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The National Waste Management Plan 2014

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CHAPTER 1. INTRODUCTION

The Act of 27 April 2001 on Wastes (Official Journal of 2007 No. 39, Item 251, further amended) provides for obligation to develop the Waste Management Plans, which are subject to updating each 4 years, at a minimum.

This 2014 National Waste Management Plan is an updated version of the 2010 National Waste Management Plan (hereinafter "the 2010 National Plan"), which was approved by way of Regulation No. 233 of the Council of Ministers (i.e. Polish Cabinet) of 29 December 2006 (Governmental Gazette No. 90, Item 946). It is due to updating by the end of 2010.

The National Waste Management Plan should write in all strategic documents approved at both the national and the Community levels.

It is noteworthy that Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme (Official Journal WE L 242 of 10.09.2002, p. 1), provides for implementation of the following programme in the scope of waste management:

Decoupling economic growth from the quantities of waste generated, while understood as aiming at permanent reduction in waste generation with sustainable growth in the national economies, by means of:

- 1) Breaking bonds between economic growth and the use of resources;
- 2) Significant reduction of waste generated quantity through the initiatives preventing waste generation, improved effectiveness of the resource use, and shifting to the more sustainable production and consumption patterns.

Waste Hierarchy:

- 3) Waste minimisation is aimed at reducing the production of waste through education and improved production process rather than aiming to increase technology to improve treatment of waste. Minimising waste generation has the potential to reduce costs or increase profits by maximising the use of resources and by reducing the amount of waste to be disposed of the cost of waste management is also decreased. Besides, emissions into and pollution of the air, waters and soil can be significantly reduced or avoided;
- 4) Reuse of waste means recovering value from a discarded item without reprocessing or remanufacture. Typically this will involve an item being reused in its original function or similar. Reuse is given priority over recycling within the Waste Hierarchy because it is assumed to provide greater savings in resource consumption. Encouraging reuse of waste involves also actions aimed at reduction of its hazardous properties.
- 5) Recycling of waste occurs when materials from waste streams are broken down into raw materials and reprocessed either into the same product or a new product. The recycling activities include collection, sorting, reprocessing and manufacture. Term recovery of waste covers recycling, composting and incineration processes thereof. Resource recovery involves turning discarded materials into some kind of useful resource by chemically transforming those materials, typically into either energy or compost. It can be contrasted with the concept of materials recovery, which covers processes that capture and use the materials in their existing chemical state.
- 6) The last step in the waste hierarchy - goods are disposed of when there is no other economically viable way of dealing with them. Usually disposal is either through landfilling or incineration by methods safe for humans and the environment;

The Proximity Principle:

- 7) The proximity principle advocates that waste should be disposed of (or otherwise utilised) close to the point at which it is generated, thus aiming to achieve responsible self-sufficiency at a regional or sub-regional level. Where this is not possible, priority should be given to transportation by rail or water.

These objectives should take due regard of an integrated approach to product policy and waste management strategy, by means of, amongst others, the following priority actions: integrating environment protection requirements into all Community's external policies, including trade and development cooperation, in order to achieve sustainable development by inter alia the elaboration of guidelines

- 1) promotion of extraction and production methods and techniques to encourage eco-efficiency and the sustainable use of raw-materials, energy, water and other resources;
- 2) development and implementation of a broad range of instruments including research, technology transfer, market-based and economic instruments, programmes of best practice and indicators of resource efficiency;
- 3) developing and implementing measures on waste prevention and management by, inter alia:
 - a) raising awareness of the public's potential contribution on waste reduction;
 - b) formulation of operational measures to encourage waste prevention, e.g. stimulating re-use and recovery, the phasing out of certain substances and materials through product-related measures;
 - c) developing further indicators in the field of waste management;
- 4) developing a thematic strategy on waste recycling, including inter alia: measures aimed at ensuring source separation, the collection and recycling of priority waste streams, further development of producer responsibility; development and transfer of environmentally sound waste recycling and treatment technology;
- 5) developing or revising the legislation on wastes, including, inter alia, construction and demolition waste, sewage sludge, biodegradable wastes, packaging, batteries, and waste shipments, clarification of the distinction between waste and non-waste and development of adequate criteria for the further elaboration of Annexes IIA and IIB of the framework directive on wastes.

In Thematic Strategy on the prevention and recycling of waste COM(2005)666 emphasis is put on promotion of taking sustainable use of resources. The Strategy calls for prevention waste and promote re-use, recycling and recovery thereof, so as to reduce the negative environmental. The long-term goal is for the EU to become a recycling society that seeks to avoid waste and uses waste as a resource. With high environmental reference standards in place the internal market will facilitate recycling and recovery activities The long-term Strategy's goal is for the EU to change behaviours and attitudes of the general public to become finally a recycling society that seeks to avoid waste and uses waste as a resource through achievement of the high recycling levels.

Growing quantities of waste indicate ineffective manufacturing, distribution, and consumption processes, and resultant financial losses. The quantity of waste generated per statistical end-user (being the unit factor of waste generated) closely depends upon socio-economic factors, the principal of which are: population well being and the quantity and intensity of products consumption.

Decoupling economic growth from the quantities of waste generated is the key objective of Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives (Official Journal EC L 312 of 22.11.2008, p. 3).

Nowadays, the sole stabilization of the quantities of waste generated is no more sufficient, since first the waste accumulation processes have to be reverted and waste prevention is the most effective approach to reach this objective, since it contributes to:

- the reduction of atmospheric emissions of greenhouse gas originating from waste disposal on landfills,
- the more effective use of natural resources through reuse of products, energy savings, and reduction of material use,
- the reduction of hazardous waste generation,
- the reduction of the quantities of waste deposited on waste landfills.

Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste introduced the obligation to prepare Waste Management Plans and Waste Prevention Programmes, the aim of which is to provide for both the national waste prevention objectives and the prevention measures.

According to Article 15, paragraph 1 in the Act of 27 April 2001 on Wastes, the National Waste Management Plan should conform to the National Environmental Policy. The most important commitments which Republic of Poland assumed under its membership in the European Union, and that are included in the 2009-2012 National Environmental Policy and its 2016 Outlook are to:

- 1) achieve, by 31 December 2014, the 60% recovery and the 55% recycling levels of packaging waste, at a minimum,
- 2) reduce gradually mass of municipal biodegradable landfilled waste, starting from 75% in 2010, through 50% in 2013, to reach the 35 % level in 2020, in relation to mass of this waste generated in 1995,
- 3) collect by 2012 25% of waste portable batteries and accumulators, and reach in 2016 the 45% collection level of this waste,
- 4) collect waste electrical and electronic equipment (originated from households) at the amount of 4 kg per statistical end-user, annually,
- 5) eliminate by 1 January 2012 all municipal waste landfills which fail to comply with the requirements in Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste (that is a transitional period conditional upon previous Poland's conformity to the medium-term objectives).

The medium-term objectives concerning waste management by 2016 under the 2009-2012 National Environmental Policy and its 2016 Outlook are following:

- 1) maintain tendency to decouple the quantities of waste generated from the national economic growth (less waste per product unit, reduced packaging, longer product life cycles),
- 2) increase energy recovery from municipal waste in an environmentally safe manner,
- 3) close all waste landfills which do not conform to the EU standards and perform land reclamation after these landfills,
- 4) make the inventory of closed and abandoned extractive waste landfills including identification of the sites having significant environmental impact,
- 5) eliminate landfilling of waste electrical and electronic equipment and waste batteries and accumulators,
- 6) complete organisation of the national system for collection of vehicle scrap and dismantling of end-of-life vehicles,

- 7) organise the pre-selection, sorting and recovery system for municipal waste so that no more than 50% of waste produced in household are landfilled.

The activities to reach the medium-term waste management objectives under the 2009-2012 National Environmental Policy and its 2016 Outlook are following:

- 1) implement database on wastes,
- 2) reform the present municipal waste collection and recovery system in municipalities so as to confer more authority on self-governmental authorities to manage and control this system,
- 3) increase charge rates for landfilling of biodegradable waste mixed with recoverable waste,
- 4) provide financial support with the environmental funds resources to investments in recovery and recycling of waste, as well as support implementation of new technology in this regard,
- 5) adapt waste landfills to comply with the relevant EU standards,
- 6) introduce solutions improving efficiency of recycling system of end-of-life vehicles,
- 7) provide financial support with the environmental funds resources to modify technology leading to reduction in the quantity of waste per unit production (low-waste technology),
- 8) implement projects for reduction of the quantity of municipal waste deposited and enhance the share of municipal waste due to recovery and disposal processes, as supported with donations under the „Infrastructure and Environment” Operational Programme,
- 9) intensify environmental education promoting the minimum generation of waste (e.g. introduction of reusable packaging and shopping plastic bags, reduction of unwise consumption patterns) and its pre-selection by households,
- 10) strengthen inspections managed by the Environmental Protection Inspectorate at the entities receiving waste from its producers, and the entities managing waste recovery and disposal installations,
- 11) finalise the liquidation of the burial grounds containing outdated plant protection products and other hazardous waste,
- 12) eliminate PCBs from transformers and capacitors.

The National Waste Management Plan cover the whole scope of the tasks required to provide of integrated waste management nationally in a manner securing protection of the environment, with regard to both the present and future economic opportunities and circumstances and technology level of existing infrastructure. The Plan considers tendencies in the present economy worldwide as well as the national circumstances of economic development.

The Plan includes both the waste prevention scheme in relation to specific types of waste and the strategy for reduction biodegradable waste landfilling.

The Waste Management Plan covers waste originated domestically, including in particular municipal waste, hazardous waste, packaging waste and Sludges from urban waste water treatment plants, and also waste imported in the national territory.

The objectives and tasks presented in the Plan concern years 2011-2014 and the 2015-2022 outlook thereof.

This National Waste Management Plan includes:

- the analysis of the current waste management situation including the following information:
 - the types, quantities and sources of waste generated and that due to the recovery or disposal processes thereof,
 - the holders of waste who manage business activities in the field of collection, recovery or disposal of waste,
 - the distribution of existing waste collection, recovery and disposal installations,
 - the identification of problems in the scope of waste management,
- the changes anticipated in the scope of waste generation and management,
- the objectives in the scope of waste management, including the implementation timing thereof,
- the waste management scheme,
- the tasks, implementation of which provides for improvements in the scope of waste management,
- the types of projects and the implementation time-schedule thereof,
- the financial instruments for implementation of the objectives in the scope of waste management, containing the following components:
 - the sources to finance the actions planned,
 - the in-kind and financial actions planned to prevent waste or reduce the quantities of waste originated and any negative environmental effects thereof, and also adequate management of waste, including reduction of the quantities of biodegradable waste contained in municipal landfilled waste,
- the monitoring system for and the method to assess implementation of the objectives in the scope of waste management.

The following types of waste are identified hereby for the purpose of this Plan:

- municipal waste,
- hazardous waste,
- other waste, including industrial wastes, effluent sludges, and packaging waste, while specific consideration is dedicated to these types of waste, for which any essential problems have been identified.

The 2014 National Waste Management Plan was developed pursuant to the legal status as of the 30 June 2010. The categories, sub-categories and types of wastes follow the Regulation of Minister of the Environment of 27 September 2001 on the Catalogue of Wastes (Official Journal No. 112, Item 1206).

