proposed sites of regional landfills need to be incorporated in the land-use plans of regions during the very next review of the approved land-use plan pursuant to a special regulation <sup>2)</sup> )	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	For each plan of construction of a new landfill of wastes and for extension of the existing landfills, the Ministry of Environment of the SR assesses the need of construction of new capacities in the region, in particular in relation to the objective of re-use and recycling of wastes by 2020. Each new landfill must be in compliance with the land-use plan of the region or of the respective municipality.
O.15.	To support the production of alternative fuels produced from waste within the support of use of renewable energy resources if their material recovery is not environmentally suitable	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	Within the framework of the Operational Programme Environment in 2007 – 2013, the support was provided to the construction of facilities for mechanical and biological treatment of wastes, where production of alternative wastes can be a possible output, enabled

<sup>2</sup> Article 30 (4) of Act No. 50/1976 Coll. on land-use planning and building rules as amended

through the operation objective "4.2 Support of activities for waste recovery", Group II, Point H. projects focused on the construction of regional facilities for mechanical-biological and thermal treatment of wastes. The list of beneficiaries under the OP QE is published at the following address:

<http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/>. In the programme period 2014 – 2020, within the scope of the Operational Programme Quality of Environment, Investment Priority 1, Priority Axis 1: "1.1 Investing in the waste sector to meet the requirements of the Union's environmental acquis and to address needs, identified by the Member States, for investment that goes beyond those requirements", Activity B "Preparation for re-use and recovery of waste aimed at recycling of non-hazardous waste, including promotion of separate collection systems of municipal waste and promotion of biodegradable municipal waste prevention", it will be possible apply for the provision of a financial contribution for the construction of new facilities for mechanical and biological treatment of mixed municipal wastes, with alternative fuels as a possible output.

Within the programme period 2007-2013, 114 projects focused on waste recovery and hazardous waste management were approved through the Operational Programme Environment, with a total amount of EUR 126.7 million. The list of beneficiaries under the OP QE is published at the following address: <http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/>.

The Ministry of Environment of the Slovak Republic has worked out a draft regulation for determining the end-of-waste status for fuels produced from wastes. The legislative process will start in the upcoming period.

In 2013, the Ministry of Economy of the Slovak Republic prepared an amendment to Act No.309/2009 Coll. on

					promotion of renewable energy sources, which gives an advantage to the use of edible oil as a biogas in engine fuels. The amendment to the act came into effect on 1 January 2014.
O.16.	To support innovative technologies, which will allow the energy recovery of wastes if the recycling or preparation for re-use are not environmentally suitable or efficient	Ministry of Environment of the Slovak Republic, Ministry of Economy of the Slovak Republic	Continuously	The measure is implemented continuously	<p>Both municipal waste incinerators that are currently in operation in Bratislava and in Košice meet the requirements for energy recovery of municipal wastes using the activity R1 according to the set formula for energy efficiency calculation for such facilities. In 2013, 9.96 % of municipal wastes produced were energy-recovered.</p> <p>In 2013, the Ministry of Economy of the Slovak Republic prepared an amendment to Act No.309/2009 Coll. on promotion of renewable energy sources, which gives an advantage to the use of edible oil as a biogas in engine fuels. The amendment to the act came into effect on 1 January 2014.</p>
O.17.	In compliance with the hierarchy of waste management, to incinerate municipal wastes in the facilities with energy recovery	Ministry of Environment of the Slovak Republic, Ministry of Economy of the Slovak Republic	Continuously	The measure is implemented continuously	<p>Both municipal waste incinerators that are currently in operation in Bratislava and in Košice meet the requirements for energy recovery of municipal wastes using the activity R1 according to the set formula for energy efficiency calculation for such facilities. In 2013, 9.96 % of municipal wastes produced were energy-recovered.</p> <p>Act No. 309/2009 Coll. on promotion of renewable energy sources, in its provision of Article 3 (9) facilitates the energy use of municipal wastes with a maximum share of the biodegradable component up to and including 55%.</p> <p>By Resolution No. 548/2014 dated 5 November 2014, the Government of the SR approved the Energy Policy of</p>

					the Slovak Republic, which discusses an increase in the level of energy recovery of wastes and production of fuels from wastes (to increase the share of incinerated wastes in the total quantity, to improve the technical level of incineration facilities, to increase the number of types used for the production of alternative fuels). The energy concept of the SR states that regulation in the form of giving priority to heat from the renewable component of waste over fossil fuels seems to be a suitable support.
O.18.	To support stable production of electric energy from the facilities for energy recovery of wastes and stable consumption of heat produced in the process of energy recovery of wastes	Ministry of Economy of the Slovak Republic	Continuously	The measure is implemented continuously	Act No. 309/2009 Coll. on promotion of renewable energy sources, in its provision of Article 3 (9) facilitates the energy use of municipal wastes with a maximum share of the biodegradable component up to and including 55%. By Resolution No. 548/2014 dated 5 November 2014, the Government of the SR approved the Energy Policy of the Slovak Republic, which discusses an increase in the level of energy recovery of wastes and production of fuels from wastes (to increase the share of incinerated wastes in the total quantity, to improve the technical level of incineration facilities, to increase the number of types used for the production of alternative fuels). The energy concept of the SR states that regulation in the form of giving priority to heat from the renewable component of waste over fossil fuels seems to be a suitable support.
O.19.	To increase the number of state supervision inspections focused on hazardous waste collection	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The control of waste collection facilities is among the main annual tasks of the activity of the Slovak Environmental Inspection, Waste Management Inspection. During the controls, the observance of the duties pursuant to the Act on Waste is monitored, in

					relation to all types of wastes and to both categories of wastes, i.e. other waste, hazardous waste. On average, about 50 such inspections take place per year. In 2011, 56 inspections of waste collection facilities were performed, and in 2014, 60 inspections of waste collection facilities were performed.
O.20.	To prepare a Strategy of Healthcare Waste Management	Ministry of Environment of the Slovak Republic	2013	The measure has been implemented	In 2013, a Strategy of Healthcare Waste Management was worked out. The Strategy was prepared by the Slovak Environment Agency. The preparation of the Strategy was financed from the Operational programme Environment. The Strategy is published at the following website: <a href="http://www.sazp.sk/public/index/open_file.php?file=Admin/2013/december/Strategia_verzia_20131014.pdf">http://www.sazp.sk/public/index/open_file.php?file=Admin/2013/december/Strategia_verzia_20131014.pdf</a> .
O.21.	To prepare a Strategy of Hazardous Waste Management	Ministry of Environment of the Slovak Republic	2013	The measure has been implemented	In 2014, a Strategy of Hazardous Waste Management was worked out, including the implementation plans. The Strategy was prepared by the Slovak Environment Agency. The preparation of the Strategy was financed from the Operational programme Environment. The Strategy is published at the following website: <a href="http://www.sazp.sk/public/index/go.php?id=2320">http://www.sazp.sk/public/index/go.php?id=2320</a> .
O.22.	To work out a Waste Management Strategy of the SR with an outlook to 2020	Ministry of Environment of the Slovak Republic	2013	The measure has not been implemented	The measure will be implemented by adopting the new Waste Management Plan of the SR for 2016-2020.
O.23.	Using campaigns for the fulfilment of WMP objectives properly organised with respect to individual target groups, local conditions and campaign subject	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The Ministry of Environment of the Slovak Republic supports information campaigns serving to fulfil the objectives of the WMP. The campaigns aimed at informing the citizens about the reasons of electrical

					waste collection separately from municipal waste can be stated as an example. These activities are performed by the producers of electrical and electronic equipment in accordance with the Act on Wastes under the auspices of the Ministry of Environment of the Slovak Republic. For example, in 2014, the action "Let's clean up Europe" under the auspices of the Ministry of Environment of the Slovak Republic organised by the European Commission throughout the EU was one of such activities.
O.24.	Evaluation of the fulfilment of the objectives set out herein according to the WMP SR Evaluation Methodology including the set of indicators prepared by the Slovak Environment Agency, Waste Management and Environmental Management Centre, in two-year intervals	Ministry of Environment of the Slovak Republic	In two-year intervals	The measure has been implemented	In 2013, the Continuous Evaluation of the Fulfilment of the Objectives of the Waste Management Plan of the SR for 2011-2015 was carried out. The material was submitted to government negotiations on 27 November 2013 under ref. No. UV-29397/2013 and the government took cognisance of it.
O.25.	On a regular basis, to increase the professional competence of state administration employees in waste management in the form of trainings, instructions, etc.	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The state administration employees in waste management are continuously trained and they can, at any time, ask the Ministry of Environment of the Slovak Republic for an instruction, based on which the Ministry of Environment of the Slovak Republic works out instructions or provides phone or personal consultations. The Ministry of Environment of the Slovak Republic can be addressed individually, as necessary, within the meetings organised by the Ministry of Environment or within the framework of internal control performance. Within the framework of implementation of the new act, the Ministry of Environment of the Slovak Republic prepares a set of trainings especially for the state administration employees in waste management.
O.26.		Ministry of	Continuously	The measure has not	The respective provision was proposed as a section

	To ensure that each transboundary shipment/import of waste listed in Annexes III, IIIA and IIIB to Regulation (EC) No. 1013/2006 of the European Parliament and of the Council on shipments of waste (hereinafter the "Regulation") determined for incinerators that are designated as waste recovery facilities, to the territory of the SR, is subject to the procedure of prior written notification and consent as laid down in the provisions of Title II of the Regulation	Environment of the Slovak Republic		been implemented	wording for the new Act on Wastes. During the intra-Community commenting procedure, the European Commission disapproved the respective provision. The Ministry of Environment of the Slovak Republic accepted the comment of the European Commission and omitted the respective provision of the draft Act on Wastes.
O.27.	Municipalities must inform their citizens about new systems of waste management in accordance with the new hierarchy of waste management	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	Municipalities carry out information campaigns through various information channels. The publishing of the way of waste management in the territory of the respective municipality through the website and by radio are the most frequent ways. Inter alia, the new Act on Wastes contains the municipalities' duty to publish at their websites a detailed, generally comprehensible description of the overall municipal waste management system including the separate collection in the municipality. Municipalities will also have to carry out suitable information campaigns in performing separate collection of biodegradable municipal wastes, in particular in introducing home composting.
O.28.	It is necessary to reassess the economic tools in waste management towards economic pressure supporting separation in municipalities and preparation for waste re-use and waste prevention, in particular a) to work out a new act on waste landfilling fees because Act	Ministry of Environment of the Slovak Republic, Ministry of Finance of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented partially	In 2013, Act on waste landfilling fees as amended No. 17/2004 Coll. was amended. The Act, in addition to making landfilling disadvantageous, motivates municipalities to introduce separate collection as it reduces the fee for municipal waste landfilling on the basis of introduced separate collection depending on the number of the components sorted out. Within the

	<p>No. 17/2004 Coll. turned out to be an inefficient tool for reducing the quantity of wastes disposed on landfills;</p> <p>b) to amend Act No. 582/2004 Coll. on local taxes and local fee for municipal wastes and small construction wastes as amended, in particular to cancel the upper limit of the rate of fee in Article 78</p>				<p>amendment of the act on fees, the landfilling tax was increased for selected types of other wastes (in particular biodegradable wastes and packaging wastes), which should rise to EUR 30 by 2016. Likewise, the landfilling tax for selected types of hazardous wastes was increased and it should rise to EUR 60 by 2016. The low level of fee for municipal wastes represents a disadvantage in the area of fees for waste landfilling. The Ministry of Environment of the Slovak Republic proposed to increase the fee for the disposal of wastes on landfills also for municipal wastes, however, on the basis of the Memorandum of Cooperation in Applying the Budget Policy Oriented to Securing the Financial Stability of the Public Sector for 2013 between the Government of the SR and Association of Towns and Municipalities of the SR, the proposal for increasing the fees for waste landfilling was not supported.</p> <p>Despite the process of approval of the new Act on Wastes that is under way, at this stage the preparation of the new act on waste landfilling fees and the cancellation of the upper limit of fee in accordance with Act No. 582/2004 Coll. on local taxes and local fee for municipal wastes and small construction wastes was not executed. The need of a brand new legal regulation regarding the fee for landfilling and cancellation of the upper limit of the local fee will be reassessed after the implementation of the new Act on Wastes.</p>
O.29.	<p>From the resources of the Environmental Fund or other central source, and through the producers, importers, authorised organisations, collective organisations and recycling operators, the projects focused on the introduction of separate collection and on the increase of its efficiency, and subsequent recycling of the components</p>	<p>Ministry of Environment of the Slovak Republic</p>	<p>On an annual basis</p>	<p>The measure is implemented continuously</p>	<p>Within the framework of collection of waste electrical and electronic equipment, the system of separate collection of waste electrical and electronic equipment has been built and continuously improved since 2010, thanks to which the SR has been keeping the level of separate collection of waste electrical and electronic equipment from households and the objective of WEEE collection is being fulfilled (min. 4 kg/citizen).</p>

