

***Ministry of Environment
of the Slovak Republic***



***STATE OF THE
ENVIRONMENT REPORT
SLOVAK REPUBLIC
2010***



Slovak Environmental Agency

• MATERIAL FLOWS AND WASTE

Key questions and key findings

◆ Key questions

- Is the environmental pressure associated with material consumption decreasing in SR?
- Does the decoupling of environmental pressure from economic growth occur in SR? Do the material consumption curves for environmental load and economic efficacy diverge in Slovakia?
- Is the production of waste placed on the market being reduced?
- Is the proportion of landfilled waste decreasing?
- Is Slovakia complying with the waste limits set forth by international criteria?
- Is packaging waste reclamation on a rise?

◆ Key findings

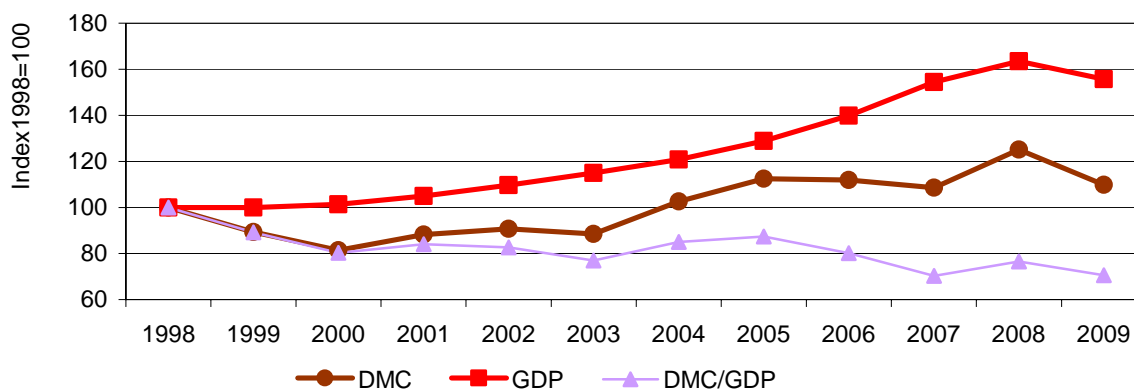
- Domestic material consumption (DMC) in 2009, compared to 2008, dropped significantly (by 15.35%). Compared to 1998, DMC grew by 9.81 % in 2009. The trend copies the economic growth of Slovakia in 1998-2009, as well as the effects of the economic crisis in 2009. Slovakia's DMC is significantly below the EU 27 average.
- Share of export on DMC grew from 39% in 1998 to 52% in 2009, which substantially increased Slovakia's material dependence on the international markets.
- Decreasing material intensity (reduction in DMC/GDP at comparing the years of 1998 and 2009 by 37%) is a positive trend that indicates a growing effectiveness in the change of the input material flows toward economic output due to introducing modern technologies, increasing rate of recycling, as well as reducing the environmental pressure per unit of GDP.
- When compared with 2009, waste introduced on the market in Slovakia grew by app. 21% in 2010. From a long-term perspective (comparison with the year 2005, which was the reference year for the creation of the waste management plan) there was a slight decrease by 1.7% as of 2010. Positive aspects of 2010 include the growing proportion of recovered waste, compared to 2009.
- Following a slight reduction in the volumes of generated municipal waste in 2009, there was again an increase in 2010 (by 8 kg per capita). Compared to 2005, its production grew by approximately 14%. When compared with the EU countries, generation of the municipal waste per capita is low, still below the average EU 27 value. 24.8 kg of municipal waste per capita has been separated.
- There has been a long and negative high share of waste landfilling on total waste disposal (almost 80% for waste other than municipal, and 81.4% for municipal waste)
- In 2010, 4 kg per capita of waste electrical and electronic equipment was collected in 2010. Slovakia reached the limit of 4 kg/capita set by the EC.
- Slovakia reached the proportion for re-utilisation, recycling, and reclamation of old vehicle parts as defined by the EC Directive and thus fulfilled the set limit.
- Of total volumes of generated packaging waste in 2010, 59.8% of waste was recycled, and 63.2 % was recovered. Thus, Slovakia complied with the set limits.