The analysis is based mainly upon data provided by the Central Statistical Office (GUS), and also that stored in the Central and the Voivodship (i.e. Provincial) databases on generation and management of waste and of packaging and packaging waste, and that stored at the Chief Inspectorate for Environmental Protection (GIOŚ) and the respective Voivodship Inspectorates (WIOŚ), as well as that included in elaborates prepared during the recent years. For data on mass of waste generated and utilised that was provided mainly by the GUS, 2008 is assumed as the base year. For exceptional situations, where essential amendments to the legal provisions were introduced, the 2006 data are used. That refers, amongst others, to the dismantling stations of the end-of-life vehicles for which data as of 30 June are applied. 2010. Data acquired for special-purpose databases was also used, e.g. from the Polish Central Register of Vehicles (CRV).

CHAPTER 2. ANALYSIS OF THE CURRENT STATUS OF WASTE MANAGEMENT SECTOR IN POLAND

2.1. Municipal waste, including biodegradable waste

2.1.1. Preventing municipal waste; the types, origination sources, quantity and quality of municipal waste generated

Municipal waste is such waste which originated in households, excluding end-of-life vehicles, but including also waste which contain no hazardous waste that was generated by other producers of waste that, given its nature and composition is similar to waste generated in households. The origination sources of municipal waste are following:

- households;
- infrastructure sites, including trade, services, craft, education, industries - in „social” part thereof - and other.

The quantity and morphology composition of municipal waste depend very heavily from the place of its origination, including primarily the well-being of the local community. The quantity of municipal waste collected, per statistical end-user, very clearly depends on the economic condition of the individual regions of the country.

Over the past few years stable quantities of waste collected have been noted at the level of 10 million Mg. Many factors cause such situation. On the one hand, this may relate to mass emigration, financial-economic crisis, and inappropriate practices of municipal waste management. On the other hand, this could be an effect of undertaking deliberate efforts to prevent waste. Those include increase in charges for landfilling of waste that caused growing fees for reception of municipal waste from real estate owners, and consequent the more "greening" consumers' behaviours additionally reinforced by developing environmental education.

The balance of municipal waste generated in Poland in 2004 and 2008 are shown in Table 1.

Table 1. Municipal waste generated in Poland in 2004 and 2008

No.	Type of waste	Mass of waste generated. in thousand Mg					Growth: 2008 compared to 2004. thousand Mg
		2004		2008			
		total	total	including			
			large conurbations (>50 thousand)	small towns	rural areas		
1	Paper and cardboard	2 181	1520.5	1045.0	302.5	173.0	-660.5
2	Glass	962	1216.3	545.9	323.4	347.0	254.3
3	Metals	531	279.0	146.0	48.5	84.5	-252.0
4	Plastics	1 560	1533.6	830.9	346.1	356.6	-26.4
5	Multi-material waste	711	401.2	134.7	124.5	141.9	-309.8
6	Kitchen and garden waste	2 850	3888.6	1582.3	1156.7	1149.7	1038.6

7	Mineral waste	1 472	467.9	173	89.1	205.8	26.6
8	Fraction < 10 mm		1030.7	229.7	215.7	585.3	
9	Textiles	174	325.8	124.8	126.8	74.2	151.8
10	Wood	192	44.8	12.8	9.3	22.7	-147.2
11	Hazardous waste	93	89.4	41.1	20	28.2	-3.6
12	Other categories	251	485.7	173	142.4	170.3	234.7
13	Large-size waste	499	268.3	141.8	82	44.5	-230.7
14	Waste from greenery	326	549.4	292.1	166.8	90.6	223.4
Total		11 802	12101	5472.9	3153.8	3474.4	299.0

In 2008, the quantity of 10036 thousand Mg municipal waste was collected in Poland, including 682 thousand Mg (6,8%) by selective manner, i.e. by 169 thousand Mg more than in 2007.

Table 2. Mixed municipal waste collected and disposed of in 2004-2008.

Year	Mass of the total waste collected, excluding sorted waste					Disposed of per annum [thousand Mg]		Waste segregated from mixed waste [thousand Mg]	Waste deposited on landfills [thousand Mg]
	thousand Mg	per statistical end-user [kg]	including from:			by thermal methods	by biological methods		
			trade, small businesses, offices and institutions [thousand Mg]	municipal services [thousand Mg]	households [thousand Mg]				
2004	9516	249,3	2441	473	6602	87	234	-	9194
2005	9057	237,3	2291	468	6297	44	318	71	8623
2006	9473	248,4	2279	568	6627	45	297	144	8987
2007	9570	251,1	2348	527	6695	41	278	153	9098
2008	9354	245,4	2405	521	6428	63	262	336	8693

Mass of municipal waste fraction collected by selective manner in 2004-2008 regularly increased from 243 to 682 thousand Mg. The majority collected per statistical end-user in 2008 was glass (4.6 kg/end-user) and waste paper (3.8 kg/end-user), whereas hazardous waste (about 0.03 kg/end-user) was the least.

Biodegradable waste is the essential fraction of municipal waste. Biodegradable waste (or "bio-waste") is such waste which becomes decomposed under aerobic or anaerobic conditions with participation of microorganisms. Biodegradable waste includes garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises and comparable waste from food processing plants

Municipal biodegradable waste includes:

- paper and cardboard,
- clothes and fibres made from natural materials (50% of textile fibres fraction),
- waste from greenery,
- kitchen and garden waste,
- wood.

Biodegradable substances include also multi-material waste as well as the fine fraction (< 10 mm) thereof.

The quantities of generated municipal biodegradable waste in 1995, 2000, 2004 and 2008 are shown in Table 3.

Table 3. The quantities of municipal biodegradable waste generated in 1995, 2000, 2004 and 2008

No.	Specification	1995*	2000*	2004**	2008
1	Paper and cardboard, thousand Mg	-	2071	2181	1520,5
2	Waste from greenery, thousand Mg	-	302	326	549,4
3	Biodegradable waste included in other waste, thousand Mg	-	2494	3015	4543,6
4	Total, thousand Mg	4381	4867	5522	6613,5
5	Mass of waste generated, thousand Mg	9961	11948	11 802	12101,0
6	The proportion of biodegradable waste contained in municipal waste, %	44,0	40,7	46,8	54,7

* - the 2014 National Plan

** - the 2010 National Plan

In 1995, as the reference year, 4.38 million Mg municipal biodegradable waste was generated, with 155 kg per statistical end-user in urban areas, and 47 kg in rural areas.

Mass of municipal biodegradable waste generated in 2008 is estimated at 6614 thousand Mg, and its share in municipal waste accounts for 54,7%.

2.1.2. Municipal waste management system

According to the legal provisions in force, each real estate owner should have signed contract to receive municipal waste from its property. Party to the contract may be each company licensed to operate in the scope of receiving municipal waste. In the permit the place of recovery or disposal of municipal waste should be determined in accordance to the Voivodship Waste Management Plan. The receiver waste may be also the organizational entity that is exempted from the obligation to obtain authorisation of the aforementioned permit, but must meet the requirements on companies in this regard. The entities active in given Municipality are required to forward to the authority thereof the information about agreements concluded with the real estate owners. The Municipality keep register of such contracts. Where the real estate owner has no agreement concluded with the receiver of waste, the Municipality charges ex officio, by decision, a fee imposed on the owner and collects reception of municipal waste from it, and transfers the charge to the Municipal Budget. In addition, the said entities are obliged communicate to the Municipal Authorities their respective reports on the management of municipal waste.

Where in the area of a Municipality there is no entity receiving municipal waste from the real estate owners, such Municipality must organise the collection of municipal waste from all inhabitants thereof.

Municipal waste should be collected and received in a selective manner, according to the requirements set out in Municipal Regulations on keeping cleanliness and order there (which is the local legal act approved by Municipal Board).

Mixed municipal waste collected from real estate owners are then transported to municipal waste treatment installations. In 2008, 78.1% of populations in Poland was covered by an organised municipal waste collection schemes.

According to the 2010 National Plan, the municipal waste management regions were designated in the Voivodship Waste Management Plans to be serviced by municipal waste treatment plants. All the Voivodship in Poland approved their respective Waste Management Plans, under which the total 123 municipal waste management regions were designated.

Development of their individual waste treatment plant is in most cases still in the design phase.

For the municipal waste management regions covering at least 300 thousand population, thermal treatment of was assumed as a preferable method for utilisation of mixed municipal waste, whereas mechanical and biological method of treatment was adopted in smaller regions.

2.1.3. Existing installations for recovery and disposal of municipal waste

Table 4 shows the treatment capacity of specific types of installations. For waste sorting installations, the data shown refer to one-shift operation of installation.

Table 4. The list of installations for municipal waste utilisation in Poland (excluding landfills)

Types of installation	The total number of installations	The total combined treatment capacity [thousand Mg]
Composting plants for green waste and organic waste (plant and animal) collected in a selective manner	85	602.3
Sorting plants for types of municipal waste collected in a selective manner	74	548.3
Sorting plants for mixed municipal waste	31	581.7
Sorting plants municipal waste-both mixed and collected in a selective manner	34	1097.1
Municipal waste incineration plants	1	42.0
Waste fermentation plants	4	51.5
Mechanical and biological waste treatment plants for mixed municipal waste	9	411.7
Total	238	3334.6

As results from the above data, Poland has no sufficient infrastructure for utilisation of municipal waste, including biodegradable waste.

2.1.4. Identification of problems in the scope of municipal waste management, including biodegradable waste

The following problems were identified in municipal waste management sector, as regards biodegradable waste:

1. insufficient number of installations, including those for thermal treatment of mixed municipal waste,
2. too poor progress in selective collection of municipal waste, including hazardous waste contained within mixed municipal waste streams,
3. lacking legally defined requirements on mechanical and biological treatment of mixed municipal waste, that would provide for recognition of treated waste which pose no environmental hazard where deposited on landfill,
4. missing collection systems for outdated medicaments from households.

2.2. Hazardous waste

2.2.1. PCB containing waste

Preventing generation, origination sources, and quantities generated/utilised

Given the statutory obligation to eliminate PCBs from use, no measures preventing origination of this waste can be considered at the current stage. Yet it has to be emphasised that the ban on placing these substances on the market has caused that the waste in question will be no more generated.

Given their properties, polychlorinated biphenyls (PCBs) were applied as:

- additives for oils in transformers and capacitors;
- additives for paints and varnishes;
- preservation and conservation agents.

By the late 2009, about 1 thousand Mg PCBs was used in transformers and capacitors.

Treatment installations in operation

Nowadays, three installations for treatment of PCB containing oils and liquids by thermal method are in operation throughout Poland, with their 32 800 Mg/year total combined throughput capacity.

The overall throughput capacity of installations operated in Poland for treatment of PCB containing oils and liquids is sufficient enough to cover the current domestic requirements.

Currently, no installation capable to dispose of the PCB containing capacitors is operated in Poland, thus those are disposed of abroad. Services in the scope of collection and transportation of this waste to treatment installations are provided by specialised companies. Given the gradually decreasing quantities of PCB containing capacitors, any construction of treatment installations thereof in Poland would be unnecessary.

Problem identification

Not all PCB containing equipment has been eliminated by the deadline required, i.e. 30 June 2010. According to the legal requirements, the total of waste originated from phasing out or decontamination of all PCB containing equipment should be disposed of by the end of 2010. However, compliance with this deadline seems to be failed.

2.2.2. Waste oils

Preventing generation, origination sources, and quantities generated/utilised

Preventing generation of waste oils consists in application of oils with prolonged life-cycle.

Waste oils originate in result of replacement of used oils, failures of installations and equipment, and in result of removing them, including from end-of-life vehicles.

Year by year, the volume of mineral lubrication oils placed on the market is decreasing. The recovery and recycling levels attained so far at a country scale for waste oils originated from mineral oils show that companies have achieved the relevant recovery and recycling targets, as indicated in the provisions in force (Table 5).