	sorted out, should be supported				In 2010-2013, 30 projects were supported from the Environmental Fund within the Activity C3 - Introduction of separate collection in municipalities, construction of collection yards and sorting facilities, with a total approved amount of EUR 3.1 mil.
O.30.	To prepare a draft system of financing of municipal waste separate collection	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	The Ministry of Environment of the Slovak Republic prepared a new Act on Wastes, which proposes a new system of separate collection financing for plastic, metals, glass and paper.
O.31.	To introduce efficient separate collection of kitchen, restaurant wastes and biodegradable wastes from the public and private greenery and gardens in compliance with the "Strategy for the implementation of the reduction of biodegradable municipal waste going to landfills" approved by Government Resolution of the SR No. 904/2010 dated 15 December 2010	Ministry of Environment of the Slovak Republic	2013	The measure has been implemented partially	Act No. 343/2012 Coll. amending the Act on Wastes regulated the legislative environment regarding the duty of municipalities to introduce separate collection of biodegradable municipal wastes, and at the same time, it expressly introduced the duty of separate collection of biodegradable kitchen and restaurant waste also for kitchen operators. In the interest of better application of this duty by municipalities in practice, the Ministry of Environment of the Slovak Republic issued a Methodical Aid for preparing a generally binding order of the municipality about municipal waste management, as mostly only "green waste" was understood under the name BMW. However, the above act also introduced the possibility of exception for municipalities. This duty is also taken over to the new Act on Wastes, however, the use of the exception is restricted only to biodegradable kitchen and restaurant waste. As the separate collection of this waste stream is expensive, municipalities, instead of introducing it, use the exceptions in order to avoid this duty. Act No. 343/2012 Coll. came into effect on 1 January 2013. A time period longer than one year is necessary to assess the results of collection system efficiencies and the influence of possible exceptions as

					the management of biodegradable kitchen and restaurant waste is only gradually brought to attention.
O.32.	To optimise technically and organisationally the separation systems for the local conditions determining the composition of municipal waste (depending on the type of residential construction)	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	<p>The Ministry of Environment of the Slovak Republic worked out a Methodical Aid for preparing a generally binding order of the municipality about municipal waste management, which can help self-governments in optimising municipality's waste management. The Aid is published at the website of the Ministry of Environment of the Slovak Republic, this was in the previous evaluation.</p> <p>The legislative basis for the adoption of requirements and performance of separate collection was created in the Act on Wastes. The following is proposed in the implementing regulation submitted to the legislation process:</p> <ul style="list-style-type: none"> <li>- introduction of collection standards for paper, plastic, metals and glass,</li> <li>- colour designation of collection vessels,</li> <li>- requirements for the performance of separate collection for BMW with the distinguishing for multiple residential buildings (KBV) and single-family residences (SFR).</li> </ul>
O.33.	To support community composting by specifying basic technological and operating standards	Ministry of Environment of the Slovak Republic	2013	The measure has been implemented	<p>The new Act on Wastes created a legislative basis for the adoption of requirements regarding biodegradable waste management. The implementing regulation that was submitted to the legislative process proposes the basic technical requirements for the composting process and small composting plants are regulated in detail. At the same time, the new Act on Wastes increased the capacity of small municipal composting plants, which do not require the consent for equipment operation from 30 tons to 100 tons of biodegradable municipal</p>

					wastes.
O.34.	From 2015, to prohibit landfilling of wastes, whose content of organic carbon is higher than 5 weight percent	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has not been implemented	The proposed measure will be reassessed in the next period. For that purpose, the Ministry of Environment of the SR is going to establish a work group, which would assess the possibilities, conditions and impacts of the adoption of the respective prohibition.
O.35.	To introduce the system of record-keeping and control of management of biodegradable wastes in municipal wastes in towns and municipalities in the form of a legislative regulation, by preparing instructions for self-governments and in the form of trainings for local self-governments	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	The new Act on Wastes prohibits to dispose on landfills the sorted biodegradable kitchen and restaurant waste and biodegradable municipal wastes from gardens and parks, including the biodegradable waste from cemeteries, except the non-recoverable wastes after the additional sorting. The implementing regulations regulate the basic details on biodegradable waste management, conditions of operation of the so-called "small composting plants, as well as the conditions for separate collection of biodegradable municipal wastes.
O.36.	To prepare an Action Plan for the Support of Placing of Compost from Biodegradable Wastes on the Market	Ministry of Environment of the Slovak Republic	2013	The measure has been implemented partially	A working group had been established that prepared an initial draft "Action plan for the support of placing of compost from biodegradable wastes on the market". However, the work on completing it was interrupted and in 2016-2020, the Action Plan will have to be completed and implemented.
O.37.	To support projects for material recovery of biodegradable wastes and biological wastes (including community composting) by allocating a financial support from EU resources and from the Environmental Fund	Ministry of Environment of the Slovak Republic	On an annual basis	The measure is implemented continuously	In 2010-2013, 45 projects were supported from the Environmental Fund within the Activity C2 - Separate collection and recovery of biodegradable municipal wastes for 2015, with a total approved amount of EUR 3,872,289.74. Within the programme period 2007-2013, 114 projects focused on waste recovery and hazardous waste management were approved through the Operational

					Programme Environment, with a total amount of EUR 126.7 million. The list of beneficiaries under the OP QE is published at the following address: <a href="http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/">http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/</a> .
O.38.	To increase the quantities of biogas produced from biodegradable municipal wastes and from biological wastes at least by 20% in comparison with the quantity of biogas produced from biodegradable municipal wastes and from biological wastes in 2010	Ministry of Environment of the Slovak Republic	2015	The measure will have been implemented	Despite the fact that it is not possible to determine the exact quantities of biogas produced, we can state that with respect to the newly built operations of biogas stations focused on recovery of biodegradable wastes, the respective measure will have been implemented in 2015.
O.39.	To support the construction of biogas stations, which will produce biogas exclusively or mostly from wastes	Ministry of Environment of the Slovak Republic	On an annual basis	The measure is implemented continuously	Within the programme period 2007-2013, 114 projects focused on waste recovery and hazardous waste management were approved through the Operational Programme Environment, with a total amount of EUR 126.7 million. The list of beneficiaries under the OP QE is published at the following address: <a href="http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/">http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/</a> .
O.40.	To support the construction of integrated centres for material and energy recovery of municipal wastes	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	Within the programme period 2007-2013, 114 projects focused on waste recovery and hazardous waste management were approved through the Operational Programme Environment, with a total amount of EUR 126.7 million. The list of beneficiaries under the OP QE is published at the following address: <a href="http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/">http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/</a> .
O.41.		Ministry of	2015	The measure will	

	To direct the biodegradable wastes and sludge from municipal water treatment in municipalities with the population of more than 15,000 to the recovery using anaerobic methods with the objective to produce biogas	Environment of the Slovak Republic		have been implemented	Biodegradable wastes and sludge from municipal water treatment are directed to the recovery using anaerobic methods with the objective to produce biogas.
O.42.	To support the development and use of new technologies, which will be able to purposefully recover the currently non-recovered shares of electrical equipment, in particular the so-called hard plastics containing the so-called flame retardants (including the prohibited persistent organic pollutants - POPs) and special glass	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	By initial manual treatment of electrical wastes, individual components of the electrical wastes are sorted out and subsequently they enter the process of recovery and recycling. Cleaner inputs and the latest technologies with a high degree of sorting out of output streams provide for a high rate of recovery and recycling. Only minimum quantities of wastes after the electrical waste treatment are disposed on landfills – max. 5% and none of them are disposed by incinerating or by energy recovery.
O.43.	Through the cooperation of producers and self-government, to improve the level of separate collection of electrical wastes in the territories of municipalities	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	In 2013, EEE producers established the "Coordination Centre of Electrical Wastes", which is a partner to municipalities – self-governments in providing the technical equipment for separate collection and in picking up full quantities of separately collected waste from electrical and electronic equipment. The new Act on Wastes includes the establishment of a coordination centre, which will be established exclusively by organisations of producer responsibility and producers of selected products that fulfil the selected duties individually.
O.44.	To check consistently the fulfilment of the duties of handing over the parts containing lead (e.g. conus tubes from TV screens	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The collected electrical wastes are handed over exclusively to providers of treatment services holding an authorisation for electrical waste treatment. For certain

	containing lead) from electrical waste to an authorised provider of treatment services for lead wastes				specific wastes, in particular hazardous ones, the consent and authorisation must contain the necessary material, technical and personnel support for the treatment of the respective waste category.
O.45.	To check thoroughly the fulfilment of recovery and recycling limits; to issue instructions of the Ministry of Environment of the Slovak Republic for the calculation of recycling efficiency from receiving the electrical wastes in the electrical waste treatment facility to final recycling of sorted out materials	Ministry of Environment of the Slovak Republic	2011	The measure has been implemented	In accordance with Regulation of the Ministry of Environment of the Slovak Republic No. 315/2010 Coll. on electrical equipment and electrical waste management, the Ministry of Environment of the Slovak Republic evaluates the fulfilment of objectives of WEEE collection and the rate of recovery and rate of recycling of individual categories of electrical wastes on an annual basis. The description for filling in the report of electrical equipment producer pursuant to Annex No. 4 to Regulation of the Ministry of Environment of the Slovak Republic No. 315/2010 Coll. specifies exact instructions for filling in and calculating individual reporting items. The new Act on Wastes regulates certain reports and describes in detail the way of filling in and calculating the rate of recovery and recycling.
O.46.	To support information campaigns focused on increasing the inhabitants' awareness of the prohibition of disposal of in particular small household appliances together with unsorted municipal waste	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	In 2014, the action "Let's clean up Europe" was executed. It was organised by the European Commission throughout the EU and it was performed under the auspices of the Ministry of Environment of the Slovak Republic, and its objective was, inter alia, to increase the citizens' awareness of the reasons of separate collection of electrical wastes and municipal waste. The new Act on Wastes contains the duty of producers and distributors of small EEE – with the length of one edge less than 25 cm and a sale area of at least 400 m <sup>2</sup> for the sale of EEE, to ensure compulsory collection of such electrical waste without the duty to purchase new EEE. Pursuant to the act, the distributors with a sale area smaller than 400 m <sup>2</sup>

					can establish such place of collection on the basis of a contract with the EEE producer. This brings the collection of small EEE closer to citizens.
O.47.	To support information campaigns focused on the increase of citizens' awareness of the duty to hand over whole electrical wastes to the systems of take-back and collection	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The Ministry of Environment of the Slovak Republic supports information campaigns focused on the increase of citizens' awareness of the duty to hand over whole electrical wastes to the systems of take-back and collection. Producers of electrical and electronic equipment execute campaigns aimed at informing the citizens about the reasons of electrical waste collection separately from municipal waste. For example, in 2014, the action "Let's clean up Europe" under the auspices of the Ministry of Environment of the Slovak Republic organised by the European Commission throughout the EU was one of such activities.
O.48.	To reassess the legislative position of waste collection facilities in relation to electrical waste collection	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	As in accordance with the new Act on Wastes, electrical wastes belong to the selected waste stream, which is covered by extended producer responsibility, the possibility of their collection was interconnected with the influence and participation of electrical equipment producers. In addition to the existing methods of electrical waste collection, the new Act on Wastes created a legislative basis for the introduction of a new way of collection of electrical wastes, through the so-called collection places. The details will be provided by an implementing regulation.
O.49.	To tighten the control focusing on the producers that are not registered in the Register of Producers (so-called free-riders) and that do not fulfil the legal	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	If there is a suspicion of a free-rider, the Ministry of Environment of the SR, Department of Waste Management submits proposals for verification to the Slovak Environmental Inspection. In the area of electrical equipment and electrical waste, the Slovak

	duties under the Act on Wastes; to also tighten the control of the producers registered in the Register of Producers that do not fulfil their duties or do not fulfil them in full scope				<p>Environmental Inspection:</p> <ul style="list-style-type: none"> <li>- performed 36 inspections in 2014 - violations were found during 9 inspections (25%); 7 inspections were performed based on the request from the Ministry of Environment of the SR</li> <li>- performed 33 inspections in 2013 - violations were found during 8 inspections (24.2%); 21 inspections were performed based on the request from the Ministry of Environment of the SR</li> <li>- performed 45 inspections in 2012 - violations were found during 20 inspections (44.4%); 12 inspections were performed based on the request from the Ministry of Environment of the SR</li> <li>- performed 46 inspections in 2011 - violations were found during 25 inspections (54.3%).</li> </ul> <p>The most frequent violations found during the inspections:</p> <ul style="list-style-type: none"> <li>- non-registration at the District Office (the distributor executing take-back of electrical waste) pursuant to Article 15 (1) of the Act on Wastes,</li> <li>- non-registration at the Ministry of Environment of the SR (electrical equipment producer) in compliance with Article 54b (1) (l) of the Act on Wastes,</li> <li>- non-fulfilment of registration and notification duties (electrical equipment producer) in compliance with Article 54b (1) (p) of the Act on Wastes,</li> <li>- non-fulfilment of registration and notification duties, non-provision of the common duties of producers, as well as non-reporting of changes (collective organisation) in compliance with Article 54ga (6) (b), (c) and (d) of the Act on Wastes.</li> </ul> <p>The violations found are subsequently solved in the administrative procedure in the matter of imposing a penalty.</p>
O.50.	In the Act on Wastes, to create such measures that will lead the producers of	Ministry of Environment of the Slovak	As at the date of approval of the new	The measure has been implemented	The new Act on Wastes regulates the management of electrical waste, which is not electrical waste from

	non-household electrical equipment to provide compulsory collection and subsequent treatment of the electrical waste, which is not electrical waste from households	Republic	Act on Wastes		households and the responsibility for management is assigned to the producers of electrical equipment. The above provisions are based on the current legal regulation.
O.51.	To reassess the existence of electrical equipment sector in the Recycling Fund	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	According to the new legal regulation, electrical equipment and electrical waste will be solved through extended producer responsibility. The new Act on Wastes adopted the legislative measures regulating the activity of the Recycling Fund, process of its cancellation and liquidation, within which also the electrical equipment sector will cease to exist.
O.52.	For the wastes from packaging and wastes from products from paper, glass, plastic and multi-layer combined materials, to prefer material recovery; for that purpose it is necessary that main activities of R3 are defined more precisely as various scopes of organic materials are concerned. For plastic packaging wastes and plastic products, a raw material must represent the output and not waste. The output activities of material recovery must not include shrinkage, sorting or crushing of waste	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	In February 2013, instructions were issued to granting the code of activity R3 for wastes from plastic, which is published at the website of the Ministry of Environment of the SR.
O.53.	To support the production of solid alternative fuels from packaging wastes and from products from paper, glass, plastic and multi-layer combined materials where recycling is not suitable or possible	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	Act No. 343/2012 Coll. created the legislative requirement for the support of energy recovery of combustible packaging wastes.