Material flows

Trend in DMC for the years 1998 through 2009 showed fluctuating characteristics. After the initial decline until 2000 which was 25.6%, there was an increase in DMC from the year 2000 by 29.1%, with the climax in 2005. Subsequently, it showed a stabilisation and even a slight reduction (by 4 % until 2007). Later, it grew by 16.6% by 2008. In 2009, there was a reduction by 15.35%, compared to the previous year. In view of the effective use of natural resources, this trend is perceived as positive due

to the fact that the trend in the direct material consumption expressed as the sum of imported materials, extracted minerals, and collected biomass from the Slovak territory after deducting the exported materials, does not show any significant increase, given the present economic growth. Share of import on DMC is also an important indicator. The bigger the share, the more sensitive the country's economy to spontaneous fluctuations in international trade (lack of certain commodities, unexpected increase in their prices, etc.). Share of export on DMC grew from 39% in 1998 to 52% in 2009, which means increasing Slovakia's material dependence on the import of raw commodities. Over the whole monitored period there was a reduction in the material demand expressed through the DMC/GDP, by 37%. The reduction was recorded in the following intervals: 1998–2000, 2001–2003, and 2005 through 2007. During the first monitored period (1997-2000), reduction was mainly caused by the decreasing DMC indicator and less by the economic growth; since 2001, material demand dropped also due to a strong economic growth. In 2009, there was a reduction by 6%, compared to 2008, due to both decreased economic growth caused by the economic crisis, as well as by a decreased DMC.

Waste generation (t)



Source: SEA, SO SR

Waste and Waste Management

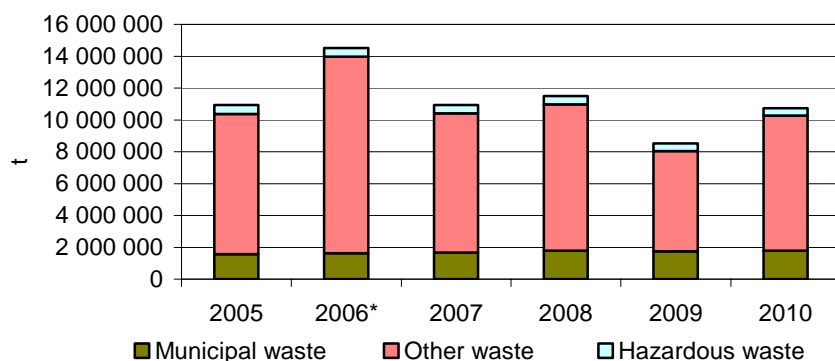
◆ Balance of waste generation

When compared with 2009, growth in waste introduced on the market shows app. 21%. When further compared with 10.9 mil. tonnes of waste produced in 2005, their generation dropped by 1.7%. In 2010, waste originators submitted to waste handling authorities slightly lower volumes of hazardous and municipal waste for recovery and disposal than in 2009. However, the other waste showed major growth in its location on the market, which, compared to 2009, is an increase in the category of other waste located on the market by app. 26%.

Waste generation (t)

Waste category	Amount (t)
Hazardous waste	466 421.51
Other waste	8 480 611.66
Municipal waste*	1 796 159.86
Total	10 743 193.04

Source: SEA, SO SR

Waste generation (t)


Source: SEA, SO SR

*Growth in the generation of other waste types in 2006 by app. 40% compared to 2005 and 2007, was caused especially by the growth in generated construction waste, specifically in the category of excavation soil generated at the construction of highway exits, the Sitina tunnel in Bratislava, and single declaration of dross volumes produced at U.S. Steel Košice.