Table 5. Mineral lubrication oils placed on the market and the recovery and recycling levels thereof required and achieved in 2004 and 2006-2008

	The volume of oils placed on the market [thousand Mg]	Level required [%]	Level achieved [%]
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Years	Total	Due to		recovery	recycling	recovery	recycling
		recovery	recycling				
2004	211.5	211.5	241.0	40	22	42.3	30.5
2006	185.6	185.6	179.5	45	32	52.1	38.8
2007	181.6	181.6	179.2	50	35	56.6	42.4
2008	166.7	166.7	166.7	50	35	51.5	39.0

The current waste management scheme

Performance of the national market for management of waste oils closely relates to the scheme established in result of introduction of the provisions in the Act of 11 May 2001 on the operators' responsibilities in the scope of management of certain wastes and on the product and deposit charges. Those who place oils on the market assume their commitment to achieve definite recovery and recycling levels. They may perform this obligation on their own, or through the relevant recovery organisations. Specialised entities holding their respective permits manage collection, transportation and utilisation of waste oils.

Waste oils should firstly be subject to recovery processes by means of regeneration thereof. Regeneration process consists in manufacturing the base oils through refining waste oils, in particular, through removal of contaminants, oxidation products and additives contained in these waste oils.

Treatment installations in operation

Pursuant to obligation under Article 39, paragraph 1a of the Act of 27 April 2001 on Wastes, the Chief Inspector of Environmental Protection, keeps publicly accessible list of (on the voluntary application basis) those manage installations for regeneration of waste oils that comply with the requirements set out for these installation. The aforementioned list is placed in website of the Chief Inspectorate for Environmental Protection www.gios.gov.pl in "Registers" folder.

As of 31 December 2009, five entities were put in this list, including two major installations, with 115 thousand Mg their total combined throughput capacity.

Problem identification

The following problems are identified in the scope of waste oils management system:

1. lacking sufficiently developed waste oils collection system with small and medium-sized enterprises and households,
2. lacking suitable selective at-source-collection scheme for this waste that in many instances makes its regeneration unfeasible,
3. ineffective usage of the throughput capacities provided by domestic installations,
4. poor quality of waste oils (e.g. low share of plant-originated components contained therein) that apparently reduces potential treatment opportunities of waste oils recovery processes,
5. risk of reduced demand of the base oils originated from regeneration processes,
6. failure to covering synthetic and semi-synthetic lubrication oils by the relevant recovery and recycling requirements.

2.2.3. Medical and veterinary waste

Preventing generation, origination sources, and quantities generated/utilised

Due to the sanitary and hygiene reasons, it is necessary to apply non-reusable equipment where a likelihood of contacting tissues appears. If this is the case, the opportunities to prevent this waste are very limited. Selective collection of medical and veterinary waste provides for reduction of the mass of the secondary infectious waste generated.

The quantities of medical waste generated in 2008 amounted to 35.5 thousand Mg (including 29.394 thousand Mg hazardous waste). When calculated per statistical end-user, 0.93 kg 18 waste category was generated in 2008. The amount of veterinary waste generated in 2008 was 0.42 thousand Mg.

The current waste management scheme

The most of medical and veterinary establishments apply selective waste collection using special containers or bags. Infectious medical and veterinary waste and outdated medicaments are disposed of by the thermal treatment methods. Thermal disinfection and autoclaving are applied as intermediate treatment methods.

Treatment installations in operation

In 2008, 45 waste incineration plants were in operation with the total combined throughput capacity thereof amounting to 40.443 thousand Mg.

In the light of information on the quantities of category 18 medical waste generated the conclusion is that the annual output of waste incineration plants operated in Poland that receive medical waste for thermal treatment thereof is sufficient enough in the country scale. The deficiency consists in uneven distribution of these installations throughout the national territory.

Problem identification

The following problems are identified in the scope of management medical and veterinary waste, particularly infectious ones:

1. the number and throughput of waste incineration plants for medical waste treatment is sufficient enough to dispose of the entire stream of this type of waste originated, however distribution of these plants at the Voivodship level cannot guarantee the conformity neither to the proximity principle, nor the principle to dispose of medical waste in the Voivodship in which this waste was generated,
2. the low reliability of data on various types of waste generated in the health and veterinary establishments.

2.2.4. Waste batteries and accumulators

Preventing generation, origination sources, and quantities generated/utilised

Prevention of waste batteries and accumulators consists mainly in application of the long-life batteries and accumulators. Batteries and accumulators are structured into the following categories:

- acid-lead (used mainly in cars),
- nickel-cadmium,
- other (including alkaline).

Those are applied in transportation means, emergency or energy power supply, electric torches, measuring equipment, cellular telephones and portable computers, wireless electric tools, household equipment, etc.

Table 6 shows the amounts of batteries and accumulators placed on the market and due to recovery and recycling, and the recovery and recycling levels thereof as required and achieved.

Table 6. Batteries and accumulators placed on the market, as due to the recovery obligation, and the recovery and recycling levels thereof required and achieved in 2004 and 2006-2008

Years	Specification	The volume placed on the market [pieces]			Required level [%]		Achieved level [%]	
		Total	Due to		recovery	recycling	recovery	recycling
			recovery	recycling				
2004	Small-size nickel and cadmium accumulators	3168370	3167245	3167245	25	25	35.0	39.3
	Large-size nickel and cadmium accumulators (>2000g)	24987	24687	24687	40	40	40.8	41.0
	Batteries and galvanic cells	253183265	248475328	13890314	10	10	9.7	6.8
2006	Small-size nickel and cadmium accumulators	3196894	3196894	3196894	35	35	68.7	68.5
	Large-size nickel and cadmium accumulators (>2000g)	18313	17233	17233	60	60	93.6	93.6
	Batteries and galvanic cells	205400902	205400008	19897130	15	15	18.9	14.1
2007	Small-size nickel and cadmium accumulators	4505970	4505970	4505970	50	50	59.4	58.0
	Large-size nickel and cadmium accumulators (>2000g)	25506	25506	25506	70	70	59.4	58.0
	Batteries and galvanic cells	262491780	262491780	13759063	50	50	29.2	32.4
2008	Small-size nickel and cadmium accumulators	5823167	5815464	5810919	40	40	35.1	35.0
	Large-size nickel and cadmium accumulators (>2000g)	26591	26519	26519	60	60	91.8	91.8
	Batteries	307089999	306694948	24015157	18	18	13.8	11.2

and galvanic cells								
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The current waste management scheme

Enhanced product responsibility is imposed on the operator placing batteries or accumulators on the market. The operator is held responsible for these products throughout the life cycle thereof, beginning from the moment of its marketing, and over the use-period, and also afterwards, when it has become waste. Thus, such operator is committed to organize and finance the collection, treatment, recycling and disposal of waste batteries and waste accumulators, and also to carry out adequate management of waste batteries and waste accumulators. From 2010, they are also committed to meet the collection and recycling levels calculated by a new way.

The environmental management schemes are also applied as a tool which provides a framework for the environmental effects by which an organisation impacts the environment. Preferred environmental management scheme compliant with the Environmental Management and Audit Scheme (EMAS) and the ISO 14001 requirements that is based upon the Plan-Do-Check-Act or briefly the P-D-C-A model, encourages operators to identifying environmental problems and planning appropriate action in order to reduce adverse environmental impacts. The companies participating in the aforementioned permitting schemes may benefit from certain favourable arrangements. Registration fee is charged when making entry into register of companies placing batteries or accumulators on the market, unless an operator thereof implements its EMAS compliant environmental management schemes under the European Environmental Management and Audit Scheme (EMAS) and if the registration is considered acceptable under the Act of 12 March 2004 on the Environmental Management and Audit Scheme (Official Journal No. 70, Item 631, further amended).

Management of waste batteries and accumulators supports redistribution measures originated from the product and deposit fees. In order to ensure the required collection levels of waste portable batteries and accumulators, each retailer of portable batteries or accumulators, whose sales area exceeds 25 m², the wholesaler or portable batteries and accumulators portable and those who provide services in the scope of replacement of waste batteries or accumulators are obliged to free of charge reception thereof. Moreover, the reception points are set up, e.g. with schools and other educational, cultural, and administrative establishments in which the end users may give back their waste batteries and accumulators on a free of charge basis. Those collect waste batteries and accumulators upon explicit expression of the wish to do so and once having had contract concluded with an entity authorised to receive those waste batteries and accumulators they have collected. The batteries or accumulators may be left also with a collector of municipal waste who holds a permit to receive household waste from the real estate owners. Waste batteries or accumulators collected by retailers, wholesalers and in other collection points are then forwarded to such aforementioned collector of municipal waste. For the service and other entities processing waste electrical and electronic equipment, the waste batteries and accumulators they collected from the end-users may be transferred either to collector of waste batteries and accumulators or directly to the plant which deals with ultimate treatment of waste batteries and accumulators, or at a minimum to that sorting such waste.

Treatment installations in operation

In Poland, there are two for waste acid-lead accumulators treatment installations operated, the total combined throughput capacity of which is 170 thousand Mg/year. Not all of their total potential treatment capacity is used so far and that is the reason why the Chief Inspector of Environmental Protection granted the import permits for shipments of this type of waste in the

subsequent years (e.g. 54 thousand Mg in 2008). There is also an installation for treatment of nickel-cadmium batteries and accumulators with its 1.9 thousand Mg/year throughput capacity. It is sufficient enough to utilise all waste generated domestically.

Problem identification

The following problems are identified in the scope of waste batteries and accumulators:

1. treatment installations for waste alkaline batteries are unavailable in Poland,
2. potential throughput capacity of operated in Poland installations for recovery of lead batteries and accumulators is unused to a considerable extent.

2.2.5. Waste electrical and electronic equipment

Preventing generation, origination sources, and quantities generated/utilised

The rapid technology development in the scope of electrical and electronic equipment causes that such equipment meets the increasingly higher technical parameters, but that also makes potential users wish to possess continuously new hardware generations, but this does not make the prevention of waste good. Information and educational actions aimed at raising awareness of the general public and developing their positive attitudes are extremely important in this regard. Extended producer responsibility for its electrical and electronic equipment placed on the market plays essential role for prevention of waste from electrical and electronic equipment. Operators are obliged to achieve the required level of selective collection of waste electrical and electronic equipment originated in households and the recovery and recycling levels for various categories thereof. The green public procurements are also applied, whereby the public entities integrate respective environmental criteria and requirements into purchase processes (procedures for granting the public procurements) and seek solutions to reduce any negative environmental impacts from products/services and taking into account the entire products life cycle, thus stimulating development and dissemination of low-waste technology.

Table 7 shows data on the quantities of waste electrical and electronic equipment collected, recovered and recycled.

Table 7. Waste electrical and electronic equipment collected, recovered and recycled in 2006-2009

Years	Equipment collected			Due to [thousand Mg]	
	total [thousand Mg]	including from households		recycling	type of recovery other than recycling
		total [thousand Mg]	per statistical end-user [kg]		
In the 2nd half of 2006	5.031	1.897	0.05	0.457	0.349
2007	27.173	10.280	0.27	15.085	1.538
2008	56.425	36.448	0.96	22.137	0.628
2009	108.792	103.439	2.70	87.884	1.516

The target objective to collect at least 4 kg waste electrical and electronic equipment from households per a statistical end-user annually, as effective of 1 January 2008 under the Directive on waste electrical and electronic equipment, has not been achieved in Poland.