O.54.	For the wastes from plastic packaging and plastic products, to set the rules for the definition of the end-of-waste status and creation of a raw material in the process of material recovery of plastic waste through the activity R3 in compliance with the standard STN ISO 15270	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has not been implemented	The institute of the end-of-waste status was introduced into the SR legislation in Article 2b of the Act on Wastes, by Amendment No. 343/2012 Coll. Taking into account the preparation of criteria at the EU level under way, in this case the national criteria for the end-of-waste status were not specified.
O.55.	To issue instructions of the Ministry of Environment for the classification of packaging wastes pursuant to the Waste Catalogue	Ministry of Environment of the Slovak Republic	As at the end of 2011	The measure has been implemented	The Ministry of Environment of the Slovak Republic issued instructions for the classification of packaging wastes pursuant to the Waste Catalogue, which are published at the website of the Ministry of Environment of the Slovak Republic. The instructions were updated in December 2014.
O.56.	To increase the rate of recovery of packaging wastes by high-quality plans of prevention of obliged persons	District Environmental Office (District Office - Department of Environmental Care)	Every four years	The measure is implemented continuously	The prevention plans are prepared and submitted by the obliged persons in the defined intervals
O.57.	To analyse the conditions of deposit system for non-reusable packaging	Ministry of Environment of the Slovak Republic	Continuously till 2015	The measure is implemented continuously	Discussions with the entities concerned, which took place about the deposit system for plastic bottles and aluminium cans, did not come to a uniform conclusion. In this case, the provisions about the deposit system for non-reusable packaging were legislatively regulated so that the deposit uses a zero rate.
O.58.	To create conditions for the support of returnable, reusable packaging	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The conditions are created in Act No. 119/2010 Coll. and Regulation No. 81/2011 Coll.

O.59.	To tighten the control focusing on the producers that are not registered in the Register of Obligated Persons (so-called free-riders) and that do not fulfil the legal duties under the Act on Packaging; to also tighten the control of the producers registered in the Register of Obligated Persons that do not fulfil their statutory duties or do not fulfil them in full scope	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	After the analysis of all delivered reports from the obliged persons, entities are selected for the performance of control of fulfilment of basic duties. The Slovak Environmental Inspection continuously performs controls of fulfilment of basic duties under the Act on Packaging by the persons registered in the Register of Obligated Persons and authorised organisations.
O.60.	In cooperation with the Ministry of Economy of the SR, to propose a system for the support of materials obtained from recycled wastes from packaging and from products from paper, glass, plastic and multi-layer combined materials for the production of packaging and other products	Ministry of Environment of the Slovak Republic	2015	The measure has not been implemented	No negotiations have taken place yet.
O.61	To reassess the position of the Recycling Fund in the sectors of paper, plastic and glass in terms of fulfilment of the limits for the collection, recovery and recycling of wastes from packaging from such materials; to reassess the existence of the sector of metal packaging	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	According to the new legal regulation, paper, plastic and glass will be solved through extended producer responsibility. The new Act on Wastes adopted the legislative measures regulating the activity of the Recycling Fund, process of its cancellation and liquidation, within which also the sector of paper, plastic and glass will cease to exist.
O.62	To provide for the efficient separate collection of portable waste batteries and accumulators in accordance with the requirements of the European legislation	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	Amendment of Act No. 484/2013 fully transposed Directive 2006/66/EC of the European Parliament and of the Council on waste batteries and accumulators management to the Slovak legislation. Within this amendment, the duties for the collection of portable

					waste batteries and accumulators were harmonised with the European legislation. The respective requirements of the European legislation are also regulated in the new Act on Wastes
O.63.	To ensure information campaigns for the population to support the collection of waste batteries and accumulators	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	By adopting Act No. 484/2013 Coll. considerably changing Part Six of the Act on Wastes, the responsibility of producers of batteries and accumulators was increased including the information duty. The extension of the possibility of collection of waste batteries and accumulators extended the possibilities of information campaigns for producers.
O.64.	To involve all the producers and importers, including the points of sale, in the collection of waste batteries and accumulators	Ministry of Environment of the Slovak Republic	Continuously	The measure has been implemented	Amendment of Act No. 223/2001 Coll. No. 484/2013 fully transposed Directive 2006/66/EC of the European Parliament and of the Council on waste batteries and accumulators management to the Slovak legislation. By adopting the amendment to the Act on Wastes, this duty of producers, importers and distributors is fulfilled. According to the new Act on Wastes, waste batteries and accumulators belong to the selected waste stream, which is covered by extended producer responsibility, the possibility of their collection was interconnected with the influence and participation of producers of batteries and accumulators.
O.65.	In compliance with the directive, to allow the recycling operators, collection companies, producers and importers of batteries and accumulators to fulfil their duties in the area of collection and recovery of waste batteries and accumulators either individually or	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	Amendment of the Act on Wastes No. 484/2013 fully transposed Directive 2006/66/EC of the European Parliament and of the Council on waste batteries and accumulators management to the Slovak legislation. This amendment harmonised the possibilities of fulfilment of the duties of producers and importers of batteries and accumulators individually, collectively or through a third

	collectively				person. This possibility is also regulated in the new Act on Wastes.
O.66	Taking into account the practical non-feasibility of optical sorting of portable batteries and accumulators, to operate only the sorting lines, which will be able to sort the waste batteries and accumulators by their chemical composition, which is the first step to efficient recovery	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	Within the scope of granting the authorisation for the treatment and recycling of portable batteries and accumulators, this condition is taken into account. The respective authorisation was granted only to the entity that can sort waste batteries and accumulators according to their chemical composition (in no way optically).
O.67.	To reassess the existence of the sector of batteries and accumulators in the Recycling Fund	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	According to the new legal regulation, batteries and accumulators will be solved through extended producer responsibility. The new Act on Wastes adopted the legislative measures regulating the activity of the Recycling Fund, process of its cancellation and liquidation, within which also the sector of batteries and accumulators will cease to exist.
O.68.	To tighten the control focusing on the producers that are not registered in the Register of Producers of Batteries and Accumulators (so-called free-riders) and that do not fulfil the legal duties under the Act on Wastes; to also tighten the control of the producers registered in the Register of Producers of Batteries and Accumulators that do not fulfil their statutory duties under the Act on Wastes or do not fulfil them in full scope	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The Ministry of Environment of the Slovak Republic has not received any suggestions yet regarding the verification of entities suspicious of non-fulfilment of duties of producers of batteries and accumulators.
O.69.	To prevent the issue of false forms of end-of life vehicle deregistration	Ministry of Environment of	As at the date of approval of the new	The measure has been implemented	The new Act on Wastes modifies the legislative measures

		the Slovak Republic	Act on Wastes		preventing the issue of false forms of end-of life vehicle deregistration.
O.70.	No later than by 1 January 2014, to provide sufficient treatment capacities to fulfil the limits of recovery and recycling at least in trial operation and from 1 January 2015, to provide sufficient treatment capacities to fulfil the limits of recovery and recycling in proper operation, which conforms to valid legal standards binding in the SR and the EU	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	At present, within the framework of end-of life vehicles treatment, 45 authorised operations for end-of life vehicles treatment operate in the SR, which hold the authorisation from the Ministry of Environment of the SR for end-of life vehicles treatment pursuant to Article 8 (1) (c) of Act No. 223/2001 Coll. on wastes, and their capacity is sufficient for the needs of end-of life vehicles treatment in Slovakia.
O.71.	To ensure the hand-over of a dried end-of life vehicle, its parts, components and wastes produced from the treatment process to an authorised organisation holding the authorisation for the activity of end-of life vehicles treatment within the necessary scope so that it is provided for the sufficient material and energy recovery and recycling of the dried end-of life vehicle, its parts, components and wastes produced in the facility for end-of life vehicles treatment, which does not have sufficient capacities or technological procedure to ensure the binding fulfilment of the limits of recovery and recycling of end-of life vehicles	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The duty to ensure the complete treatment of end-of life vehicles within one year from their take-over for treatment, including the provision of re-use of end-of life vehicle parts and recovery of wastes from end-of life vehicles treatment, in particular the recycling of end-of life vehicles as well as disposal of unusable residues, is given by the valid legislation of waste management (the Act on Wastes).
O.72.	To prefer consistently the recycling and recovery of parts, materials, and components of vehicles obtained in end-of life vehicles treatment by the operators	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	With the binding force of the order of priorities and with the objective of preventing or reducing the adverse impacts of waste production and waste management,

	providing the services of end-of life vehicles treatment				reducing the overall influences of the use of sources and increasing the efficiency of such use, the following binding hierarchy of waste management is applied: a) waste prevention, b) preparing for re-use, c) recycling, d) other recovery, e.g. energy recovery, e) disposal.
O.73.	To consistently check the fulfilment of the recovery and recycling limits; to issue instructions of the Ministry of Environment of the SR for the calculation of the recycling efficiency from the receipt of end-of life vehicles to the facility for end-of life vehicles treatment to the final recycling of sorted materials	Slovak Environmental Inspection	Continuously	The measure is implemented continuously	The fulfilment of the recovery and recycling limits is continuously checked, the calculation of the recycling efficiency from the receipt of end-of life vehicles to the facility for end-of life vehicles treatment to the final recycling of sorted materials is carried out in accordance with the methodology specified in Regulation of the Ministry of Environment of the Slovak Republic No. 125/2004 Coll. laying down details of end-of life vehicles treatment and of certain requirements for vehicle production as amended.
O.74.	To support research and development of new technologies for the recycling and recovery of the materials that are not recovered in sufficient quantities at present (special glass, combined plastic-based materials, mixed combined and separated materials from crushing)	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	Supporting research and development of new technologies for the recycling and recovery of the materials that are not recovered in sufficient quantities at present (special glass, combined plastic-based materials, mixed combined and separated materials from crushing) is the primary task of the Recycling Fund. After it has ceased to exist, new technologies for the recycling and recovery of materials will be supported through the Operational Programme Quality of Environment and Environmental Fund.  In the programme period 2014 – 2020, the Operational Programme Research and Innovation focuses on the support of research and development of innovative

					technologies including the areas of the environment and energy identified in the "Research and Innovation Strategy for Smart Specialisation of the Slovak Republic" (RIS3). It will be possible to support the application of innovative technologies in the area of the environmental infrastructure from the Operational Programme Quality of Environment if such technology meets the criteria of eligibility of the Operational Programme Quality of Environment.
O.75.	To allow the producers and importers of vehicles to fulfil their duties in the area of end-of life vehicles treatment collectively	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	The new Act on Wastes allows the producers of vehicles to fulfil the selected duties either individually or collectively.
O.76.	To reassess the existence of the end-of life vehicles sector in the Recycling Fund	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	According to the new legal regulation, end-of life vehicles will be solved through the extended producer responsibility. The new Act on Wastes adopted the legislative measures regulating the activity of the Recycling Fund, the process of its cancellation and liquidation, within which also the sector of end-of life vehicles will cease to exist.
O.77.	To improve the system of collection of waste tyres	Ministry of Environment of the Slovak Republic	Continuously	The measure has been implemented	The new Act on Wastes adopted the legislative measures introducing the take-back of waste tyres through tyre distributors. With respect to producer responsibility introduction into this segment, the collection of waste tyres will be performed exclusively through tyre distributors, and if an end-of life vehicle is handed over, along with such end-of life vehicle.
O.78.	To introduce tyre producer responsibility	Ministry of	As at the date of	The measure has	

	for the fulfilment of limits of waste tyre collection and recovery to be set out in a legislative regulation	Environment of the Slovak Republic	approval of the new Act on Wastes	been implemented	The new Act on Wastes adopted the legislative measures regulating the responsibility of tyre producers and importers for fulfilling the limits of collection and recovery.
O.79.	To allow tyre producers to fulfil collectively the duties in relation to fulfilling the limits of collection and recovery	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	The new Act on Wastes allows the producers of tyres to fulfil the selected duties either individually or collectively.
O.80.	To introduce the system of waste tyre take-back; for that a modification of legislative regulations is necessary	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	The new Act on Wastes adopted the legislative measures introducing the take-back of waste tyres through tyre distributors.
O.81.	To reassess the existence of the tyres sector in the Recycling Fund	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	According to the new legal regulation, waste tyres will be solved through the extended producer responsibility. The new Act on Wastes adopted the legislative measures regulating the activity of the Recycling Fund, the process of its cancellation and liquidation, within which also the sector tyres will cease to exist.
O.82.	To not consider the uncontaminated soils and other naturally occurring material excavated during construction work to be waste (if the material is used for the purposes of construction in natural condition)	District Environmental Office (District Office - Department of Environmental Care)	Continuously	The measure is implemented continuously	The measure was implemented by adopting the amendment to the Act on Wastes, according to which the Act on Wastes does not relate to the uncontaminated soils and other naturally occurring material excavated during construction work. However, the condition that the material will be used for the purposes of construction in natural condition on the sites, from which they were excavated, must be met.
O.83.		Ministry of	Continuously	The measure is	