Compared to 2009, the annual growth of waste put on the market is about 21%. The decrease existed in hazardous waste generation by 1.5% compared to the previous year.

In the area of waste generation by economic activities classification SK NACE, manufacturing industry has been the dominating component over the recent years, with 30% share. Sector of building industry and sector Water supply; sewerage; waste management and remediation activities follow with 20%. It is necessary to point out that the total amount of waste produced by particular economic sectors does not include municipal waste.

Waste generation by particular economic sectors in year 2010 (t)

SECTION	Total (t)	Hazardous waste (t)	Other waste (t)
A - Agriculture, Forestry, Fishery	525 604.85	9 274.41	516 330.44
B - Mining and quarrying	165 584.61	384.03	165 200.58
C - Manufacturing	2 711 540.61	219 011.92	2 492 528.69
D - Electricity, gas, steam and air conditioning supply	877 644.33	5 358.07	872 286.26
E - Water supply; sewerage; waste management and remediation activities	1 831 010.13	45 395.44	1 785 614.69
F - Construction	1 786 429.38	45 711.68	1 740 717.69
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	527 594.31	44 488.37	483 105.94
H - Transporting and storage	120 728.63	33 492.46	87 236.17
I - Accommodation and food service activities	26 259.54	84.28	26 175.26
J - Information and communication	3 647.70	368.00	3 279.70
K - Financial and insurance activities	409.53	119.37	290.16
L - Real estate activities	15 552.23	3 508.17	12 044.06
M - Professional, scientific and technical activities	68 018.71	5 487.10	62 531.61
N - Administrative and support service activities	15 302.05	945.76	14 356.29
O - Public administration and defence; compulsory social security	19 612.53	1 089.05	18 523.47
P - Education	997.97	121.07	876.90
Q - Human health and social work activities	127 976.60	17 484.68	110 491.92
R - Arts, entertainment and recreation	219.75	34.38	185.37
S - Other services activities	1 485.40	183.01	1 302.39
Unknown	121 414.32	33 880.26	87 534.06
Total	8 947 033.18	466 421.51	8 480 611.66

Source: SEA

◆ Waste handling

Waste recovery

There were 5 558 179.57 tons of waste recovered in the SR in 2010. This represents 62% of total volume of waste located on the market (not included MW). R5 activity – Recycling or re-extraction of other inorganic compounds has the greatest share on waste recovery with a 24% share.

Waste recovery following codes R1 – R13 in year 2010 (t)

Code	Activity	Total (t)	Hazardous waste (t)	Other waste (t)
R1	Used mainly as fuel or to extract energy through different approach	84 151.75	4 013.19	80 138.56
R2	Solvent reclamation/regeneration	1 450.17	1 262.46	187.71
R3	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)	578 542.11	1 430.38	577 111.73
R4	Recycling or reclamation of metals and metal compounds	1 170 742.32	9 551.92	1 161 190.40
R5	Recycling or reclamation of other inorganic material	1 331 193.62	2 095.80	1 329 097.83
R6	Regeneration of acids and bases	537.39	523.64	13.76
R7	Recovery of components used for pollution abatement	545.70	235.01	310.69
R8	Recovery of components from catalysers	2 283.29	2 281.58	1.71
R9	Oil re-refining or other re-uses of soil	10 766.70	10 625.60	141.11
R10	Treatment of soil to benefit the agricultural production or to improve environment	848 477.03	201.67	848 275.36
R11	Use of waste obtained from the activities R1 to R10	108 639.22	220.02	108 419.20
R12	Treatment of waste generated by any of the R1 to R11 activities	641 471.89	62 288.11	579 183.78
R13	Storing of waste before using any of the R1 to R12 activities (besides temporary storage prior to collection at the place of waste generation)	779 378.38	38 438.95	740 939.43
Total		5 558 179.57	133 168.33	5 425 011.26

Source: SEA

Waste disposal

Of total volumes of generated waste placed on the market 3 003 601 t, 33% was disposed (without MW). Dominance of landfill waste is a historical rule with 80% share on total waste disposal, what means the decreasing about 273 000 tons compared to previous year (without MW). As of December 31, 2010, there were 118 landfills operated in Slovakia.