However, it is noteworthy that a significant increase is noted in the subsequent years in the mass of waste electrical and electronic equipment collected particularly that originated from households. As regards the recovery and recycling levels required in 2008, these were achieved, except those for waste electrical and electronic tools (excluding the large-scale stationary industrial equipment). However, in 2009, all the recovery and recycling levels required for all categories were achieved.

The current waste management scheme

In order to ensure financing the whole recovery, including recycling, processes and to provide the favourable opportunities that all consumers can give back their waste electrical and electronic equipment on a free of charge basis, the price of each piece of electrical and electronic equipment integrates full cost of waste management processes. This cost can range between few cents and several EUR. The charge gained in the above manner is then passed to the operators (the manufacturer or importer) who place the equipment on the market, and who must then allocate it in whole for the structure and operation of the utilisation schemes of waste electrical and electronic equipment. A part of these operators, including those placing on the market the household equipment, radio, audio-video and TV sets, and lighting equipment or tools, are required to publish their information on the amounts of their waste management costs.

The operators placing the equipment on the market can pursue their duties in the scope of operation of waste management scheme independently or through the recovery organisations who thus assume the relevant responsibilities from the operators. Where it is the case, the operator who cooperates with the recovery organisation is bound to pass over thereto its resources required for collection, treatment, recovery, including recycling, of waste electrical and electronic equipment, and the recovery organization performs the responsibilities on behalf of the operator.

Waste electrical and electronic equipment has to be collected in a selective manner, and then transferred to the respective entity which manages on-site collection of such waste. It may be also given back on a free of charge basis to retailer or wholesaler, however conditional upon the purchase of new equipment of the same nature, e.g. washing machine in exchange for a washing machine. Moreover, if repairing of damaged equipment would be non-cost effective or impossible for technical reasons, it may be left free of charge with a service shop.

Information on the location of the collection points for waste radio, audio-video and TV sets, and household appliances, should be available in shops which sell such types of equipment. In addition, the website of each Municipality should present information about companies which in the area thereof deal with collection of waste electrical and electronic equipment originated from households.

As of 31 December 2009, the register of the operators and the recovery organisations of electrical and electronic equipment that is kept by the GIOŚ included entries on 3,450 operators placing such equipment on the market and 8,399 ones managing the collection activities thereof.

Treatment installations in operation

As of 30 June 2010, the GIOŚ register included 145 entities operating in the scope of treatment of waste electrical and electronic equipment, 65 entities operating in the scope of the recycling and other than recycling recovery processes thereof, and 8 recovery organisations of waste electrical and electronic equipment. Several such operators registered with GIOŚ that are active in the field of treatment of waste equipment, manage two such treatment plants, thus increasing the number of registered installations.

Problem identification

The following problems are identified in the scope of waste electrical and electronic equipment:

1. The target objective to collect at least 4 kg waste electrical and electronic equipment from households per a statistical end-user annually, as effective of 1 January 2008, has not been achieved,
2. A part of waste electrical and electronic equipment, in particular, washing machines, refrigerators and freezers, instead at their respective waste collection points, are sold with metal scrap collection points, thus avoiding their proper utilisation, registration and notification obligations,
3. The Operators' failure to submit their reports, as required under the Act, or drawing-up such reports in a non-diligent manner.

2.2.6. End-of-life vehicles

Preventing generation, origination sources, and quantities generated/utilised

Extended producer responsibility includes the waste prevention component with regard to end-of-life vehicles, which means the producer responsibility for vehicles being placed on the market.

In 2008, for the first time in Poland about 1.6 million vehicles were registered, including about 1.1 million used vehicles imported to Poland, and the total of 21.3 million vehicle fleet was in Poland in 2008.

Assuming 15-17 years of the average vehicle life cycle, it can be estimated that 6% of the total vehicle fleet undergoes dismantling annually, which accounts for about 1.3 million vehicles.

The current waste management scheme

Operators placing category M1 and N1 vehicles on the Polish market and issuing vehicle registration book, are required to ensure operation of the vehicle collection network, in such a way that it covers the whole national territory, thus enabling the last vehicle owner the opportunity to give his/her end-of-life vehicle back at the collection point or dismantling station situated in a distance no more than 50 km in a straight line from the place of residence or seat of the last owner thereof. Moreover, manufacturers of vehicles are required to reduce the use of hazardous substances in vehicles, taking into account the dismantling and reuse requirements on the equipment items and parts of vehicles, as well as the recovery and recycling opportunities of end-of-life vehicles, and also application the recycling originated materials in vehicle manufacturing.

However, the operators who place on the market vehicles and are not obliged to provide the collection network (i.e. the operators placing on the market vehicles, but do not issue the vehicle registration books) and the entities being not entrepreneurs, but carrying out an intra-Community purchase or import of a vehicle, are required to pay 500 PLN (125 EUR) fee per each such vehicle introduced into the national territory.

Every vehicle owner must, once the use thereof is over, give the vehicle back to operator of vehicle dismantling station or to that managing vehicle collection point. Any old vehicle may be given back on a free of charge basis, provided it is registered in the national territory of Poland, and being complete and free from other waste. The lists of the vehicles dismantling stations and collection points are available on the websites of the Voivodship Marshall Offices. The vehicle deregistration application has to be submitted by 30 days, at the latest, following reception of the vehicle dismantling certificate or a take-back statement of an incomplete vehicle.

The vehicle collection points and dismantling stations operated

As of 30 June 2010, 676 dismantling stations and 117 collection points for end-of-life vehicles were in operation in Poland.

Problem identification

The following problems are identified in the scope of managing end-of-life vehicles:

1. Reliable and complete data on the number of cars registered and deregistered and subject to dismantling are unavailable; lacking verified data in the Central Register of Vehicles (CRV),
2. The „grey zone” problem remains still unsolved, including operation of illegal vehicles dismantling stations. One may believe, usable parts from cars dismantled illegally are placed, e.g. through the car exchanges, on the market for reuse thereof, whereas other vehicle waste are sold with metal scrap collection points.

2.2.7. Asbestos containing waste

Preventing generation, origination sources, and quantities generated/utilised

The 2009-2032 National Asbestos Elimination Scheme assumes elimination by 2032 the use of asbestos containing products, thus prevention of this waste is not possible in the aforementioned time-perspective. However, the ban imposed on placing asbestos containing products on the market causes that asbestos containing waste will not originate in the further time-perspective.

Asbestos was broadly applied for manufacturing industrial products. It was principally used in building and industrial sectors to manufacture roof-tiles, asbestos-cement piping systems for water-supply and sewerage installations, and chimney conduits.

The quantity of waste, the elimination of which is estimated by 2032 is 14.5 million Mg. Those are generally asbestos-cement products, including roof-tiles. In 2008, 29.6 thousand Mg asbestos containing waste was disposed of.

The current waste management scheme

Manufacture, use and marketing of asbestos and products containing thereof is banned in Poland. Work consisting in removal or repair of asbestos containing products may be only carried out by contractors equipped with the relevant technical equipment for carrying out such work and employing personnel dully trained in the scope of labour hygiene and safety for removal and replacement asbestos containing materials.

Existing waste disposal installations

Deposition on suitable hazardous waste landfills is the methods most commonly available and applied for disposal of asbestos containing waste. In Poland, 28 such landfills are operates, on which asbestos containing waste may be deposited. Four such further landfills are under construction. The amount of the total asbestos containing waste possible for landfilling in the nearest future amount to about 1.2 million Mg being the amount sufficient enough to cover the quantities of such waste size generated so far per annum. According to the Act on Wastes amended on 22 January 2010, asbestos containing waste may be treated in mobile facilities which provide for such processing of a asbestos fibres that those present no hazard to human health and life and to the environment. Granting permits for operation of such treatment method will be only possible once Regulation of Minister of Economy setting out the requirements on the mobile facilities is in force.

Problem identification

The following problems are identified in the scope of managing asbestos containing waste:

1. Incomplete mapping of distribution of the sites with asbestos containing products, and lacking complete registers of the construction sites with asbestos containing products and other hazardous sites containing asbestos in Municipalities throughout Poland,
2. Lacking complete inventory of asbestos containing products applied so far, and insufficient number of inspections carried out on the construction sites and facilities by natural and/or legal persons being the owners, managers or users thereof, where asbestos containing products were or are used,
3. Incomplete information on removed quantities of asbestos containing products,
4. Insufficient capacity of landfills if the asbestos elimination process is to be speeded up.

2.2.8. Outdated plant protection products

Preventing generation, origination sources, and quantities generated/utilised

Prevention of outdated plant protection products consists mainly in developing proper consumer's awareness so that they buy only the quantities of plant protection products necessary that make them avoid outdated.

Outdated plant protection products originate from application of chemical preparations in agriculture. Those are stored on burial sites erected in the Seventies and Eighties of the 20th Century. Currently, elimination of these burial sites is under way.

By 30 June 2009, the total 160 burial sites containing about 13.2 thousand Mg outdated plant protection products and 95 stores containing 0.5 thousand Mg thereof were eliminated. As of 31 June 2009, 87 burial sites containing about 4 thousand Mg outdated plant protection products and 3 warehouses with 3.7 Mg thereof have to be eliminated.

The current waste management scheme

Currently, given the high prices of these preparations, only slight quantities of plant protection products undergo outdated. Nevertheless, packaging waste after plant protection products have still reminded. Such packaging, while being hazardous waste, should be returned to the seller (under cautioning scheme). Operators placing plant protection products on the market are being held responsible for their proper utilisation.

Thermal treatment methods in the installations provided with respective permits for disposal of such hazardous waste apply to treatment of outdated plant protection products.

Temporary storage of this waste prior disposal thereof is permitted. The maximum duration of such storage should not exceed three years, and is no more than 1 year in case where the waste is designated for landfilling thereof.

Existing waste disposal installations

In Poland, one installation for thermal treatment of outdated plant protection products is in operation, the throughput capacity thereof is 30 thousand Mg/year.

Problem identification

Lacking financial power to provide donations on the part of the Funds for Environmental Protection and Water Management as resultant due to the legal provisions on the public assistance may be the cause affecting the further elimination of the burial sites.

2.2.9. Waste explosives

Preventing generation, origination sources, and quantities generated/utilised

Waste explosives may be generated in result of manufacturing processes in armaments industries or in companies using explosive materials. The term "waste explosives" should not be used directly in the context of the Polish armed forces' performance. Although the training activities in the armed forces (mainly in the training centres and sites) and continuous modification process of weapons and military equipment result, under certain circumstances, in accumulation of outdated military resources (mainly ammunition) however terms "outdated military resources" and "waste explosives" are not identical. Assessment of combat resources involves five utility categories, with the last one - i.e. category V including "dangerous or prohibited ammunition". The results of tests performed by specialised military and scientific research institutes can form the only grounds to qualify any item in this V category and designate it for disposal under specific internal rules set out by the Ministry of National Defence. For security reasons, this disposal consists in destruction through blowing it up. This also applies to disposal of so-called unexploded war residues (shells and ammunitions) which are eliminated by patrols of the engineer-corps in firing grounds. Those are the reasons why the National Defence sector does not in practice generate waste explosives in meaning of the Act on Wastes.

The current waste management scheme

Ministry of National Defence manages current accurate inventory of the combat resources. Those are stored in warehouses of the military troops and in the central level warehouses. Given its confidentiality, the data on these sites and the quantities of the stock contained therein is not published.

Stored ammunitions undergo continuous rotation, as set forth in the internal rules of Ministry of National Defence. As a rule, the "oldest" lots of the combat resources designated for ongoing training exercises, and new batches replace them when already spent. Therefore, it is not possible to determine the time intervals and the degree of intensity of this process.