	To increase the control of waste separation in the place of production	Environment of the Slovak Republic		implemented continuously	The control of waste separation in the place of production is carried out by the Slovak Environmental Inspection and District Offices, Departments of Environmental Care, within the framework of regular inspections according to the plans of control activity for the respective calendar year.
O.84.	To support research and development in the area of recycling, re-use or reclamation of materials from construction and demolition wastes	Ministry of Environment of the Slovak Republic	Continuously	The measure is not implemented	In the previous period of the Waste Management Plan, research and development in the area of recycling, re-use or reclamation of materials from construction and demolition wastes was not supported.
O.85.	To set out the rules for end-of-waste status definition for O Category construction and demolition wastes	Ministry of Environment of the Slovak Republic, Ministry of Transport, Construction and Regional Development of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented partially	The institute of end-of-waste status was introduced into the legislation of the SR by Act No. 343/2012 Coll. and it is also part of the new legal regulation. The criteria, which would enable the end-of-waste status for construction and demolition waste beyond the ambit of the European legal regulations, have not been prepared yet. The Ministry of Transport, Construction and Regional Development of the Slovak Republic implemented the measure within the scope of acceptance of the European standards in the area of recycling of construction and demolition wastes for the system of Slovak technical standards.
O.86.	To modify the technical standards for construction materials and their use for the purpose of increasing the share of use of the recycled construction and demolition wastes and construction products, which were produced with the use of wastes from material or energy recovery	Ministry of Environment of the Slovak Republic, Ministry of Transport, Construction and Regional Development of	Continuously	The measure is implemented continuously	In the evaluated period since 2011, the European standards in the area of recycling of construction and demolition wastes have been gradually accepted for the system of Slovak technical standards. European standards, which the SR is obliged to accept in compliance with the membership in the European Committee for Standardisation (CEN). The technical

		the Slovak Republic			standards also take into account the basic requirement for constructions – sustainable use of natural resources. The construction works must be designed, built and demolished in such a way that the use of natural resources is sustainable and in particular ensure the re-use or recyclability of the construction works, their materials and parts after demolition (in accordance with Regulation No. 305/2011 of the European Parliament and of the Council).
O.87.	To support construction and operation of facilities for the recovery of construction and demolition wastes	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	Within the programme period 2007-2013, 114 projects focused on waste recovery and hazardous waste management were approved through the Operational Programme Environment, with a total amount of EUR 126.7 million. The list of beneficiaries under the OP QE is published at the following address: <a href="http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/">http://www.opzp.sk/projekty/zoznamy-opzp/zoznam-prijimatelov-z-opzp/</a> .
O.88.	During the construction work financed from public resources (in particular during the construction of roads and transport infrastructure), to use the treated construction and demolition waste, construction materials and products, which were produced with the recovery of waste (material or energy recovery) provided that they meet the functional and technical requirements, or the construction products prepared from construction and demolition wastes; to include this requirement into the public procurement conditions	All departments	Continuously	The measure is implemented continuously	<p>In providing construction work financed from public resources, the Ministry of Culture of the SR includes the requirement to use construction waste, construction materials and product, which meet the functional and technical conditions, in the public procurement conditions or contracts for construction work.</p> <p>In executing construction work, the Ministry of Justice recovers the construction waste or disposes it in an environmentally suitable way. The fulfilment of waste management plan objectives is provided internally and through suppliers.</p> <p>In executing construction work financed from public resources, the Ministry of Interior has defined in the</p>

					<p>contractual conditions with the contractor that construction waste will be recovered or disposed in compliance with the Act on Wastes and the contracting partner is obliged to document the waste management.</p> <p>During construction work financed from public resources, the Ministry of Health used recycled material for construction work at least in five cases.</p> <p>Within constructions of railway infrastructure modernisation, the Ministry of Transport, Construction and Regional Development of the Slovak Republic built recycling bases for the use of obtained material, where the obtained material is recycled. The obtained suitable material is again built in within the embankments into the trackbed or it is used in road embankments. Only excess material that cannot be used is removed to the respective landfill of wastes; for that, the construction supplier is responsible.</p>
O.89.	To propose an amendment to the Building Act, which will place the duty upon the Building Authorities to check the hand-over of construction and demolition wastes during the final building approvals of structures	Ministry of Environment of the Slovak Republic, Ministry of Transport, Construction and Regional Development of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has been implemented	<p>The Ministry of Transport, Construction and Regional Development of the Slovak Republic has prepared a draft new Building Act, which should be submitted for the negotiation of the SR Government by 30 April 2015. According to the new Act on Wastes, state administration authorities of waste management give their opinion on the construction related to waste management, on the documentation in the final building approval proceedings.</p>
O.90.	To support the projects focused on the strategy, collection, decontamination and disposal of PCB containing wastes, e.g. from the resources of European funds or	Ministry of Environment of the Slovak Republic	On an annual basis	The measure is implemented continuously	From the resources of the Operational Programme Environment, the Ministry of Environment of the Slovak Republic supported the project "Preparation of PCB wastes collection and disposal" in the amount of EUR

	the Environmental Fund				950,000 EUR, whose beneficiary is the Košice Self-Governing Region. The project "Management of solving the sites with the occurrence of POP mixtures/pesticides in the SR" was supported within the framework of the Operational Programme Environment. The date of project completion: 06/2015.
O.91.	To check consistently the ban on PCB containing waste disposal on landfills	Slovak Environmental Inspection	Continuously	The measure is implemented continuously	The ban on PCB containing waste disposal on landfills is checked by the Slovak Environmental Inspection. Performance of controls based on the approved "Plan of main tasks of the Headquarters - Department of Waste Management Inspection" Number of controls carried out: 2011 - 16 PCB holders 2012 - 15 PCB holders 2013 - 34 PCB holders
O.92.	To check consistently the fulfilment of the duty of preferred removal of PCB containing components from electrical waste and end-of life vehicles	Slovak Environmental Inspection	Continuously	The measure is implemented continuously	The fulfilment of the duty of preferred removal of PCB containing components from electrical waste and end-of life vehicles is checked by the Slovak Environmental Inspection. For waste electrical and electronic equipment, it is ensured by the duty pursuant to Regulation of the Ministry of Environment of the SR No. 315/2010 Coll. Performance of controls based on the approved "Plan of main tasks of the Headquarters - Department of Waste Management Inspection". Number of controls carried out: 2011 - 12 providers of end-of life vehicles treatment services 2012 - 8 providers of end-of life vehicles treatment services - 9 providers of electrical waste treatment services 2013 - 6 providers of end-of life vehicles treatment

					services - 11 providers of electrical waste treatment services
O.93.	To issue instructions of the Ministry of Environment regarding the management of small PCB contaminated equipment, which is not subject to record-keeping in accordance with Article 40a of the Act on Wastes	Ministry of Environment of the Slovak Republic	2011	The measure has been implemented	The instructions were published in the Journal of the Ministry of Environment of the SR No. 4b Volume XVII.
O.94.	To increase the quantity of collected waste oils and to introduce their separate collection by types	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The ban on mixing applies to waste oil management. The duty to collect, transport, recover and dispose waste oils only separately from other waste types is also in force.
O.95.	To support the collection of waste oils from small and medium enterprises	Ministry of Environment of the Slovak Republic	Continuously	The measure has not been implemented	Initially, the Ministry of Environment of the Slovak Republic also proposed to introduce extended producer responsibility in the segment of oils and waste oils. The original proposal was omitted within the framework of the interdepartmental commenting procedure. The duty to provide waste oil management in compliance with law is left to the waste holder.
O.96.	To improve the collection and evaluation of data on waste oil production and management in the SR	Ministry of Environment of the Slovak Republic	As at the date of approval of the new Act on Wastes	The measure has not been implemented	The Ministry of Environment of the SR prepares a new information system of waste management that should be financed through the Operational Programme Quality of Environment. It will be possible to improve the data collection only after the new information system has been implemented.
O.97.	In case that the Recycling Fund ceases to	Ministry of Environment of	As at the date of approval of the new	The measure has not been implemented	Initially, the Ministry of Environment of the Slovak

	exist or is cancelled, producer responsibility for the fulfilment of the limits of collection and recovery of waste oils set out by a legislative regulation should be applied to separate collection of waste oils	the Slovak Republic	Act on Wastes		Republic also proposed to introduce extended producer responsibility in the segment of oils and waste oils. The original proposal was omitted within the framework of the interdepartmental commenting procedure. The duty to provide waste oil management in compliance with law is left to the waste holder.
O.98.	To create a new system of waste management data collection and processing in the form of a central information system of waste management of the SR	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The Ministry of Environment of the SR prepares a new information system of waste management that should be financed through the Operational Programme Quality of Environment.
O.99.	Based on the requirement of the Regulation with respect to reducing the risk during hazardous waste shipment in order to protect health, the environment, and in compliance with the Basel Convention on the control of transboundary movements of hazardous wastes, to enable the shipment or export of hazardous wastes for recovery only in justified cases	Ministry of Environment of the Slovak Republic	Continuously	The measure is implemented continuously	The Ministry of Environment of the Slovak Republic in cooperation with the Ministry of Economy of the Slovak Republic has prepared justified cases within the framework of transboundary shipment/export of hazardous wastes from the territory of the SR for the purpose of recovery. The proposed justified cases represented the basis for preparing the Instructions of the Minister of Environment of the Slovak Republic dated 15 April 2013 No. 1/2013 - 3.3. on the procedure in submitting notices of transboundary shipment or export of hazardous wastes from the territory of the SR for the purpose of recovery. The objective of the instructions is to fulfil Measure No. 99 from the WMP SR and to unify the interpretation of justified cases within transboundary shipment or export of hazardous wastes from the territory of the SR for the purpose of recovery.
O.100	To work out a Concept of Energy Recovery and Incineration of Wastes in the SR	Ministry of Environment of the Slovak Republic	2013	The measure has not been implemented	Preparatory work and a pilot study of energy recovery and incineration of wastes in the SR have been carried out, however, the concept itself has not been worked out. It will be necessary to work out the Concept of

					Energy Recovery and Incineration of Wastes in the period 2016-2020.
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## 4. Binding Part of the Plan

The binding part of the WMP SR for 2016 to 2020 contains the target direction of management of specified types and quantities of wastes (waste streams), PCB and contaminated equipment in the specified time, and the measures to achieve them, measures reducing the quantity of biodegradable municipal waste going to

landfills, and the assessment of the need of building new facilities for waste treatment, and the need of extension of the existing waste treatment facilities. The binding part of the WMP SR also discusses the responsibility for the implementation of the proposed measures and campaigns increasing the awareness and providing information.

### 4.1. Waste Management Objectives till 2020

The main objective of waste management of the SR till 2020 is to minimise the negative effects of waste production and management on human health and the environment. To achieve the set objectives, it will be necessary to apply and observe properly the binding hierarchy of waste management in order to increase waste recycling in particular for the area of municipal wastes and construction and demolition wastes in compliance with the requirements of the Waste Framework Directive. In waste management, it is necessary to further apply the principles of

proximity, self-sufficiency, and for the selected waste streams, also extended producer responsibility for new waste streams, in addition to the general "polluter pays" principle. In building the infrastructure of waste management, it is necessary to apply the requirement of Best Available Techniques (BAT) or Best Environmental Practice (BEP). For the period of 2016 to 2020, an essential diversion of waste disposal from landfilling in particular for municipal wastes remains the strategic objective of waste management of the SR.

#### Measures for Achieving the Main Objective of Waste Management

- O1. To implement the extended producer responsibility for the following selected products: electrical equipment, batteries and accumulators, packaging, vehicles, tyres and non-packaging products,
- O2. to increase the level of separate collection for recyclable types of municipal wastes, in particular for paper and cardboard, glass, plastic, metals, and biodegradable municipal wastes in order to fulfil the objectives for separate collection of municipal wastes mentioned in Table 4-1,
- O3. to increase recycling of construction and demolition wastes including the backfilling in order to fulfil the recycling objective mentioned in Part 4.1.9,
- O4. in cooperation with the Ministry of Economy of the Slovak Republic, to introduce the support of using materials obtained from recycled wastes for the production of products and improvement of market conditions for such materials,
- O5. to support financing of projects for re-use and preparation of re-use in the

- municipal sphere, e.g. so-called "re-use centres",
- O6. to improve the state of awareness among citizens and all entities operating in waste management regarding the necessity and possibilities of waste collection, re-use and recycling, as well as of use of the products produced by recycling, by introducing efficient and generally

- accessible information systems and by leading local and national information campaigns,
- O7. to increase control activities of all state supervision authorities in waste management and municipalities in order to observe the legal regulations regulating the area of waste management.