Number of landfills (towards 31.12.2010)

Region	Hazardous waste landfills	Landfills for not hazardous waste	Inert waste landfills	Total
Bratislava	2	8	2	12
Trnava	1	8	2	11
Trenčín	3	11	1	15
Nitra	3	12	2	17
Žilina	2	14	0	16
Banská Bystrica	2	13	1	16
Prešov	1	14	1	16
Košice	3	9	3	15
Total	17	89	12	118

Source: SEA

Waste disposal following codes D1 – D15 in year 2010 (t)

Code	Activity	Total (t)	Hazardous waste (t)	Other waste (t)
D1	Underground or surface waste disposal. (e.g. landfill)	2 397 240.85	96 065.69	2 301 175.16
D2	Treatment by soil processes (e.g. biodegradation of liquid or sludge waste in soil, etc.)	89 964.50	48 075.88	41 888.62
D8	Biological treatment non-specified in this annex that generates compounds and mixtures eliminated by any of the D1 to D12 activities	190 635.85	54 128.28	136 507.57
D09	Physical-chemical treatment non-specified in this annex that generates compounds and mixtures eliminated by any of the D1 to D12 activities. (e.g. vaporizing, drying, calcinations, etc.)	145 964.65	74 155.22	71 809.43
D10	Incineration on land	96 448.91	43 467.57	52 981.34
D13	Mixing or blending prior to any of the D1 to D12 activities	14 348.77	35.19	14 313.58
D14	Placing into other packaging prior to any of the D1 to D12 activities	295.54	209.00	86.54
D15	Storage before implementing any of the D1 to D14 activities (besides temporary storage prior to collection at the place of waste generation)	68 702.06	14 815.40	53 886.65
Total		3 003 601.11	330 952.23	2 672 648.89

Source: SEA

Other waste handling

Handling with waste by means DO, O and Z codes (t)

Disposal code	Activity	Total (t)	Hazardous (t)	Others (t)
DO	Handing over of waste for domestic use	134 760.94	0	134 760.94
Z	Storage of waste	250 491.53	2 300.95	248 190.58
Total		385 252.47	2 300.95	382 951.52

Source: SEA

◆ Waste from electrical and electronic equipment (WEEE)

There were placed on the market 60 661 of electrical devices in Slovakia in 2008 (11 kg per inhabitant). Amount of collected WEEE was approx. 19 388 thousand tons (3.6 kg per inhabitant).

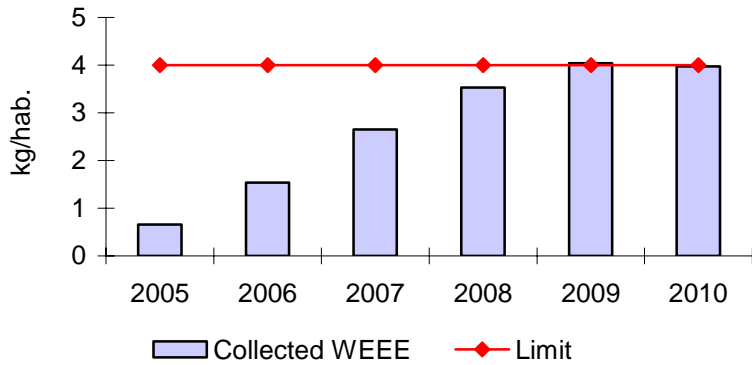
Summary reports by producers of electrical equipment for the year 2010 (kg)