Having regard to classification of the "outdated military resources" as "waste explosives" and the provisions in the Act of 30 May 1996 of the Management of Certain Components of the State Treasury and of the Military Property Agency (Official Journal of 2004 No. 163, Item 1711, further amended) outdated ammunition is passed by the aforementioned Agency for the further utilisation thereof. Thus, those are still certified movable goods being not waste and due to the further utilisation thereof through sales.

Problem identification

Incorrect understanding of and lacking differentiation between terms „outdated combat resources” and „waste” pose the major problem. Attempts to classify outdated combat resources as waste with use of only automatic methods will make difficult (and in case of foreign contractors - make unfeasible) any commercial use (sales) thereof by the Military Property Agency.

2.3. Other waste

2.3.1. End-of-life tyres

Preventing generation, origination sources, and quantities generated/utilised

End-of-life tyres originate in result of use and replacement of used tyres by new ones. End-of-life vehicles are also the source of end-of-life tyres. Prevention of waste is in case of this waste limited by the requirements in the provisions on traffic and road safety.

Table 8 shows data on the quantities of tyres placed on the market and the recovery and the recycling levels of end-of-life tyres required and achieved in Poland in 2004 and 2006 -2008.

Table 8. Tyres placed on the market and the recovery and recycling levels thereof required and achieved.

Years	The volume placed on the market tyres [thousand Mg]			Required level [%]		Achieved level [%]	
	total	Due to		recovery	recycling	recovery	recycling
		recovery	recycling				
2004	151.4	150.7	150.7	50	6	58.9	11.5
2006	185.7	183.4	183.4	70	12	91.3	19.7
2007	195.5	195.5	195.5	75	15	91.2	23.7
2008	188.5	184.4	184.4	75	15	82.2	23.0

The current waste management scheme

Manufacturers of tyres and also those who import them into Poland as separate products, or as parts of vehicles, have to achieve specific recovery and recycling levels as required under legal provisions on waste originated from tyres. Where they fail to achieve the levels as required are bound to incur product charges calculated in relation to both the recovery and recycling levels failed. The operators may fulfil their waste disposal commitments on their own, or through the relevant recovery organisations.

The end-of-life tyres collection scheme develops through the network of vehicle servicing stations and the end-of-life vehicle dismantling stations. End-of-life tyres may undergo their regeneration and recycling processes, or co-incinerated in cement plants as an alternative fuel. Deposition of end-of-life tyres on landfills, except bicycle tyres and tyres, more than 1400 mm in outer outside diameter, is prohibited in Poland.

Treatment installations in operation

End-of-life tyres are utilised in cement plants as an alternative fuel. The economic (cost-effective energy source) and environmental (preservation of non-renewable resources and total disposal of one type of waste, while the further mainly metal one from treatment processes of the former is still to be recovered) aspects speak for such a solution. Establishment of efficient collection and replacement network for end-of-life tyres and of an incentive scheme for users of automotive vehicles are the preconditions for attaining the aforementioned environmental and environmental benefits.

Problem identification

The following problems are identified in the scope of end-of-life tyres management:

1. Combustion of the parts end-of-life tyres in installations inadequate for this purpose,
2. Mixing this waste with other wastes and their deposition on municipal waste landfills.

2.3.2. Wastes from the construction, repair and demolition, including from the road infrastructure sites

Preventing generation, origination sources, and quantities generated/utilised

Wastes from the construction, repair and demolition works, including those from the road infrastructure, originate from housing and industrial, and also railway engineering, in course of construction, expansion, modification and demolition works. Waste prevention opportunities relate closely to technology applied.

In 2008, metal scrap (40%), soil and ground (30.7%), and waste construction materials (26.9%) were the major types of waste.

Table 9 presents data on generation and utilisation of construction, repair and demolition wastes.

Table 9. Construction, repair and demolition wastes generated and disposed of in 2004, 2006 and 2008

Year	Wastes generated annually							Currently accumulated waste
	Total	Recovered	disposed of				stored	
			total	including				
				by thermal mode	by landfilling	by other modes		
[thousand Mg]								
2004	1826.2	1226.7	281.1	1.9	241.7	37.5	318.4	23421.6
2006	2431.7	1840.5	304.7	2.8	207.6	94.3	286.5	23592.8
2008	3508.0	2831.5	341.0	2.8	315.7	22.5	335.5	28718.7

The current waste management scheme

Collection and transportation construction, repair and demolition wastes is dealt with by both the producers of these waste (e.g. natural persons, repair and construction, and demolition companies) and also specialised entities active in the scope of collection and transportation of waste.

Prevailing majority of these wastes undergoes recovery, including for the purpose of building of new road and railway infrastructure. Those are used also for levelling the ground and land reclamation at the excavation pits.

Treatment installations in operation

Rubble crushers are the machinery commonly used for preparation of the repair and construction wastes for the recovery processes thereof.

Deposition on waste landfills is the major method for disposal of unusable construction, repair and demolition waste. Certain types of these wastes are also disposed of by thermal methods.

Problem identification

Although implementation of large projects in the field of road and railway infrastructure involves continuous considerable increase in the quantities of waste generated within waste category 17, however efficient utilisation thereof is also possible.

2.3.3. Sludges from urban waste water treatment plants

Preventing generation, origination sources, and quantities generated/utilised

Sludges originate in urban waste water treatment plants in course of urban waste water treatment processes. This waste is classified in category 19 under code 19 08 05 - sludges from treatment of urban waste water. As far as construction of sewerage systems and waste water treatment plant network develops in agglomerations, the sludge volumes generated in urban waste water treatment plants continuously increase in the recent years.

The opportunities to prevent sludge generation in urban waste water treatment plants are rather limited. Reduction of the quantities thereof generated in waterlogged form is possible with application of advanced technology.

Table 10. Sludges from urban waste water treatment plants generated in 2007-2008

No.	Specification	2007	2008
		[thousand Mg dry mass]	
1.	Sludge generated annually	533.4	567.3
2.	Sludge applied for agricultural purpose	98.2	112.0
3.	Sludge use for land reclamation purpose	118.5	105.8
4.	Sludge for growing vegetation	25.5	27.5
5.	Sludge treated by thermal methods	1.7	6.0
6.	Sludge deposited on landfills	124.5	91.6
7.	Percentage of deposited sludge [%]	23.3	16.1
8.	Sludge accumulated in waste water treatment plant	753.3	598.8

The current waste management scheme

Sludges from urban waste water treatment plants may be treated by thermal methods in waste incineration plants or co-incineration plants, recovered in composting plants or biogas plants or, once previously stabilised, may be applied directly onto land surface to improve soil. However, deposition of sludges on landfills is the method still most commonly applied in Poland and at the same time the least desirable one for utilisation thereof.

Treatment installations in operation

As of 30 June 2010, in Poland three waste incineration plants for sludges from urban waste water treatment plants were operated with 37 300 Mg/year their total combined throughput capacity.

Currently, implementation of the investments covering construction of installations for drying and thermal treatment of sludges from urban waste water treatment plants is carried out in the biggest cities in Poland that will be capable of utilisation of the total of 189 thousand Mg/year d.m. such sludges.

Problem identification

The following problems are identified in the scope of management of Sludges from urban waste water treatment plants:

1. insufficient analysis of the opportunities to utilise sludges from urban waste water treatment plants in the early design phase of waste water treatment plant,
2. water supply and sewage treatment companies have no capacity sufficient enough to independent establishment of comprehensive and expensive installations for management of sludges from urban waste water treatment plants,
3. still to high percentage of sludges from urban waste water treatment plants undergoing deposition on landfills,
4. not all solutions in the scope of utilisation sludges from urban waste water treatment plants feature by their comprehensive nature, i.e. fail to consider the issue of the further utilisation sludges.

2.3.4. Biodegradable waste other than municipal waste**Preventing generation, origination sources, and quantities generated/utilised**

Given the diversity of the occurrence of biodegradable wastes other than municipal waste, various prevention methods for this waste are applied, with modification of existing technology as the most important method.

Biodegradable wastes other than municipal waste include 65 types of waste classified depending upon their origination sources, including to the following categories:

- category 02 - wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing (30 types of waste within sub-categories: 02 01, 02 03, 02 03, 02 04, 02 05, 02 06 and 02 07),
- category 03 - wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard (10 types of waste within sub-categories: 03 01 and 03 03),
- category 04 - wastes from the leather, fur and textile industries (6 types of waste within sub-categories: 04 01 and 04 02),
- category 19 - wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use (13 types of waste within sub-categories: 19 06, 19 08, 19 09 and 19 12).

Both physical properties and chemical composition of biodegradable wastes from various industrial sector are mostly differentiated and depend upon the waste origination site, the types of raw materials used, and the conditions which determine given technology process. In turn, wastes generated in specific industry sectors feature as a rule by homogeneity and stability of their nature and similarity of physical properties and chemical composition.

Wastes from agriculture, horticulture, aquaculture, forestry, hunting, fishing and food processing (category 02)

Table 11 shows data on manufacture of pork butcher's products and sugar in 2004-2008.

Table 11. Manufacture of selected product types (thousand Mg)

Manufacture	2004	2005	2006	2007	2008
Pork butcher's products [thousand Mg]	856	756	826	845	899
Sugar [thousand Mg]	1999	2033	1574	1857	1397

Regular drop in the total mass of waste generated has been noted food processing sector (in 2006 that was due to considerable effects from sugar industry, and then in 2008 partly because of the economic crisis).

However, despite the economic crisis, mostly considerable increase in the mass of waste generated was noted in meat, fruit and vegetable and tobacco processing industries, and also in manufacturing beverages. Very high drop of the mass of waste generated noted in sugar industry in 2006 related to closure of many sugar plants (76 sugar plants operated in 2000, 43 -in 2004, and 19 - in 2008), as a consequence of reduction of the sugar manufacture limits imposed by the European Commission (from 1672 thousand Mg in 2005/2006 to 1406 thousand Mg in 2009/2010). In 2008, the economic crisis had also its impact. Beet pulp is the major type of waste generated in sugar industry, an that is used mainly as fodder. In 2008, considerable percentage of category 02 waste was utilised mainly for fodder and fertilisation purpose.