#### 4.1.1. Objectives and Measures for Municipal Wastes

In accordance with Article 11(2) (a) of the Waste Framework Directive, by 2020, the preparing for re-use and the recycling of waste materials such as paper, metal, plastic and glass from households and possibly from other origins as far as these waste streams are similar to waste from households, shall be increased to a minimum of overall 50 % by weight. Fulfilment of the objectives must be evaluated pursuant to Commission Decision 2011/753/EU establishing rules and calculation methods for verifying compliance with the targets set in Article 11(2) of the Waste Framework Directive. In verifying compliance with the objectives of municipal waste recycling, the SR will follow Calculation Method 2 or Calculation Method 4 unless the European Commission adopts a uniform method for verifying compliance with the Directive's targets.

To fulfil the objective of 50 % recycling of municipal wastes, it is necessary to increase essentially the level of separate collection of recyclable components of municipal wastes, in particular paper and cardboard, glass, plastic, metals and biodegradable municipal wastes. As the separated components of municipal wastes are not 100 % recyclable, which is connected with the quality of raw materials for the process of recycling, the objectives for the rate of separate collection of municipal wastes must be higher than the recycling objective itself. The objectives for separate collection of municipal wastes are set out in Table 4-1. Taking into account the low dynamics of separate collection in the previous period, it is necessary to monitor the rate of separate collection every year and in case of negative development, to adopt immediate stricter measures for its support.

**Table 4-1 Objectives for separate collection of municipal wastes**

Years	2016	2017	2018	2019	2020
Rate of separate collection	20%	30%	40%	50%	60%

## Measures for Achieving the Objectives of Municipal Waste Recycling

- O8. To implement the principle of extended producer responsibility in the system of separate collection of municipal wastes for the components of municipal wastes, to which the principle of extended producer responsibility is applied,
- O9. to assess the possibility of modification of the amount and mechanism of re-distribution of the fees for landfilling between municipalities and the Environmental Fund in order to create sufficient financial resources to support waste prevention and separate collection of municipal wastes. One of the principles of the new economic tool must be that the amount of fees for landfilling must be based on the rate of sorting of municipal waste,
- O10. in cooperation with the professional public and third sector, to adopt a uniform methodology for determining the composition of municipal waste,
- O11. based on the continuous evaluation of efficiency of separate collection of municipal wastes in connection with the objectives of municipal waste recycling, to assess the possibility of introduction of a new system of collection of single-use beverage packaging. A working group will be established to assess the possibility of introduction of a new system of collection of single-use beverage packaging.

### 4.1.2. Objectives and Measures for Biodegradable Municipal Wastes

Based on the requirements of Council Directive 1999/31/EC on the landfill of waste, the following objective applies to biodegradable municipal wastes: by 2020,

biodegradable municipal waste going to landfills must be reduced to 35 % of the total amount (by weight) of biodegradable municipal waste produced in 1995.

## Measures for Achieving the Objectives of Limiting the Quantity of Biodegradable Municipal Waste Going to Landfills

- O12. To support the financing of projects focused on the construction of small composting plants in the municipalities, where such construction is expedient,
- O13. in compliance with the Waste Prevention Programme in the SR for 2014-2018, in cooperation with the third sector, to adopt a national plan of home composting, with the specification of methodology for calculating the quantity of biodegradable municipal wastes composted in households,
- O14. to support the financing of projects for biodegradable municipal waste prevention using home and community composting,
- O15. to continue to introduce separate collection of kitchen, restaurant waste and biodegradable wastes from public and private greenery and gardens based on the standards of separate collection for biodegradable municipal wastes,
- O16. to support the financing of projects for modernisation of the existing composting plants and biogas stations

- using hygienisation units allowing the treatment of biodegradable kitchen and restaurant wastes,
- O17. to support the financing of projects focused on the construction of biogas stations, which will produce biogas mostly from kitchen and restaurant municipal biodegradable wastes,
- O18. to support the increase in the sale of products of biodegradable waste recovery by implementing the "Action Plan for the Support of Placing of

- Compost from Biodegradable Wastes on the Market",
- O19. to assess the possibility of prohibiting the landfilling of biodegradable municipal wastes, whose content of organic carbon is higher than 5 weight percent,
- O20. to support the production of alternative fuels produced from mixed municipal waste within the support of using renewable energy sources, if their material recovery is not suitable.

### 4.1.3. Objectives and Measures for Biodegradable Industrial Wastes

The objectives for biodegradable industrial wastes are set for all biodegradable wastes except municipal biodegradable wastes and sewage sludge from treatment of municipal

waste waters and waste waters with properties similar to municipal waste waters. The objectives for biodegradable industrial wastes by 2020 are set in Table 4-2.

**Table 4-2 Objectives for biodegradable industrial wastes**

Management	2018	2020
Material recovery	70%	75%
Energy recovery	10%	10%
Landfilling	7%	5%
Other management	13%	10%

#### Measures for Achieving the Objectives for Biodegradable Industrial Wastes

- O21. To support the financing of projects focused on the construction of biogas stations, which will produce biogas exclusively or mostly from biodegradable wastes.

### 4.1.4. Objectives and Measures for Paper and Cardboard

The objectives by 2020 for paper and cardboard are set in particular for the purpose of increasing the material recovery of this waste stream. By 2020, the objective of material recovery of paper and cardboard wastes is set to 70 % taking into account the fact that the collected paper is among the most important secondary raw materials in Slovakia, and according to the data of the Recycling Fund, the enterprises of the paper

and pulp industry have an annual capacity for material recovery of collected paper of about 320,000 tons, which means unused potential of treatment capacities. At the same time, for this commodity it is necessary to continue in the trend of landfilling reduction as paper and cardboard fulfil the definition of biodegradable wastes and must be diverted from landfills.

**Table 4-3 Objectives for paper and cardboard wastes**

Management	2018	2020
Material recovery	55%	70%
Energy recovery	10%	15%
Landfilling	3%	2%
Other management	32%	13%

#### Measures for Achieving the Objectives for Paper and Cardboard Wastes

- O22. To increase the efficiency of separate collection of municipal wastes with the objective to reach at least 120,000 tons of separated paper and cardboard from municipal wastes by 2020,
- O23. to support the financing of technologies focused on reaching a high level of collected paper recycling by progressive

- technologies for paper and cardboard waste recovery, which are in compliance with the requirements for Best Available Techniques (BAT),
- O24. to support new projects focused on solving the recovery and recycling of paper from corrugated cardboard.

#### 4.1.5. Objectives and Measures for Glass

Taking into account the high share of waste glass in the separate collection of municipal wastes, an increase in waste glass recycling is a very important objective for achieving the recycling objective in accordance with the requirement of the Waste Framework Directive. In the previous period, the analysis

**Table 4-4 Objectives for waste glass**

of waste glass production and management proved a high share of waste glass disposed on landfills. By 2020, waste glass landfilling should be reduced to a level of 10 %. The objectives for waste glass by 2020 are included in Table 4-4.

Management	2018	2020
Material recovery	60%	80%
Energy recovery	0%	0%
Landfilling	20%	10%
Other management	20%	10%

#### Measures for Achieving the Objectives for Glass Wastes

O25. To increase the efficiency of separate collection of municipal wastes with the objective to reach at least 90,000 tons of separated glass from municipal wastes by 2020,

O26. in increasing the quantities of waste glass from separate collection of municipal wastes, to assess the existing treatment capacities for waste glass recycling, analysing the need of extension of the existing recycling capacities or construction of new recycling capacities for waste glass treatment,

O27. to support the financing of new technologies and construction of capacities for the technological treatment and recycling of the currently non-recyclable types of waste glass from municipal waste and special types of municipal waste,

O28. to apply Commission Regulation (EU) No. 1179/2012 establishing criteria determining when glass cullet ceases to be waste under Directive 2008/98/EC of the European Parliament and of the Council.

#### 4.1.6. Objectives and Measures for Plastic

The objective for plastic wastes by 2020 is to reach 55 % of material recovery and reduce landfilling of plastic wastes to 5 %. The SR has sufficient treatment capacities allowing achieving the set objective. According to

professional estimates, the annual recycling capacities for all types of plastic waste in the SR are at a minimum level of 150 thousand tons.

**Table 4-5 Objectives for plastic wastes**

Management	2018	2020
Material recovery	50%	55%
Energy recovery	10%	15%
Landfilling	10%	5%

Other management	30%	25%
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### Measures for Achieving the Objectives for Plastic Wastes

- O29. To increase the efficiency of separate collection of municipal wastes with the objective to reach at least 110,000 tons of separated plastic from municipal wastes by 2020,
- O30. to support the financing of technologies focused on reaching a high level of plastic waste recycling, which are in compliance with the requirements for Best Available Techniques (BAT), on the basis of assessment of the existing recycling capacities,
- O31. to not support the financing of technologies for catalytic chemical breakdown of plastic,
- O32. to support the financing of technologies for an increase in the technical level of the existing recycling equipment in order to increase the share of new recycle-based products,
- O33. to support the financing of technologies for recycling the problematic plastic types from end-of life vehicles treatment and wastes from electrical and electronic equipment and mixed plastics.

#### 4.1.7. Objectives and Measures for Ferrous and Non-Ferrous Metals

Wastes from ferrous and non-ferrous metals have been reaching a high rate of recovery and recycling in the long term. The objective of their material recovery by 2020 is at a level of 90 % with zero energy recovery and gradual decrease in landfilling to a maximum level of 1 %. Taking into account the existing treatment capacities as well as the dense network of collecting and purchase centres of wastes focusing in particular on wastes from ferrous and non-ferrous metals, the achievement of material recovery objectives will depend in

particular on the correct application of end-of-waste status pursuant to Council Regulation (EU) No. 333/2011 establishing criteria determining when certain types of scrap metal cease to be waste under Directive 2008/98/EC of the European Parliament and of the Council and Commission Regulation (EU) No. 715/2013 establishing criteria determining when copper scrap ceases to be waste under Directive 2008/98/EC of the European Parliament and of the Council.

**Table 4-6 Objectives for ferrous and non-ferrous metals**

Management	2018	2020
Material recovery	80%	90%
Energy recovery	0%	0%
Landfilling	1%	1%

Other management	19%	9%
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### Measures for Achieving the Objectives for Wastes from Ferrous and Non-Ferrous Metals

- O34. To support the financing of technologies focused on reaching a high level of recycling of wastes from ferrous and non-ferrous metals, which are in compliance with the requirements for Best Available Techniques (BAT), on the basis of assessment of the existing recycling capacities,
- O35. to the area of wastes from ferrous and non-ferrous metals, to apply Council Regulation (EU) No. 333/2011
- establishing criteria determining when certain types of scrap metal cease to be waste under Directive 2008/98/EC of the European Parliament and of the Council, and Commission Regulation (EU) No. 715/2013 establishing criteria determining when copper scrap ceases to be waste under Directive 2008/98/EC of the European Parliament and of the Council.

#### 4.1.8. Objectives and Measures for Packaging Wastes

In the area of packaging waste management (in accordance with the requirements of European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste, as amended by Directive 2004/12/EC of the European Parliament and of the Council of 11 February 2004, as amended by Directive 2005/20/EC of the European Parliament and of the Council of 9

March 2005, as amended by Regulation (EC) No. 219/2009 of the European Parliament and of the Council of 11 March 2009 and Commission Directive 2013/2/EU of 7 February 2013), the objective is to achieve the rates of recovery and recycling included in Table 4-7.

**Table 4-7 Objectives for packaging wastes**

a) a total rate of recovery of at least 60 % by weight of packaging waste,		
b) a total rate of recycling of at least 55 % and maximum 80 % by weight of packaging waste,		
c) a rate of recovery for individual packaging materials (waste streams) of at least:		
1.	60 %	by weight of glass packaging wastes,
2.	68 %	by weight of paper packaging wastes (including paperboard and cardboard),
3.	55 %	by weight of metal packaging wastes,
4.	48 %	by weight of plastic packaging wastes,

5.	35 %	by weight of wooden packaging wastes,
d) a rate of recycling for individual packaging materials (waste streams) of at least:		
1.	60 %	by weight of glass packaging wastes,
2.	60 %	by weight of paper packaging wastes (including paperboard and cardboard),
3.	55 %	by weight of metal packaging wastes,
4.	45 %	by weight of plastic packaging wastes,
5.	25 %	by weight of wooden packaging wastes.

In April 2015, the European Parliament adopted Directive (EU) 2015/720 of the European Parliament and of the Council amending Directive 94/62/EC on packaging and packaging waste as regards reducing the consumption of lightweight plastic carrier bags. The general objective of this Directive is to prevent or reduce negative impacts on the environment (in particular in terms of excessive occurrence of these bags in the environment), to support waste prevention and more efficient use of resources, as well as to limit the negative social economic impacts. A more particular objective is to reduce the consumption of plastic carrier bags with a wall thickness below 50 microns (0.05 mm) in the EU.

The Directive places the duty on all Member States to reduce the consumption of lightweight plastic carrier bags and allows them to set their own national objectives

regarding reducing the consumption and to select measures for achieving these objectives. The SR can adopt measures, which include one or both possibilities:

- a) the adoption of measures ensuring that the annual consumption level does not exceed 90 lightweight plastic carrier bags per person by 31 December 2019 and 40 lightweight plastic carrier bags per person by 31 December 2025, or equivalent targets set in weight. Very lightweight plastic carrier bags may be excluded from national consumption objectives, or
- b) the adoption of instruments ensuring that, by 31 December 2018, lightweight plastic carrier bags are not provided free of charge at the point of sale of goods or products, unless equally effective instruments are implemented. Very lightweight plastic carrier bags may be excluded from those measures.