	Introduced to market (kg)	Collected (kg)	Processed (kg)	Recovered (kg)	Recycled (kg)
1. Big domestic appliances	25 203 885.90	12 325 432.95	12 558 526.35	10 992 620.91	10 946 172.39
2. Small domestic appliances	4 766 517.21	1 745 201.95	1 722 761.95	1 467 739.27	1 431 998.99
3. IT and telecommunication devices	5 517 766.61	3 243 785.16	3 243 785.16	2 923 569.40	2 874 983.40
4. Consumer electronic devices	6 071 630.53	2 544 873.37	2 544 873.37	2 275 126.32	2 205 796.57
5. Sources of light	3 237 934.81	1 150 278.70	1 150 278.70	907 383.22	862 505.78
6. Electrical and electronic instruments	3 569 482.57	548 834.00	566 643.00	478 926.92	458 975.51
7. Toys, devices designated for sport and recreational use	522 378.84	30 793.11	30 793.11	26 754.91	25 653.93
8. Medical devices	144 186.54	126 804.00	123 939.00	105 472.60	104 272.49
9. Machines for monitoring and testing	134 002.31	117 740.50	126 792.50	111 390.58	100 818.84
10. Vending machines	84 025.00	82 525.00	84 236.00	78 959.33	77 757.44
Total	49 251 810.32	21 916 268.74	22 067 000.14	19 300 683.46	19 015 615.34

Source: SEA

The EP and Council Directive 2002/96/EC on waste electrical and electronic equipment (WEEE) sets a unified limit for the collection of electrical household waste to 4 kg/capita. In 2010, 4 kg/capita was collected. Slovakia met this limit in 2010.

Trend in the collection of electrical household waste (kg/hab)



Source: SEA

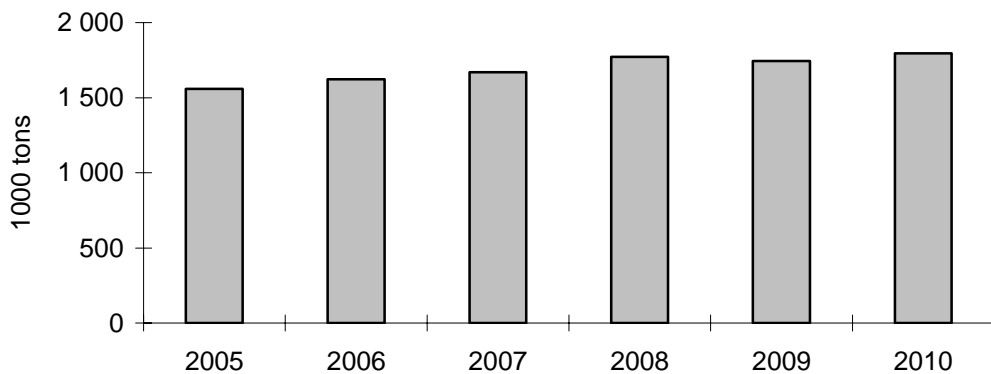
◆ Old vehicle

When compared with 2009, there was a significant reduction (about 48%) in the number of handled old vehicles. This might have been caused also by the stopped funding of old vehicle disposal activities at the purchase of new vehicles, the so-called "scrap allowance".

◆ Municipal waste

According to data from the SO SR, there were 1 796 159.86 tons of total municipal waste generated in Slovakia in 2010. This volume represents 330 kg of municipal waste per capita. Compared to 2009, this is an increase by 9 kg per capita. Long-term waste disposal on landfills (81.4%) is the most frequent method of municipal waste handling, following by incineration with energy recovery (6%).