Table 12. Mass of category 02 biodegradable waste generated in 2004, 2006 and 2008, by type and sub-category

No	Waste code	Name of waste	Mass of biodegradable waste other than municipal waste generated annually [thousand Mg]		
			2004	2006	2008
1	02 01 02	animal-tissue waste	31.2	21.0	3.1
2	02 01 03	plant-tissue waste	21.9	40.8	53.2
3	02 01 06	animal faeces	212.3	234.2	387.8
4	02 01 07	waste from forestry	0.0	0.1	0.0
5	02 01 83	waste from aquaculture growing	0.0	0.0	0.0
	02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing	265.4	296.1	444.1
6	02 02 01	sludges from washing and cleaning	4.2	36.9	28.2
7	02 02 02	animal-tissue waste	265.8	653.5	523.1
8	02 02 03	materials unsuitable for consumption or processing	22.4	30.1	35.4
9	02 02 04	sludges from on-site effluent treatment	31.5	32.3	29.3
10	02 02 82	waste from manufacturing fish meal	0.0	0.0	0.0
	02 02	wastes from the preparation and processing of meat, fish and other foods of animal origin	323.9	752.8	616.0
11	02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation	58.1	62.5	67.2
12	02 03 03	wastes from solvent extraction	0.0	274.2	236.4
13	02 03 04	materials unsuitable for consumption or processing	6.0	25.6	15.1
14	02 03 05	sludges from on-site effluent treatment	26.7	25	49.7
15	02 03 80	pomace and grains, sludge and other waste from processing plant products (excluding 02 03 81)	211.1	254.8	379.6
16	02 03 81	wastes from manufacturing vegetable fodder	0.0	1.2	0.0
17	02 03 82	waste tobacco	3.1	4.6	5.9
	02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation (excluding 02 07)	305.0	647.9	753.9
18	02 04 03	sludges from on-site effluent treatment	0.2	2.1	0.0
19	02 04 80	beet pulp	4228.6	3221.7	1707.3
	02 04	wastes from sugar processing	4228.8	3223.8	1707.3
20	02 05 01	materials unsuitable for consumption or processing	63.9	99.6	6.0
21	02 05 02	sludges from on-site effluent treatment	21.7	22.4	17.2
22	02 05 80	waste whey	807.2	963.6	933.6
	02 05	wastes from the dairy products industry	892.8	1085.6	956.8
23	02 06 01	materials unsuitable for consumption or processing	6.6	10.1	9.7
24	02 06 03	sludges from on-site effluent treatment	0.0	0.0	0.0
25	02 06 80	unusable consumption fats	0.0	0.0	0.0
	02 06	wastes from the baking and confectionery industry	6.6	10.1	9.7
26	02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials	15.7	28.5	13.7
27	02 07 02	wastes from spirits distillation	6.7	0.0	0.0
28	02 07 04	materials unsuitable for consumption or processing	3.6	0.9	0.9
29	02 07 05	sludges from on-site effluent treatment	1.5	3.2	4.7
30	02 07 80	pomace and grains, grape-juice and post-fermentation sludges, decoctions	674.3	1023.2	1113.2
	02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)	701.8	1055.8	1132.5

The most important waste management problems in 02 waste category are the diffuse sources of waste origination, the seasonal nature of generating large quantities of waste (the campaign production mode), the lack of economic justification for the application of the recovery

processes to the parts of certain types of waste in this category of waste, and the troublesome transportation of waste in the longer distances.

Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard (category 03)

The output of sawn-wood (Table 13) and generation of waste from production of wood and wooden products (Table 14) were mutually correlated in 2004-2008.

Table 13. The outputs of sawn-wood, paper and cardboard industries in 2004 and 2006-2008

Output	2004	2006	2007	2008
Saw-wood [dam ³]	3164	3607	4417	3786
Paper and cardboard [thousand Mg]	2635.2	2857.1	3004.8	3043.8

In 2004-2007, constant increase in manufacturing both sawn-wood and the mass of waste generated was noted, however in 2008 these factors dropped in result of crisis in furniture production branch and considerable decrease in manufacturing and export of furniture. Prevailing majority of this waste undergoes recovery.

Table 14. Mass of category 03 biodegradable waste generated in 2004, 2006 and 2008, by type and sub-category

No	Waste code	Name of waste	Mass of biodegradable waste other than municipal waste generated annually [thousand Mg]		
			2004	2006	2008
1	03 01 01	waste bark and cork	379.9	379.8	297.1
2	03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04	1119.0	1640.7	1834.9
3	03 01 82	sludges from on-site effluent treatment	6.6	6.6	12.1
	03 01	wastes from wood processing and the production of panels and furniture	1505.5	2027.1	2144.1
4	03 03 01	waste bark and cork	319.7	343.2	328.5
5	03 03 02	green liquor sludge (from recovery of cooking liquor)	8.5	13.6	14.0
6	03 03 05	de-inking sludges from paper recycling	60.9	64.1	72.0
7	03 03 07	mechanically separated rejects from pulping of waste paper and cardboard	53.1	57.7	73.8
8	03 03 08	wastes from sorting of paper and cardboard destined for recycling	36.5	80.6	148.0
9	03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation	41.8	60.5	68.6
10	03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10	4.3	51.0	55.1
	03 03	wastes from pulp, paper and cardboard production and processing	524.8	670.7	760

The most important waste management problems in this category include high moisture of certain types of wastes (e.g. effluent sludges), thus making difficult disposal and recovery thereof. High proportion of sub-category 03 03 waste is landfilled.

Wastes from the leather, fur and textile industries (category 04)

In 2002-2008 considerable decrease of the quantities of waste generated in category 04 was noted in result of a drop in the outputs from the leather, fur and textile industries caused by bankruptcy of many companies which were not in position to withstand competitiveness of cheap commodities from China and also other Asian and European countries.

Table 15. Mass of category 04 biodegradable waste generated in 2004, 2006 and 2008, by type and sub-category

No	Waste code	Name of waste	Mass of biodegradable waste other than municipal waste generated annually [thousand Mg]		
			2004	2006	2008
1	04 01 06	sludges, in particular from on-site effluent treatment containing chromium	5.4	1.4	1.2
2	04 01 07	sludges, in particular from on-site effluent treatment free of chromium	0.9	1.6	1.0
	04 01	wastes from the leather and fur industry	6.3	3.0	2.2
3	04 02 10	organic matter from natural products (for example grease, wax)	0.0	0.0	0.0
4	04 02 20	sludges from on-site effluent treatment other than those mentioned in 04 02 19	1.1	0.7	0.1
5	04 02 21	wastes from unprocessed textile fibres	1.2	0.3	0.1
6	04 02 22	wastes from processed textile fibres	3.5	3.3	3.6
	04 02	wastes from the textile industry	5.8	4.3	3.8

The most important waste management problems in this category include the irregularities on the part of small plants which generate both the effluents not neutralised sufficiently enough and often discharged illegally into the environment and the wastes landfilled in large masses.

Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use (category 19), excluding municipal sewage sludge

Category 19 includes waste from aerobic and anaerobic fermentation of solid wastes and waste from waste water treatment plants and water treatment stations.

Table 16. Mass of category 19 biodegradable waste generated in 2004, 2006 and 2008, by type and sub-category

No	Waste code	Name of waste	Mass of biodegradable waste other than municipal waste generated annually [thousand Mg]		
			2004	2006	2008
1	19 06 04	digestate from anaerobic treatment of municipal waste	31.4	27.5	4.6
2	19 06 06	digestate from anaerobic treatment of animal and vegetable waste	0.0	19.5	41.8
	19 06	wastes from anaerobic treatment of waste	31.4	47.0	46.4
3	19 08 01	screenings	27.7	27.6	45.7
4	19 08 02	waste from desanding	49.7	52.2	48.6
5	19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats	3.7	3.5	7.3
6	19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11	150.0	68.2	25.9
	19 08	wastes from waste water treatment plants not otherwise specified	231.1	151.5	127.5
7	19 09 01	solid waste from primary filtration and screenings	1.9	0.9	2.5
8	19 09 02	sludges from water clarification	2070.1	1789.3	2188.9
	19 09	wastes from the preparation of water intended for human consumption or water for industrial use	2072	1790.2	2191.4
9	19 12 01	Paper and cardboard	38.7	58.6	49.2
10	19 12 07	wood other than that mentioned in 19 12 06	0.8	3.0	4.2
11	19 12 08	textiles	9.9	7.3	0.0
12	19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	20.2	116.7	385.8
	19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified	69.6	185.6	439.2

The most important waste management problems in this category include: diversity and changeability of the features of waste generated, the mass production thereof, and the high percentage of landfilled waste (e.g. in sub-categories 19 08 and 19 09).

The current waste management scheme

The scheme is based upon the responsibility of waste producers for adequate utilisation thereof.

Biodegradable waste other than municipal waste is in principle treated through its recovery processes (Table 17).

Table 17. Mass of biodegradable waste generated, recovered, disposed of, stored and accumulated, by sub-category 02, 03, 04 and 19 (excluding 19 08 05) in 2004, 2006 and 2008

No	Waste code	Waste generated in given year		Treated by				Temporary stored	Deposited so far (accumulated on proprietary landfills)	
		total	recovered	total	thermal methods	composting	landfilling on proprietary and other landfills			other method
[thousand Mg].										
1	2004	11167.7	8672.4	2326.0	157.6	32.8	224.8	1878.5	169.6	7400.4
2	2006	11951.5	9725.3	2083.2	178.0	33.6	234.9	1583.5	185.3	2553.5
3	2008	11329.0	8395.9	2618.3	213.8	62.5	478.5	1864.3	249.9	2860.7

2.3.5. Packaging waste

Preventing generation, origination sources, and quantities generated/utilised

Packaging waste originate not only in households in result of consumption of commodities, but also in manufacturing plants, trading companies, public utilities, various industries, etc.

Packaging waste are generated at all levels of the supply chain, but first and foremost by the consumers as the end-users.

The conceptual and design phases of packaging provide for the most favourable opportunities to preventing waste (i.e. application of the environmental design criterion), since the quantities of waste possible to be originated during each phase of the product life cycle may be taken into account.

Generally, the opportunities to prevent waste and reduce the quantities of waste generated are following:

- integrate the environmental design criterion in developing new products,
- application of extended producer responsibility for packaging they place on the market,
- extension of the usage time, reduction in volume and increase in quantities of reusable packaging,
- application of environmental labelling on packaging to enable that consumers could identify the products which meet environmental criteria, including material efficiency criteria, and the restrictions on packaging and application of hazardous substances, thus making to consumers at the moment of buying a product the information available on preventing waste.

Also the green public procurements play an important role. The Act of 29 January 2004 on the Public Procurement Law (Official Journal of 2010 No. 113, Item 759), provides for the opportunity to integrate the environmental aspects when making both the description of tender objectives and the offer assessment criteria, particularly the quality, functionality, technical parameters, and application of the best available techniques. Application of the green public procurements enables for establishment of a policy, on the grounds of which the public entities can integrate the environmental criteria and the requirements into their

purchase processes (i.e. the procedures for granting public procurements) and seek the solutions reducing adverse environmental effects from products/services, and taking the whole product life cycle into account, thus enabling development and dissemination of low-waste technology.

Table 18. Mass of packaging placed on the market and the recovery and recycling levels thereof required and achieved in 2004 and 2006-2008.

Years		Placed on the market [thousand Mg]		Required level [%]		Achieved level [%]	
		total	due to recovery and recycling	recovery	recycling	recovery	recycling
2004	plastics	488.3	482.8	-	14.0	-	22.4
	aluminium	38.3	38.3	-	25.0	-	33.3
	steel	133.9	133.6	-	11.0	-	17.3
	paper and cardboard	822.7	820.2		39.0	-	57.0
	glass	914.7	914.7	-	22.0	-	31.2
	wood and fibres	400.2	159.0	-	9.0	-	19.4
	total	2890.2	2640.6	-	-	-	35.6
2006	plastics	580.2	3833.4	-	22.0	54.5	36.9
	aluminium	62.7	62.7	-	35.0	-	110.4
	steel	126.9	126.5	-	18.0	-	34.1
	paper and cardboard	1037.1	1036.0	-	45.0	-	85.6
	glass	699.7	698.9	-	35.0	-	48.0
	wood and fibres	475.9	152.1	-	13.0	-	73.4
	total	2982.5	5909.6	-	-	54.5	62.5
2007	plastics	515.8	515.2	-	25.0	-	28.0
	aluminium	22.1	22.1	-	40.0	-	82.0
	steel	132.2	131.2	-	20.0	-	21.2
	paper and cardboard	959.1	957.5	-	48.0	-	69.1
	glass	777.5	77.5	-	38.0	-	39.7
	wood and fibres	726.9	157.5	-	15.0	-	47.8/
	total	3133.7	5683.6	50.0	25.0	60.0	48.2

2008	plastics	669.9	667.9	-	16.0	-	23.9
	aluminium	81.4	80.9	-	41.0	-	60.9
	steel	167.2	166.0	-	25.0	-	26.5
	paper and cardboard	1237.0	1235.3	-	49.0	-	67.2
	glass	1019.0	1017.6	-	39.0	-	43.9
	wood and fibres	1007.4	1006.0	-	15.0	-	26.3
	total	4181.9	7829.1	50.0	27.0	60.6	43.0

The above results show that the recovery and recycling levels of packaging waste were achieved in given period, as required.