### Measures for Achieving the Objectives

O36. to introduce statistical processing (evaluation) of data on the consumption of plastic carrier bags,

O37. to assess the adoption of prohibition of provision of lightweight plastic carrier bags free of charge at the point of sale, and based on the results, to adopt a

corresponding measure or to propose other type of measure with the objective to reduce the annual consumption of lightweight plastic carrier bags to 90 pieces per person by the end of 2019 and to 40 pieces per person by the end of 2025.

#### 4.1.9. Objectives and Measures for Construction and Demolition Wastes

In accordance with Article 11(2) (b) of the Waste Framework Directive, the objective for construction and demolition wastes is as follows: by 2020, the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the list of waste shall be increased to a minimum of 70 % by weight. Fulfilment of the objectives must be evaluated

pursuant to Annex III to Commission Decision 2011/753/EU establishing rules and calculation methods for verifying compliance with the targets set in Article 11(2) of Directive 2008/98/EC of the European Parliament and of the Council. To verify the fulfilment of rate of recycling of construction and demolition waste, it will be necessary to monitor exclusively the types of construction wastes in the category "other" excluding dredging spoils (17 05 04 and 17 05 06).

##### Measures for Achieving the Objectives of Construction Waste Recycling

- O38. In cooperation with the Ministry of Transport, Construction and Regional Development of the Slovak Republic, to adopt suitable economic and legislative measures to limit the landfilling and other management of recyclable construction wastes except for recycling,
- O39. to modify the legislative conditions for the use of non-contaminated excavation spoils and other naturally occurring material in relation to specifying the criteria of end-of-waste status for excavation spoils and the legal regulation of backfilling under preparation,
- O40. in cooperation with the professional public, to set the rules for end-of-waste status definition for recyclable construction and demolition wastes in the category "other waste",
- O41. during the construction work financed from public resources (in particular

- during the construction of roads and transport infrastructure), to use the treated construction and demolition waste, construction materials and products, which were produced with the recovery of waste (material or energy recovery) provided that they meet the functional and technical requirements, or the construction products prepared from construction and demolition wastes or by-products; to include this requirement into the public procurement conditions,
- O42. in cooperation with the professional public, to specify uniform standards for construction recyclates and their use in order to increase the quality level of material recovery of construction and demolition wastes,
- O43. to support the financing of technologies to increase the rate of recycling of construction wastes into output products with a higher added value,

O44. to not support the financing of technologies for the recovery of construction and demolition wastes intended for primary crushing.

#### 4.1.10. Objectives and Measures for Waste Tyres

The objective for waste tyres is to reach by 2020 a level of material recovery of 80 % with 15% energy recovery and gradual decrease in landfilling to a maximum level of 1 %.

**Table 4-8 Objectives for waste tyres**

Management	2018	2020
Material recovery	75 %	80 %
Energy recovery	10 %	15 %
Landfilling	1 %	1 %
Other management	14 %	4 %

#### Measures for Achieving the Objectives for Waste Tyres

O45. To support the financing of technologies focused on reaching a high level of waste tyre recycling, which are in compliance with the requirements for Best Available Techniques (BAT).

#### 4.1.11. Objectives and Measures for End-Of Life Vehicles

The objective for end-of life vehicles is to attain in the period 2016 to 2020 the binding limits for the scope of re-use of parts of end-of life vehicles, recovery of wastes from the treatment of end-of life vehicles and recycling of end-of life vehicles included in Table 4-9.

**Table 4-9 Limits for the scope of re-use of parts of end-of life vehicles, recovery of wastes from the treatment of end-of life vehicles and recycling of end-of life vehicles**

Activity	Limit a date for a minimum increase in the scope of activities
	1 January 2015 and the following years
	all vehicles
Re-use of parts of end-of life vehicles and recovery of wastes from the treatment of end-of life vehicles	95 %

Re-use of parts of end-of life vehicles and recycling of end-of life vehicles	85 %
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### Measures for Achieving the Objectives

- O46. To ensure the implementation of a new information system on wastes and its interconnection with the existing electronic system of record-keeping of end-of life vehicles taken over for treatment,
- O47. to not support the financing of the construction of new capacities for the treatment of end-of life vehicles,

- O48. to support the financing of the technologies for the recovery of problematic wastes from the treatment of end-of life vehicles (e.g. upholstery, foam wastes, rubber wastes, composite materials, etc.).

#### 4.1.12. Objectives and Measures for Waste Batteries and Accumulators

The following objectives have been set for waste batteries and accumulators (in accordance with the requirements of Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC):

- to attain the minimum limits for the collection of portable batteries and accumulators 40 % for 2015 and 45 % for 2016,
- to attain the collection of waste automotive batteries and accumulators in the amount of the market share of batteries placed on the market of the SR by the producer of automotive batteries and accumulators in the previous calendar year
- to attain the collection of waste industrial batteries and accumulators in the amount of the market share of batteries placed on the market of the SR by the producer of industrial batteries and accumulators in the previous calendar year

- the objective of recycling of waste batteries and accumulators is 100 % of the quantity of collected waste batteries and accumulators for the previous calendar year;
- to attain a minimum recycling efficiency:
  - a) 90 % by average weight of lead-acid batteries and accumulators, including recycling of the lead content to the highest degree that is technically feasible while avoiding excessive costs;
  - b) 75 % by average weight of nickel-cadmium batteries and accumulators, including recycling of the cadmium content to the highest degree that is technically feasible while avoiding excessive costs;
  - c) 60 % by average weight of other waste batteries and accumulators;
- for all the collected batteries and accumulators, to ensure their continuous treatment by an authorised provider of treatment services.

## Measures for Waste Batteries and Accumulators

O49. To support the financing of technologies to reach a high level of recycling and treatment of waste batteries and accumulators, which are in compliance with the requirements for Best Available Techniques (BAT), on the basis of assessment of the existing recycling and treatment capacities,

O50. to support projects for research and development in the area of recycling and recovery of waste batteries and accumulators,

O51. to check consistently the institute of preparing for re-use for the area of waste batteries and accumulators.

### 4.1.13. Objectives and Measures for Electrical Equipment and Electrical Wastes

The objective for waste electrical and electronic equipment is to achieve, in the treatment of individual WEEE categories, the rate of recovery and rate of recycling pursuant to Table 4-10.

The objective of electrical waste collection is the scope of collection, which must be

attained by the SR in compliance with the principle of extended responsibility of electrical equipment producers in the respective calendar year set within the minimum weight range of electrical waste pursuant to Table 4-11.

**Table 4-10 Minimum objectives for recovery and recycling of waste electrical and electronic equipment**

The minimum objectives valid by category from 15 August 2015 to 14 August 2018, which relate to the categories listed in Annex No. 6 Part I of the new Act on Wastes

Category	Rate of recovery	Rate of recycling
1. Large household appliances	85 %	80 %
2. Small household appliances	75 %	55 %
3. IT and telecommunications equipment	80 %	70 %
4. Consumer equipment and photovoltaic panels	80 %	70 %
5. Lighting equipment and lamps	75 %	55 %
- out of it gas tubes	-	80 %
6. Electrical and electronic tools	75 %	55 %
7. Toys, leisure and sports equipment	75 %	55 %

8. Medical devices	75 %	55 %
9. Monitoring and control instruments	75 %	55 %
10. Automatic dispensers	85 %	80 %
<b>The minimum objectives valid by category from 15 August 2018, which relate to the categories listed in Annex No. 6 Part II of the new Act on Wastes</b>		
<b>Category</b>	<b>Rate of recovery</b>	<b>Rate of recycling</b>
1. Temperature exchange equipment	85 %	80 %
2. Screens, monitors, and equipment containing screens having a surface greater than 100 cm <sup>2</sup>	80 %	70 %
3. Lamps	-	80 %
4. Large equipment (any external dimension more than 50 cm) including, but not limited to: Household appliances; IT and telecommunication equipment; consumer equipment; luminaries; equipment reproducing sound or images, musical equipment; electrical and electronic tools; toys, leisure and sports equipment; medical devices; monitoring and control instruments; automatic dispensers; equipment for the generation of electric currents. This category does not include equipment included in categories 1 to 3.	85 %	80 %
5. Small equipment (no external dimension more than 50 cm) including, but not limited to: Household appliances; consumer equipment; luminaries; equipment reproducing sound or images, musical equipment; electrical and electronic tools; toys, leisure and sports equipment; medical devices; monitoring and control instruments; automatic dispensers; equipment for the generation of electric currents. This category does not include equipment included in categories 1 to 3 and 6.	75 %	55 %

6. Small IT and telecommunication equipment (no external dimension more than 50 cm).	75 %	55 %
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**Table 4-11 Objectives of collection for waste electrical and electronic equipment**

In 2016	the weight corresponding to a share of <b>48 %</b> of the average weight of electrical equipment placed on the market in the SR in three previous years,
in 2017	the weight corresponding to a share of <b>49 %</b> of the average weight of electrical equipment placed on the market in the SR in three previous years,
in 2018	the weight corresponding to a share of <b>50 %</b> of the average weight of electrical equipment placed on the market in the SR in three previous years,
in 2019	the weight corresponding to a share of <b>55 %</b> of the average weight of electrical equipment placed on the market in the SR in three previous years,
in 2020	the weight corresponding to a share of <b>60 %</b> of the average weight of electrical equipment placed on the market in the SR in three previous years.

### Measures for Waste Electrical and Electronic Equipment

O52. In the treatment of waste electrical and electronic equipment, to follow the material flows to end-of-waste status pursuant to special regulations or recovery of wastes using any of the activities R2 – R11,

O53. To support the financing of technologies for the treatment of waste electrical and electronic equipment, which are in compliance with the requirements for Best Available Techniques (BAT), on the basis of assessment of the existing treatment capacities,

#### 4.1.14. Objectives and Measures for Waste Oils

The objective for waste oils is to reach by 2020 the rate of material recovery of 60 % with 15% energy recovery and 0% landfilling.

**Table 4-12 Objectives for waste oils**

Management	2018	2020
Material recovery	50 %	60 %
Energy recovery	10 %	15 %
Landfilling	0 %	0 %
Other management	40 %	25 %

## Measures for Achieving the Objectives for Waste Oils

- O54. By introducing a new information system of waste management system to provide the transparency of the material flow of waste oils produced and of the way of management.

## 4.2. Disposal of Polychlorinated Biphenyls and Contaminated Equipment

The objectives for management of PCB including the PCB containing wastes and equipment are (in accordance with the requirements of Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) and in accordance with the requirements of the Stockholm Convention) as follows:

- by the end of 2020, to prepare conditions so that by the end of 2028 it will be possible to ensure environmentally acceptable management of waste liquids and equipment contaminated by PCB with the content exceeding 0.005 percent of PCB,
- by the end of 2020, to prepare conditions so that by the end of 2025 it will be possible to ensure the identification, marking and disposal of equipment containing:
  - a) more than 10 % of PCB and with a capacity exceeding 5 litres,
  - b) more than 0.05 % of PCB and with a capacity exceeding 5 litres,
  - c) more than 0.005 % of PCB and with a capacity exceeding 0.05 litres.

## Measures for Achieving the Objectives

- O55. to support the projects focused on the strategy, collection, decontamination and disposal of PCB containing wastes, e.g. from the resources of European funds or the Environmental Fund,
- O56. to check the fulfilment of the duty to ensure the immediate decontamination or disposal of PCB containing equipment with the volume exceeding 5 dm<sup>3</sup>,
- O57. to check the ban on PCB containing waste disposal on landfills,
- O58. to check the fulfilment of the duty of preferred removal of PCB containing components from electrical waste and end-of life vehicles.