Municipal waste generation (1000 tons)



Source: SO SR

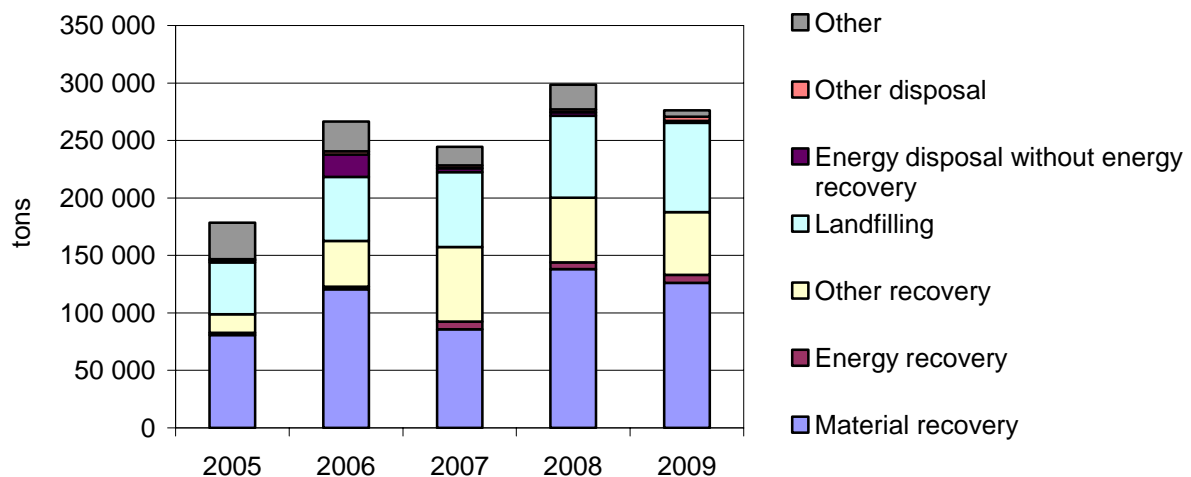
In terms of municipal waste composition, mixed municipal waste (67.27%) constitutes the major component of municipal waste together with bulky waste (11.59%), small construction waste (4.98%). Biologically degradable waste was 4.67% and waste paper and cardboard was 2.68% and glass 2.37%.

From 1.1.2010, the municipalities are obliged to introduce separated collection of four municipal waste categories: paper, plastic, glass, and metals. According to the SO SR, volume of separated municipal waste per capita is 24.8 kg.

◆ Packaging and waste from packaging

Total volumes of packaging waste show rising characteristics. The number of recovered packaging waste material grew from 45.21% in 2005 to 46.22% in 2008; in 2009 there was an increase by 4.2% compared to 2008. Reduction in the volumes of landfilled packaging waste is only very slight, by 1.37%.

Trend in packaging waste generation and disposal (tons)



Source: SEA

◆ Financial mechanism of waste management

Recycling Fund

Total financial revenues in 2010 were almost 13.61 mil. EUR, which is 570 000 EUR less than in 2009. Recycling Fund in 2010 approved 1 862 applications for funding submitted by municipalities and businesses. Successful applicants received 12.87 mil. EUR from the fund. This number includes 1 486 approved applications submitted by municipalities for separated waste financial contribution. In 2010, more than 2.45 mil. EUR was approved for this purpose.

Environmental fund

Description of released subsidies and loans in 2010 is provided in the chapter on Environmental economics.

◆ Transboundary movement

Over the period of 1.1.2010 to 31.12.2010, the MoE SR issued **175 licences regarding the transboundary transport of waste** that permitted the shipment of waste types classified under Annex III (Green Register of Waste), Annex IV (Yellow Register of Waste), Annex V, part 1, register A of the European Parliament and of the Council (EC) Directive no. 1013/2006 on waste shipment. In some cases, the licences mentioned waste categories impossible to be classified under the Regulation's annexes (unclassified waste under none of the Regulation's annexes). In total, **1 619 875 tonnes of waste** were permitted to be imported into Slovakia. In 2010, **701 141.30 tonnes of waste** was permitted for **export**. On the basis of licences issued by the MoE SR for **transit shipment** in 2010, **62 943.50 tonnes of waste** was licensed for transit through the Slovak territory.