The current waste management scheme

Each operator placing products in packaging on the market is bound to achieve respective recovery and recycling levels of packaging waste. That means implementation of the principle of extended producer responsibility. Where the operator fails to achieve the required recovery and recycling levels of packaging waste it is obliged to pay product charge calculated in relation to the difference between the recovery and recycling levels required and achieved. The charge is *de facto* a penalty imposed on the operators placing packaging on the market for failing to comply with their statutory commitments.

The operators may perform their obligation on their own, or through the relevant recovery organisations.

Financing the work to collect packaging waste and prepare it to recycling processes is secured upon the fees which the operators pay to the recovery organisations and the product charges paid by mediation of the Marshall Offices to the respective Funds for Environmental Protection and Water Management.

Treatment installations in operation

Glass, metals, paper and cardboard packaging waste undergo recycling processes in glass works, iron works and non-ferrous metallurgy plants, and in paper mills, respectively.

Problem identification

The following problems were identified in the scope of management of packaging waste:

1. recovery and recycling levels achieved so far are attained thanks to treatment of waste from economic activities, including trade sector; however unfortunately that situation has no meaningful effect on improvements in municipal waste management scheme,
2. inspections in this waste management sector in the scope of reporting commitments and the methods to acknowledge completion of the relevant obligations is required,
3. too small mass of packaging waste is collected by households in a selective manner.

2.3.6. Waste from selected economy sectors, utilisation of that is problematic

Preventing generation, origination sources, and quantities generated/utilised

Wastes resulting from exploration, mining, quarrying, physical and chemical treatment of minerals (category 01)

Prevention of waste category 01 is done mainly through modifications of mineral extraction technology.

Mining sector of raw materials for energy purpose, including particularly hard coal and brown coal has the major share in generation of this waste (Table 19).

Table 19. The output of hard coal, lignite and copper industries in 2004 and 2006-2008 (million Mg)

	2004	2006	2007	2008
Hard coal output. million Mg	100	95.2	88.3	84.3
Brown coal output. million Mg	61.2	60.8	57.5	59.7
Copper ore output. million Mg	31.9	32.9	31.8	30.9

The types of waste generated which predominate in category 01 are in mining of raw materials for energy purpose (code 01 04 12) and in processing copper ores (code 01 03 81). Table 20 shows data on waste generated in 2004, 2006 and 2008.

Table 20. Mass of category 01 waste generated in 2004, 2006 and 2008, by sub-category thereof.

No	Waste code	Name of waste	Mass of waste generated annually [thousand Mg]		
			2004	2006	2008
1	01 01	wastes from mineral excavation	3034.3	2701.9	2507.2
2	01 03	wastes from physical and chemical processing of metalliferous minerals	31678.8	31770.9	29990.4
3	01 04	wastes from physical and chemical processing of non-metalliferous minerals	35778.1	35742.4	30699.5
4	01 05	drilling muds and other drilling wastes	16.6	27.3	61.9
	Total		70507.8	70242.5	63259.0

The most important waste management problems in this category include: large quantities of waste generated, lacking complete balance sheet of waste deposited and accumulated, and specific features of deposits extracted - fossil minerals have almost always no properties which would enable their direct use for economy purposes, and therefore extraction thereof, an then enrichment in the further treatment processes result in generation of winning which cannot be directly utilised.

Table 21. Mass of category 01 waste recovered, disposed of, stored and accumulated in 2004, 2006 and 2008.

Year	Recovered	Treated by					Temporary stored
		total	thermal methods	composting	landfilling	other methods	
		thousand Mg					
2004	61036.7	8868.7	-	-	8860.6	18.1	602.4
2006	57415.3	10721.8	-	-	10697.4	24.4	2105.4
2008	51096.5	11414.0	-	-	11407.0	7.0	748.5

Wastes from inorganic chemical processes (category 06)

The most important waste management problems in this category include phosphogypsum and phosphogypsum mixed with slag, furnace ash, and boiler dust those account for more than 76-80% of the total mass category 06 waste.

Table 22. Mass of waste category 06 generated in 2004, 2006 and 2008, by sub-category.

No	Waste code	Name of waste	Mass of waste generated annually [thousand Mg]		
			2004	2006	2008
1	06 01	wastes from the manufacture, formulation, supply and use (MFSU) of acids	129.0	114.0	111.7
2	06 02	wastes from the MFSU of bases	27.8	7.3	8.9
	06 03	wastes from the MFSU of salts and their solutions and metallic oxides	42.3	50.5	44.3
3	06 04	metal-containing wastes other than those mentioned in 06 03	0.1	0.2	0.5
4	06 05	sludges from on-site effluent treatment	89.8	382.3	352.2
5	06 06	wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes	0.2	1.0	0.2
6	06 07	wastes from the MFSU of halogens and halogen chemical processes	2.8	3.7	4.0
7	06 08	wastes from the MFSU of silicon and silicon derivatives	-	-	0.1
8	06 09	wastes from the MFSU of phosphorus chemicals and phosphorous chemical processes	2009.7	2849.9	2143.7
9	06 10	wastes from the MFSU of nitrogen chemicals. nitrogen chemical processes and fertiliser manufacture	-	-	0.7
10	06 11	wastes from the manufacture of inorganic pigments and opacifiers	122.6	137.8	166.2
11	06 13	wastes from inorganic chemical processes not otherwise specified	0.4	3.6	1.4
	Total		2424.7	3550.3	2834.4

The most important waste management problems in this category include waste generated in large quantities - phosphogypsum - for which no economically viable recovery method can be applied and therefore its is still disposed of through landfilling.

Table 23. Mass of category 06 waste recovered, disposed of, stored and accumulated in 2004, 2006 and 2008, by sub-category thereof.

Year	Recovered	Treated by					Temporary stored
		total	thermal methods	composting	landfilling	other methods	
thousand Mg							
2004	269.2	2148.3	1.3	0.9	2031.5	114.6	7.2
2006	602.4	2938.3	0.1	-	2860.8	77.4	9.6
2008	635.5	2192.4	0.2	-	2108.6	83.6	6.5

Waste from thermal processes (category 10)

Prevention of category 10 waste consists mainly in application combustion technology which provides for minimising the mass of waste generated (slag, ash).

Waste of category 10 originate in power sector, mainly in combustion processes of raw materials for energy purpose (hard coal and brown coal) and in result of application of the flue gas purification methods, and in iron and steel and non-ferrous thermal metallurgy plants. The major types of waste generated are: ash-slag mix from wet discharge of furnace waste, fly ash from coal, mix of fly ash and solid waste from flue gas desulphurisation by lime methods, and slag, furnace ash and boiler dust.

Table 24. Mass of waste category 10 generated in 2004, 2006 and 2008, by sub-category.

No	Waste code	Name of waste	Mass of waste generated annually [thousand Mg]
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			2004	2006	2008
1	10 01	wastes from power stations and other combustion plants (except 19)	20313.6	19946.6	19400.1
2	10 02	wastes from the iron and steel industry	4983.0	3707.9	3444.3
	10 03	wastes from aluminium thermal metallurgy	9.8	14.4	15.2
3	10 04	wastes from lead thermal metallurgy	24.3	38.9	41.9
4	10 05	wastes from zinc thermal metallurgy	185.9	165.9	222.0
5	10 06	wastes from copper thermal metallurgy	1345.5	1235.0	1284.9
6	10 08	wastes from other non-ferrous thermal metallurgy	0.1	0.1	2.2
7	10 09	wastes from casting of ferrous pieces	447.41	492.5	522.8
8	10 10	wastes from casting of non-ferrous pieces	47.6	66.7	90.0
9	10 11	wastes from manufacture of glass and glass products	234.5	208.2	199.0
10	10 12	wastes from manufacture of ceramic goods. bricks. tiles and construction products	197.7	219.5	288.2
11	10 13	wastes from manufacture of cement, lime and plaster and articles and products made from them	125.7	117.9	123.2
12	10 80	wastes from manufacture of ferro-alloys	55.6	4.1	59.4
	Total		27970.0	26217.7	25693.2

Category 10 is ranked as the second in line category group in terms of the quantities of waste generated. Waste from power plants and other large combustion plants in energy sector are the major sub-category accounting for almost 74% of the total mass of category 10 waste generated in 2008. Wastes from the iron and steel industry are another large sub-category of waste in category 10 (13.4%), and those are followed by waste from copper metallurgy (5%) and from iron casting (2%) plants. The most important waste management problems in this category include: waste generated in masses, the occurrences of inadequate application of waste from solid fuel combustion for e.g. land macro-reclamation or reclamation, the large quantities of waste accumulated in the past.

Table 25. Mass of category 10 waste recovered, disposed of, stored and accumulated in 2004, 2006 and 2008.

Year	Recovered	Treated by					Temporary stored
		total	thermal methods	composting	landfilling	other methods	
2004	20949.3	5057.6	14.0	-	4707.0	336.6	1963.6
2006	20668.9	4138.7	7.5	-	3864.7	266.5	1410.6
2008	18041.0	5605.0	7.5	-	5102.3	495.2	2048.0

The current waste management scheme

The producers of waste are held responsible for the proper utilisation, while implementing this commitment on their own or through passing it on to third parties holding special permits in the scope of the recovery or disposal of waste.

2.4. Summary

Improvements in certain branches of waste management and achievement of their respective objectives were noted in course of implementation of the 2010 National Waste Management, e.g. in the scope of management of packaging waste. The total mass of waste generated is about 125 - 130 million Mg. Likewise in the previous planning period, decoupling the increase of the mass of waste generated and the economic growth (in terms of the GDP) is still maintained.

CHAPTER 3. CHANGES ANTICIPATED IN THE FIELD OF WASTE MANAGEMENT SECTOR

3.1. Municipal waste, including biodegradable waste

Growing quantities of waste generated per statistical end-user up to 329 kg/end-user in 2013 and 377 kg/end-user in 2020, with 1.2% to 1.6% annual growth rate of the quantities of waste generation are expected.

Table 26 shows the quantities of 4 municipal waste fractions, including paper and cardboard, glass, metals and plastics, as anticipated to generate in 2011-2022.

Table 26. Anticipated quantities of paper and cardboard, glass, metals and plastics originated in Poland from municipal waste

No.	Specification	Mass of municipal waste generated annually [thousand Mg]					
		2011	2013	2014	2017	2020	2022
1	Paper and cardboard	1592,8	1653,5	1682,8	1795,7	1889,4	1949,2
2	Glass	1249,8	1285,5	1304,5	1358,9	1412,7	1454,5
3	Metals	285,0	287,7	288,8	290,7	288,5	286,5
4	Plastics	1606,7	1652,0	1690,5	1766,2	1885,7	1973,3
	Total	4734,3	4878,7	4966,6	5211,5	5476,3	5663,5

3.1.1. Changes anticipated in the scope of organisational and technology solutions

The following improvements are assumed:

- mostly intensive development of selective collection of municipal waste and sorting of waste collected, including in relation to the need to secure preparation to achieve in 2020 the recovery and recycling levels accounting for 50%, at a minimum, for of waste paper and cardboard, glass, plastics and metals from households,
- speeding up the activities to establish the supra-Municipal and recovery and disposal schemes of municipal waste with specific regard to biodegradable waste,
- construction of the regional plants for utilisation of municipal waste to cover installations for mechanical and biological or thermal treatment of waste (depending on the size of the regional acreage to be covered),
- reduction in the number of landfills for waste other than hazardous waste and inert waste, on that municipal waste is deposited, given the closure of landfills which do not conform to the requirements (their adaptation deadline expired on 31 December 2009). Currently, the Voivodship Marshalls and the Regional Directors of Environmental Protection are empowered to close landfills *ex officio* and they are committed to apply this legal mechanism.