## 4.3. Conditions, Limitations and Measures in Transboundary Shipment of Wastes, Import of Wastes, Export of Wastes and Transit of Wastes (hereinafter the "Transboundary Movement of Wastes")

- To not endanger human health and the environment in the SR as a consequence of transboundary movement of wastes,
- in the decision-making on matters of transboundary movement of wastes, to proceed pursuant to principles resulting from international and national legal regulations in force, in particular from Regulation (EC) No. 1013/2006 of the European Parliament and of the Council on shipments of waste (hereinafter "Regulation No. 1013/2006"),
- to support and actively develop the national and international cooperation in implementing Regulation No. 1013/2006, in particular in the area of control and methodology of transboundary movement of wastes with the neighbouring States and in the SR, with respective state administration authorities of waste management (District Offices, Slovak Environmental Inspection, municipalities) and state administration authorities in the area of taxes, fees and customs,
- to dispose the waste produced in the SR preferably in the SR. To permit the transboundary shipment of wastes from the territory of the SR to other EU Member States or export of wastes from the SR to non-EU Member States for the purpose of disposal only if the SR has no technical possibilities or necessary facility, capacity or suitable disposal centre for the disposal of such wastes in the way efficient and acceptable in terms of the environment, or if the respective wastes are demanded as a raw material for recycling or for the treatment industry in the country of destination/import,
- to prohibit the transboundary shipment of wastes from other EU MS to the SR and import of wastes from a non-EU MS to the SR for the purpose of disposal in compliance with the Act on Wastes and new Act on Wastes,
- To permit the transboundary shipment of wastes from other EU MS to the SR and import of wastes from a non-EU MS to the SR for the purpose of recovery only to a facility, which is licensed and operated for the respective type of waste in compliance with the valid legal regulations of the SR, and which has a sufficient capacity,
- within the framework of the permission process, to assess all the phases of waste management till its hand-over to the final waste recovery or disposal facility,
- to prohibit the transboundary shipment of wastes from other EU MS to the SR and import of wastes from a non-EU MS to the SR for the purpose of energy recovery of wastes using the activity R1 pursuant to Annex No. 2 in a waste incinerator designated as a waste recovery facility, if as a consequence of such transboundary shipment of wastes or import of wastes, national wastes would have to be disposed or treated in a way, which is not in compliance with the plan of the SR,
- the person performing the transboundary shipment of wastes from other EU MS to the SR or the import of wastes from a non-EU MS to the SR to the facilities intended for recovery using the activity R1 pursuant to Annex No. 2 in a waste incinerator designated as a waste recovery facility shall be obliged to submit a notification pursuant to Article 85 of the new Act on Wastes,
- during the transboundary shipment of mixed municipal wastes or wastes combined with mixed municipal wastes from other MS to the SR and during the import of mixed municipal wastes or wastes combined with mixed municipal wastes from a non-EU MS to the SR, to

- proceed in compliance with Article 3 (5) of regulation No. 1013/2006, i.e. for such shipment to raise objections pursuant to Article 11 and 12 of Regulation No. 1013/2006,
- to permit transboundary shipment from the territory of the SR to other EU MS or export from the territory of the SR to a non-EU MS for the purpose of recovery of selected hazardous waste streams, for which objectives are set in Chapter 4.1, only if the SR has no technical possibilities or necessary facility, or there are not sufficient capacities for recovery or recycling of the respective hazardous waste, or the notifier or other legal entity or natural person in their name prove that the percentage of recovery or recycling in the facility for recovery or recycling of hazardous waste out of the territory of the SR is identical or higher than the percentage of recovery or recycling set in Chapter 4.1 Objectives and Data of Selected Waste Streams, and is provided through activities R2 – R9 pursuant to Annex No. 1 to the new Act on Wastes,
  - the Ministry can prohibit transboundary movement of wastes if the notifier, consignee or a person authorised to act on behalf of the notifier or consignee taking part in this transboundary movement of wastes, was, by a legal decision,
    - a) found guilty of an offence as a consequence of an act, by which they committed illegal shipment,
    - b) found guilty, in the previous three years, of an offence as a consequence of other wrongful act in the area of waste management as mentioned in letter a) or
    - c) convicted, in the previous three years, of a crime against the environment,
  - within the transboundary movement of wastes for the purpose of disposal, to apply the principle of self-sufficiency and proximity, and if applicable, to give priority to the principle of proximity over the principle of self-sufficiency,
  - during planned and executed transboundary shipments of suspicious electrical equipment (i.e. electrical equipment, whose holder claims that it is not electrical waste and there is a suspicion that it is electrical waste) to check documentation in compliance with Article 88 (2) and (3) of the new Act on Wastes, with the objective to eliminate illegal shipments of such wastes,
  - during planned and executed transboundary shipments of suspicious batteries and accumulators (i.e. batteries and accumulators, whose holder claims that they are not waste batteries and accumulators and there is a suspicion that they are waste batteries and accumulators) to check the accompanying documentation and shipments of suspicious batteries and accumulators in compliance with Act No. 79/2015 Coll. on wastes and on the amendment to certain acts, with the objective to eliminate illegal shipments of such wastes.

#### 4.4. "Strategy for the Implementation of the Reduction of Biodegradable Waste Going to Landfills" and Measures Increasing the Share of Biodegradable Municipal Waste Recovery, and Measures Reducing the Quantity of Biodegradable Municipal Waste Going to Landfills

The "Strategy for the implementation of the reduction of biodegradable waste going to landfills" was approved by Government Resolution of the SR No. 904 dated 15 December 2010.

In accordance with Article 5 (1) of the Directive on the landfill of waste, the objective of the strategy is to reduce the quantity of biodegradable municipal waste going to landfills, with the proposal of measures to achieve the targets set out in Article 5 (2) of the Directive by means of in particular,

recycling, composting, biogas production or materials/energy recovery.

The "Strategy for the implementation of the reduction of biodegradable waste going to landfills" sets out the objectives and measures, which only represent the more detailed already existing duties of municipalities for biodegradable waste management. Within the Strategy, measures were prepared aimed at the fulfilment of main objectives resulting from Article 5(2) of the Directive on the landfill of waste. The measures are included in Table 4-13.

**Table 4-13 Measures for achieving the strategy objectives reducing the biodegradable waste going to landfills**

Measure	Quantity of biodegradable wastes diverted from landfilling (t)
<b>From 2013</b>	<b>347,500</b>
To involve 40% of municipalities with a population of up to 1500 in community composting	28,000
To involve 40% of households (single-family residences (SFR)) in home composting	135,500
To increase separate collection of paper and cardboard to at least 12 kg per citizen	64,500
To introduce compulsory separate collection of biodegradable waste from municipal waste by 2013 with a minimum efficiency of 20%	119,500
<b>From 2020</b>	<b>451,750</b>
To involve 60% of municipalities with a population of up to 1500 in community composting	42,000
To involve 50% of households (single-family residences (SFR)) in home composting	169,000
To introduce compulsory separate collection of biodegradable waste from municipal waste by 2013 with a minimum efficiency of 40%	240,750

In addition to the above basic measures providing for the diversion of biodegradable

wastes from landfilling, also the following measures will have to be implemented:

- to support the construction of biogas stations, which will produce biogas from wastes and either convert the biogas produced directly to electric energy and heat in co-generation units as part of technology or further process to biomethane production,
- to create legislative preconditions for the use of wastes as an alternative fuel,
- to create technical standards containing requirements for the production and composition of the alternative fuel produced from wastes,
- to support the construction of facilities for the production of alternative fuels produced from wastes,
- to ensure the utilisation of suitable technologies for the use of alternative fuels produced from wastes,
- to regulate legislatively the definition of the end-of-waste status as the basic precondition for using waste as secondary raw material.

#### 4.5. Support of Preventive Measures and Systems of Packaging Re-Use

The new Act on Wastes defines waste prevention as measures taken before a substance, material or product has become waste, that reduce

- a) the quantity of waste, including through the re-use of products or the extension of the life span of products
- b) the adverse impacts of the generated waste on the environment and human health; or
- c) the content of harmful substances in materials and products.

Packaging waste prevention shall mean the reduction

- a) of the quantity of materials and substances contained in packaging and packaging waste and their harmfulness for the environment and
- b) of the quantity of packaging and packaging waste and their harmfulness for the environment at production process level and at the marketing, distribution, utilization and elimination stages; prevention is applied in particular in the development of more eco-friendly products and technologies.

The legal entity and natural person - entrepreneur producing products must take into account,

- a) during their production, the need to prefer technologies and procedures saving natural resources and limiting the production of unusable waste from such products, in particular hazardous waste,
- b) the need to inform the public about the way of recovery or disposal of the waste from the product and its parts, in particular in producing the packaging of the product, instructions for use or other documentation to the product.

Within the framework of the Waste Prevention Programme of the SR for 2014 to 2018, several measures for packaging waste prevention have been adopted. Consistent control of fulfilment of objectives and measures adopted in prevention programmes is among the measures.

In connection with re-use of packaging, it is proposed to establish a working group that will objectively assess:

- the prohibition of free provision of single-use carrying bags,

- the prohibition of use of single-use kitchenware and cutlery in permanent operations,
- the possibility of introduction of deposit system for single-use beverage packaging in the Slovak Republic,
- tax preferences for more ecological packaging.

## 5. Guiding Part of the Plan

The planned development of waste management infrastructure for the period 2016 to 2020 is based on the passportization (stock-taking) of waste management facilities and related infrastructure as at 31 December 2013. The evaluation of fulfilment of objectives of the WMP SR for 2011 to 2015 produced the need to improve considerably the systems of separate collection of municipal wastes. Within the network of facilities for waste recovery, for some waste streams, it is necessary to reassess the capacities of waste recycling facilities. In planning the construction of new facilities for

hazardous wastes, it is necessary to take into account, inter alia, the principle of self-sufficiency and the principle of proximity. In planning the construction of new facilities for waste management, it is necessary to assess the needs at a level of greater territorial units. The planning of development of waste management infrastructure in the WMP SR for 2016 to 2020 follows the approved document "Partnership Agreement on the Use of European Structural and Investment Funds in 2014 – 2020" and the approved Operational Programme Quality of Environment for the programme period 2014 – 2020.

### 5.1. Waste Treatment and Recycling Facilities

The network of facilities for the **recovery of biodegradable wastes**, in particular biodegradable municipal wastes, was identified as a problem area in the previous period. In the previous programming period for 2007-2013, several facilities for the recovery of biodegradable wastes were supported, in particular composting plants with various capacities, as well as biogas stations for the recovery of exclusively biodegradable wastes. Along with the existing infrastructure for the recovery of biodegradable wastes, capacities were created for the recovery of about 800,000 tons of biodegradable wastes. Therefore, it will be necessary to support facilities for the recovery of biodegradable municipal wastes only in the regions, where the need of construction of a new high-capacity facility is really desirable, e.g. on the basis of long transport distances to the facility for the recovery of biodegradable municipal wastes. In the area of infrastructure of facilities for the recovery of biodegradable

municipal wastes, one of the main objectives will be to support **the construction of small composting plants** in the municipalities, where the production of biodegradable municipal wastes corresponds to the capacity of a small composting plant. It will be necessary to continue to support the construction or modernisation of **biogas stations** focused on the recovery of kitchen and restaurant wastes.

The SR has had sufficient recycling capacities for the recovery of **wastes from ferrous and non-ferrous metals** in the long term, therefore, in the future, they only need to be modernised or it will be necessary to introduce Best Available Techniques (BAT), in particular for the treatment of metal packaging.

The SR has sufficient recycling capacities for **wastes from paper and cardboard**. Therefore, support will have to be directed to material recovery and recycling of collected paper by

means of progressive technologies in the existing facilities for recovery as well as in new technological facilities for the recovery of wastes from paper and cardboard, and to the projects focused on solving the recovery and recycling of paper from corrugated cardboard.

The network of end-of-waste recycling facilities for **plastic waste** recovery can be considered overdimensioned. Within the framework of plastic waste recovery, first technological facilities have been constructed in the SR, which use catalytic chemical breakdown of plastic to low-molecular oily products close to crude oil fractions. Within the framework of construction of new recycling capacities, it is necessary to support the financing of technologies focused on reaching a high level of plastic waste recycling, which are in compliance with the requirements for Best Available Techniques (BAT), on the basis of assessment of the existing recycling capacities. It is necessary to increase the technical level of the existing recycling facilities for the purpose of an increase in the share of new recycle-based products, and to support the technologies for the treatment of problematic plastic types from end-of life vehicles treatment and wastes from electrical and electronic equipment and mixed plastic.

Currently, sufficient treatment capacities for waste glass are available in the SR. In increasing the quantities of waste glass from separate collection of municipal wastes, it will be necessary to assess the existing treatment capacities for waste glass recycling, analysing the need of extension of the existing recycling capacities or construction of new recycling capacities for waste glass treatment. The needs to be directed to new technologies and construction of capacities for the technological treatment and recycling of the currently non-recyclable types of waste glass

from municipal waste and special types of municipal waste.

In the area of waste **electrical and electronic equipment**, sufficient treatment capacities for all categories of waste electrical and electronic equipment are in operation and there is no need to build additional ones. However, it is necessary to support the construction of treatment facilities for the recycling of problematic types of plastic wastes from electrical waste treatment using the activity R3.

For the treatment of **end-of life vehicles**, a sufficient network of authorised providers of treatment services has been in operation in the long term with a capacity covering the needs of the SR, and no new capacities for end-of life vehicles treatment is necessary. Based on the knowledge of the present level of end-of life vehicles recovery and recycling, it is necessary to support the technologies for the recovery of problematic wastes from the treatment of end-of life vehicles (e.g. upholstery, foam wastes, rubber wastes, composite materials, etc.).

Sufficient treatment capacities for the material recovery of **waste tyres** are in operation, and besides the recycling of waste tyres in the SR, a facility for the recovery of waste tyres based on thermal decomposition of polymers is also in operation. It is necessary to support the financing of technologies focused on reaching a high level of waste tyre recycling, which are in compliance with the requirements for Best Available Techniques (BAT).

Sufficient treatment capacities are created for **waste batteries and accumulators**.

In the area of **recovery of construction and demolition wastes**, the capacities of recovery facilities are overdimensioned and their mobility covers the entire territory of the SR. Therefore, it is not necessary to support the

facilities for the recovery of construction and demolition wastes intended for primary crushing. However, it is necessary to support

the technologies to increase the rate of recycling of construction wastes into output products with a higher added value.

## 5.2. Waste Incinerators, Waste Co-Incineration Facilities

At present, **two municipal waste incinerators** are in operation in Slovakia (Bratislava, Košice). Both waste incinerators fulfil the coefficient of energy efficiency set by the Waste Framework Directive and are classified as facilities for waste recovery by the activity R1. It will be necessary to consider the possibilities of construction of new facilities for energy recovery of municipal wastes in relation to the obligation of the SR to attain by 2020, a 50-percent objective of recycling, and the unused potential of facilities for waste co-incineration, which use solid alternative fuels produced from wastes.

In addition to the above municipal waste incinerators, **five incinerators of hazardous industrial wastes** and **five hospital waste incinerators** are in operation. A great number of waste incinerators had to terminate their operation because they did not meet the strict requirements of the European legislation for air protection. It is necessary to increase the technological level of waste incinerators with a high degree of air protection, which is important in particular for hazardous waste incinerators. In particular as regards the capacity of hospital waste incineration, the

situation in certain regions of the SR is unsatisfactory and in conflict with the principle of proximity and self-sufficiency.

**Waste co-incineration** is used in four companies: Holcim (Slovensko), CEMMAC a.s., Považská cementáreň a.s. Ladce and Carmeuse Slovakia s.r.o. There are five waste co-incineration facilities in total, as the company Holcim (Slovensko), a.s. operates two facilities, at Rohožník and at Turňa nad Bodvou. Three properties of wastes are used in co-incineration – energy content of wastes, content of metals that improve the properties of the end product, and ash content, which results in material recovery of wastes and environmental protection by decreasing the extraction of natural raw material and reducing the emissions of greenhouse gases CO<sub>2</sub>. Co-incineration of wastes in cement kilns is a waste-free technology, which must meet strict emission limits in terms of air protection. The utilisation of capacities of waste co-incineration facilities is conditioned by a sufficient network of **facilities for mechanical or mechanical and biological treatment**, which must be able to produce high-value flammable fuels.

## 5.3. Landfills of Waste

The analysis of waste production and management proved that waste landfilling remains the most frequently used method of waste management in the SR. In the territory of the SR, 124 landfills are in operation, out of it 95 landfills are intended for non-hazardous

waste (other), 11 landfills of waste for hazardous waste and 18 landfills of waste for inert waste. The capacity of the landfills of waste currently in operation is sufficient, therefore, it is not necessary to build new landfills of waste. The layout of the landfills in

operation is not uniform throughout the SR. In some districts, capacities for municipal waste landfilling are absent. The Žilina region has no landfills for the disposal of hazardous wastes. **The construction of new hazardous waste landfills and non-hazardous waste landfills is not desirable and it is in direct conflict with the obligations and objectives of the SR in**

**the area of waste management. In justified cases, it will be possible to build new waste landfills for inert waste.** The extension of capacities of the existing landfills of waste will also have to be considered very sensitively, based on the real needs of landfilling capacities of the affected region.

#### 5.4.Characterisation of the Existing Waste Collection Systems and Assessment of the Need to Build New Waste Collection Systems

Systems of collection, separate collection and take-back of wastes are in place in Slovakia's regions. For **municipal waste** management, systems of quantity or bag collection of municipal wastes, as well as calendar collections focusing in particular on hazardous wastes, separately for waste electrical and electronic equipment, are used. Calendar collection is also used for "green" biodegradable municipal wastes. The new Act on Wastes sets clear rules for the provision of municipal waste collection systems in municipalities. The most important change in comparison with the current legislative regulation in force is the fact that separate collection of the municipal waste components covered by the extended producer responsibility will be provided by producers of selected products, including the financing of separate collection of these components. The current systems of separate collection, however, show a very low efficiency in many regions, in particular due to insufficient comfort for the citizens in terms of collecting vessels accessibility. For that reason, the new Act on Wastes and the implementing regulations introduce the so-called "standards of separate collection", with the purpose to ensure the accessibility of collecting vessels for all citizens and an essential increase in the efficiency of separate collection.

**The systems of collection of "green" biodegradable wastes** in individual municipalities are mostly in the form of calendar collection. The intervals of calendar collection of biodegradable municipal wastes often do not correspond to the real needs of citizens, which can result in wrongful combustion of biodegradable municipal wastes. The implementing regulations to the new Act on Wastes must specify the so-called "standards of separate collection" separately for the area of biodegradable municipal wastes, both for "green" biodegradable municipal wastes and for kitchen biodegradable wastes. There is an insufficient and nonconforming system of waste collection for **kitchen and restaurant waste**, which will have to be improved by adopting several measures in relation to Regulation (EC) No. 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No. 1774/2002, which lays down strict requirements for kitchen waste collection and treatment. An increase in the efficiency of the systems of biodegradable municipal waste collection is among the main priorities of waste management for 2016 to 2020, therefore in addition to the development of

home composting, it will be supported by the Operational programme Quality of Environment, and, if possible, by the Environmental Fund.

For **electrical waste**, there is separate collection in the facilities for waste collection and take-back of electrical waste in the points of sale of electrical equipment. With the exception of small home appliances, the system is sufficiently efficient. Electrical waste collection from natural persons by the companies collecting waste seems to be a problem because the electrical waste handed over is usually incomplete, damaged and with leakage of hazardous substances. The new Act on Wastes places duties on electrical equipment producers regarding electrical waste collection, treatment and recycling.

For **waste batteries and accumulators**, a system of collection of waste automotive, industrial and portable batteries and accumulators is in place. The operators of collection of waste batteries and accumulators try to improve the systems of collection and to increase their efficiency in accordance with the valid legislation in order to separately collect as many waste batteries and accumulators as possible.

**End-of life vehicles** must be handed over by their holders to authorised facilities for the treatment of end-of life vehicles or to facilities for the collection of end-of life vehicles, which issue confirmation of take-over of end-of life vehicles for treatment necessary for deregistration of end-of life vehicles from police records. Moreover, the providers of end-of life vehicle treatment services provide

the possibility of mobile collection, which provides a maximum comfort for holders of end-of life vehicles in terms of hand over of end-of life vehicles for treatment. This system seems to be very efficient.

For **waste tyres**, facilities with a sufficient capacity for recovery are in operation in Slovakia, however, it is necessary to provide for a more efficient collection of waste tyres through an increase in the number of places, where holders of waste tyres can hand them over for recovery. For this commodity, the new Act on Wastes introduces extended responsibility of producers that will ensure free take-back of waste tyres through tyre distributors, and tyre distributors also include those who replace tyres in service points without selling them. According to the new Act on Wastes, it will not be possible to hand over waste tyres at the collection yards of towns and municipalities as waste tyres will not be part of municipal wastes.

To increase the efficiency and transparency of waste flows in the systems of collection, separate collection and take-back of wastes, it is necessary to introduce a new information system of waste management, which will allow waste material flow tracking from production to final treatment. The currently used system of waste data collection and processing (RISO) allows obtaining outputs in required forms with certain time interval, without the possibility of efficient control of waste production and management by individual entities operating in waste management.

## 5.5. Use of Campaigns, their Number and Character, for Raising Public Awareness in the Area of Waste Management

It is necessary to raise the awareness of the population and interested public of the supported areas of waste management in compliance with the hierarchy of waste management. For that purpose, informative and educating campaigns will be used and supported from the level of the waste management state administration and the professional organisations controlled by it, focusing on the following target groups:

- a) campaigns focused on the general public;
- b) campaigns focused on self-governments;
- c) campaigns focused on entrepreneurs in waste management;
- d) campaigns focused on producers of selected products and their distributors.

According to the waste management objectives, the organised campaigns need to be focused on the following main thematic areas:

1. Waste prevention,
2. campaigns focused on affecting (reducing) excessive consumption,
3. campaigns focused on separate collection of municipal wastes and biodegradable municipal wastes (including campaigns focusing on the ban on green waste combustion),
4. campaigns focused on increasing population awareness of the ban on disposal of in particular small home appliances along with unsorted municipal waste,
5. campaigns focused on increasing population awareness of the conditions of take-back and collection of electrical equipment,
6. campaigns for citizens to support the collection of waste batteries and accumulators;
7. campaigns supporting collection of packaging waste,
8. campaigns to affect the negative attitude of the population to waste energy recovery facilities,

9. campaigns supporting green public procurement, in particular in terms of use of secondary raw materials obtained from wastes as obligatory elements in public procurement,
10. campaigns to increase the professional level of self-governments in waste management,
11. campaigns for education of children in the area of wastes,
12. campaigns focused on raising the population awareness of possible health risks resulting from uncontrolled municipal waste combustion.

According to financial resources, campaigns will be financed as follows:

1. campaigns financed from the resources of the state budget of the environment department,
2. campaigns financed from the resources of European funds,
3. campaigns financed from the resources of the Environmental Fund and Recycling Fund,
4. campaigns financed from the resources of other ministries,
5. campaigns financed from the resources of self-governments,
6. campaigns financed from private resources (in particular from the resources of producer responsibility organisations).

The responsibility for the execution of campaigns results from the below specification of entities as campaign carriers:

1. campaigns, for which the Ministry of Environment of the SR is responsible,
2. campaigns, for which the Ministry of Education, Science, Research and Sport of the Slovak Republic is responsible,
3. campaigns, for which associations of towns and municipalities at a national level are responsible,

4. campaigns, for which regions and micro regions are responsible,
5. campaigns, for which self-governments (municipalities) are responsible,
6. campaigns, for which non-governmental organisations are responsible,
7. campaigns, for which producer responsibility organisations, producers and third persons are responsible,
8. campaigns, for which entrepreneurs and investors in waste management are responsible.

Informing end consumers on management of selected waste streams according to the new Act on Wastes, which include electrical wastes, waste batteries and accumulators, wastes from packaging and non-packaging products, waste tyres and end-of life vehicles, is an important part of information campaigns.

The new Act on Wastes places the duty on the producer responsibility organisation to perform promotional and educational

activities covering entire Slovakia, focusing on end users, about management of selected waste streams, separate collection of municipal wastes and waste prevention, further, it imposes the duty on the producer that fulfils their duties individually to perform promotional and educational activities in the district, in which they provide for the waste collection, focusing on end users, about management of selected waste streams, separate collection of municipal wastes and waste prevention, and finally, it is the duty of a third person regarding waste batteries and accumulators, to perform promotional and educational activities covering entire Slovakia, focusing on end users, about management of such waste.

The duty to perform promotional and educational activities is specified in more detail in the implementing regulation to the Act on Wastes, which exactly specifies, who, to what extent and in what forms performs such activities.

## 5.6. Territories Contaminated by Closed Landfills

Before the year 2000, in 1992 – 2000, 665 landfills were operated and gradually closed. Mostly they were uncontrolled municipal landfills in terrain depressions after the extraction of various raw materials, in erosion furrows, and former river basins. Operators of these waste landfills (mostly municipalities) obtained permits for their operation under so-called special conditions, which was enabled by Article 15 of Act No. 238/1991 Coll. on wastes to operators of waste disposal facilities that, after the effective date of the act, could not fulfil the duties laid down in the act. The period, for which special conditions could be set, was supposed to be no longer than five years after the affective date of the act. The amendment to Act on Wastes No. 255/1993

Coll. specified that the date for setting special conditions would not be later than 31 July 2000.

Within the project "Systematic identification of environmental burdens" implemented by the Slovak Environment Agency in 2006 – 2008, 317 landfills operated from 1992 to 2000 were included in the register of environmental burdens, which is part of the Information System of Environmental Burdens and is available at <http://www.enviroportal.sk>. Only 33 landfills operated in the above period were included among the confirmed environmental burdens, Part B of the register of environmental burdens. As there is no monitoring, most of the 317 landfills are considered only probable

environmental burdens (based on information on the permeability of geological bedrock and the resulting threat to ground waters, surface water courses, proximity of dwellings, etc.). 138 landfills that had been in operation in 1992 – 2000 were included among reclaimed sites in Part C. According to information published, till 2010, financial resources for reclamation of 144 landfills operated in this period were provided from the Environmental Fund or from European structural funds.

Out of 72 landfills that had ended their operation in the period 2001 – 2009, 33 landfills were included in the register of environmental burdens, 14 among the reclaimed sites and 13 among the confirmed environmental burdens. Financial resources from the Environmental Fund or from European funds were provided to 18 operators.

The Register of Environmental Burdens, which is still in the process of updating based on supplementary information and changes, contains information on 802 landfills of waste. Information on 320 reclaimed landfills and on 91 landfills, for which monitoring confirmed contamination of environmental components, is accessible by the public. The most records (484) are related to landfills, where contamination of environmental components has not been confirmed by monitoring yet or the analyses results are

older than 10 years. At the same time, due to the found or assumed contamination, 93 reclaimed landfills of wastes were also included among the confirmed or probable environmental burdens, therefore there are 895 records of landfills in total. The register contains 104 landfills, on which industrial wastes were disposed, out of it 34 confirmed, 47 probable a 40 remediated (121 records in total).

Within the Operational Programme Quality of Environment, it will not be possible to draw financial resources for closure and reclamation of landfills. However, an activity for the provision of remediation of environmental burdens in the urban environment as well as at abandoned industrial sites (including conversion areas) has been proposed.

Government Resolution of the SR No. 153/2010 approved the strategic planning document "State Programme of Remediation of Environmental Burdens" (2010 – 2015) determining framework tasks and measures for gradual reduction of negative impacts of environmental burdens on human health and the environment. Old landfills of solid municipal waste are also included among high-priority sites proposed for solving in the first planning period within the framework of the "State Programme of Remediation of Environmental Burdens".