3.2. Hazardous waste

3.2.1. Oil wastes

The following quantities of waste mineral oils likely to generate in specific time intervals are anticipated:

Table 27. The quantities of waste oils, likely to generate by year

Year	2011	2014	2015	2016	2018	2019	2022
Quantity of waste oils likely to generate (thousand Mg)	93.3	90.4	89.5	88.6	86.8	85.9	83.2

3.2.2. Medical and veterinary waste

It is anticipated that medical waste amounting to 28.0-29.5 thousand Mg annually and about 2.8-3.0 thousand Mg veterinary waste annually will be generated.

3.2.3. Waste batteries and accumulators

Given the considerable improvement in the quality of accumulators and the extension of their life time, it is estimated that slight growth tendency will be noted in the years to come in the scope of waste generated therefrom.

3.2.4. Waste electrical and electronic equipment

In 2011-2022, generation of the following quantities of the total waste equipment is anticipated, including that from households:

Table 28. Anticipated quantities of waste electrical and electronic equipment

Year	2014	2018	2019	2022
The total of waste electrical and electronic equipment generated (thousand Mg)	524.0	590.0	608.0	664.0
Waste electrical and electronic equipment generated in households (thousand Mg)	180.0	182.0	183.0	186.0

3.2.5. End-of-life vehicles

The following quantities of end-of-life vehicles generated in the following years are estimated that:

Table 29. Anticipated quantities of the end-of-life vehicles

Year	2011	2014	2015	2016	2018	2019	2022
Mass of the end-of-life vehicles (thousand Mg)	1036.0	1135.0	1171.0	1193.0	1283.0	1323.0	1450.0

3.2.6. Asbestos containing waste

Based upon the National Asbestos Elimination Scheme prepared in 2008, it is estimated that:

- about 28% waste, i.e. 4.0 million Mg is to be landfilled by the end of 2012,
- about 35% waste, i.e. 5.1 million Mg is to be landfilled in 2013-2022,
- about 37% waste, i.e. 5.4 million Mg is to be landfilled in 2023-2032.

Asbestos waste generated will originate exclusively from products already used. Inconsiderable quantities of waste may originate from products containing asbestos fibres (chrysotyl) which are applied in diaphragms of electrolytic installations and as the elements of shafts in glass drawing installations. Manufacturing or placing on the market these products was permitted in Poland by 31 December 2008 and this permit still applies until those being completely worn out or their asbestos-free substitutes are introduced.

3.2.7. Waste explosives

Origination of waste explosives will depend upon classification of the combat resources in the Polish Ministry's of National Defence category V named "dangerous or prohibited ammunition" after tests performed by specialised military and scientific research institutes, for designation thereof to be disposed of, as set out in section 2.2.9, above.

3.3. Other waste

3.3.1. End-of-life tyres

It is estimated that the mass of end-of-life tyres will continuously increase with tempo proportionate to increasing number of automotive vehicles:

Table 30. Anticipated quantities of end-of-life tyres

Year	2011	2014	2015	2016	2018	2019	2022
Mass end-of-life tyres (thousand Mg)	194.7	196.2	198.1	199.4	204.1	206.2	212.4

Growing utilisation of end-of-life tyres for use as an alternative fuel is anticipated.

3.3.2. Wastes from the construction, repair and demolition works, including those from the road infrastructure

With regard to large road and building investments in Poland, it is anticipated that the volumes of construction waste generated will increase. Also construction of one-family and multi-family houses, trading sites, the large developer projects will result in growing masses of waste generated. In big cities, also intensive demolition of older residential and industrial buildings are carried out in relation to modification of the communication routes, changes in physical management, and implementation of new construction sites. Such activities will also lead to generation of waste from repair and demolition works. It is anticipated that after a period of stagnation of and decline in the construction manufacture that resulted from crisis, a growth in construction sector will come, thus resulting in generation of waste.

Table 31. Anticipated quantities of wastes from the construction, repair and demolition works

Year	2011	2014	2015	2016	2018	2019	2022
Mass of waste generated in the construction, repair and demolition sites (thousand Mg)	3680.0	4260.0	4400.0	4520.0	4890.0	5060.0	5600.0

At the same time, given the infrastructure projects under implementation, an increase in utilisation of this waste is anticipated.

3.3.3. Sludges from urban waste water treatment plants

The quantity of sludges generated depend upon both the population equivalent (pe) as serviced by waste water treatment plants, and the waste water treatment and effluent sludge processing technology solutions applied. The volumes of treated waste water originating from households, infrastructure sites and industrial plants will increase in line with development of both the sewerage systems and the waste water treatment plants. Following the assumptions included in the Updated National Scheme for Urban Waste Water Treatment the urban waste water collection networks will service in 2015:

- in agglomerations with $pe \geq 100\ 000$ - 98% of the population, at a minimum,
- in agglomerations with $pe = 15\ 000 \div 100\ 000$ - 90% of the population, at a minimum,
- in agglomerations with $pe = 2000 \div 15\ 000$ - 80% of the population, at a minimum.

Taking into account the increase anticipated in generation of sludges, the forecast for 2011-2022 in the aforementioned National Scheme is following:

Table 32. Anticipated quantities of sludges from urban waste water treatment plants

Year	2011	2014	2015	2016	2018	2019	2022
Mass of sludge generated from urban waste water treatment plants (thousand Mg d.m.)	621.0	651.0	662.0	682.0	726.0	731.0	746.0
Mass of sludge generated from urban waste water treatment plants that contain about 80% moisture (thousand Mg)	3105.0	3255.0	3310.0	3410.0	3630.0	3655.0	3730.0

It is assumed that beyond 2018 the growth of the mass sludges generated will be reduced by a half, as related to that increased in 2011-2018, because of implementation of sewerage systems mainly in the areas with scattered urban infrastructure and less new inhabitants will be connected to the sewerage systems and urban waste water treatment plants.

The real quantities of stabilised sludges generated (mainly those over-digested) and dewatered to about 80% of water contents (i.e. 20% of dry mass) will be about 5 times higher than the quantities of dry mass. The mass of sludges generated includes also the quantities of sludges delivered by cesspool emptiers from areas not provided with sewerage systems - from septic tanks and cesspool tanks.

3.3.4. Biodegradable waste other than municipal waste

Wastes from agriculture, horticulture, aquaculture, forestry, hunting, fishing and food processing (category 02)

It is anticipated that in the years to come the production of broadly understood food processing sector will be restored to that at the mean level in 2007/2008. With that assumption, the mass of biodegradable waste in this category will grow from 5639 thousand Mg in 2008 to 6900 thousand Mg in 2022 (Table 33)

Table 33. Anticipated quantities of category 02 biodegradable waste other than municipal waste

Name of waste	Mass of waste generated (thousand Mg)				
	2011	2014	2017	2020	2022
Biodegradable wastes from agriculture, horticulture, aquaculture, forestry, hunting, fishing and food processing	6051.7	6362.5	6602.1	6791.4	6899.5

Wastes wood processing and the production of panels, furniture, pulp, paper and cardboard (category 03)

The further increase is anticipated in the mass of category 03 biodegradable waste generated (Table 34).

Table 34. Anticipated quantities of category 03 biodegradable waste other than municipal waste

Name of waste	Mass of waste generated, in ([thousand Mg])				
	2011	2014	2017	2020	2022

Biodegradable wastes wood processing and the production of panels, furniture, pulp, paper and cardboard	3027,9	3182,2	3300,2	3392,0	3444,1
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Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use (category 19 excluding 19 08 05)

Increase in the mass of category 19 waste is expected in result of implementation of new installations for mechanical, and mechanical/biological treatment of waste.

Table 35. Anticipated quantities of category 19 biodegradable waste other than municipal waste (excluding 19 08 05)

Name of waste	Mass of waste generated [thousand Mg]				
	2011	2014	2017	2020	2022
Biodegradable wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use (category 19 excluding 19 08 05 - sludges from urban waste water treatment plants)	5301	5824	6002	6160	6459

3.3.5. Packaging waste

Several factors will be decisive for the further fate of packaging. These include continuously more stringent requirements on the safety features of packaging. Newly originated products will have to feature by the more and more robust environmental safety. Such rigours should first and foremost met the requirements on food, cosmetic and pharmacy packaging. Continuously growing prices of energy and raw materials and also those of a number of the basic raw materials to manufacture plastic packaging will also have their high related effects on the production output. It is anticipated that the demand of the recycling waste will increase in line with that growing factors. The output of environmentally friendly packaging being easy for recovery and reuse, and the material and energy savings guarantee the use of packaging as valuable construction raw materials and energy carriers. Besides, the share of the volumes of paper, cardboard and plastic packaging waste will increase.

Table 36. Anticipated quantities of packaging waste, thousand Mg

Material	Year					
	2011	2014	2015	2018	2019	2022
Paper and cardboard	2010.0	2228.0	2305.0	2557.0	2647.0	2933.0
Glass	1393.0	1546.0	1600.0	1774.0	1836.0	2035.0
Plastics	767.0	850.0	880.0	976.0	1010.0	1120.0
Multi-material	224.0	248.0	257.0	284.0	294.0	326.0
Steel sheet	176.0	195.0	202.0	224.0	232.0	257.0
Aluminium	51.0	56.0	58.0	65.0	67.0	74.0
Natural wood	571.0	633.0	656.0	727.0	752.0	834.0
Total	5192.0	5757.0	5958.0	6606.0	6838.0	7580.0

3.3.6. Waste from selected economy sectors, utilisation of that is problematic

Waste resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals (category 01)

In the years to come, a relatively steady level of waste generated from flotation enriching of copper ores is envisaged. A drop in extraction of hard coal is expected. It is supposed that the quantities of waste generated in energy raw materials mining will decline. Based upon assumption that the mean quantities of waste from copper ore processing is about 32 million Mg, in metal ore mining - 0.9 million Mg, and 1.4 million Mg in other types of mining activities - (the 2007-2008 means), the estimates of the total quantities of waste generated in category 01 are shown in Tables:

Table 37. Anticipated quantities of category 01 waste, including waste from extraction of materials for energy purpose

Name of waste	Year						
	2011	2014	2015	2018	2019	2020	2022
The total quantities of category 01 waste generated (million Mg)	67.0	65.5	65.1	64.7	64.6	64.5	64.3
Waste from extraction of materials for energy purpose (million Mg)	32.6	31.3	30.8	30.	30.3	30.2	30.0

The above quantities of waste will be generated conditional upon the hard coal output in Poland does not considerably decline. Otherwise, reduction by even 10-15% in the mass of waste from extraction of raw material for energy purpose and of the total category 01 waste mass by about 5-6% would be.

Waste from thermal processes (category 10)

Given the currently drop in the mass of category 10 waste to about 25.7 million Mg in 2008, and taking into account the general trends of change in energy generation and production in metallurgy sector, no increase in waste generation can be expected in the 2022 outlook. Rather slow decline or stable levels of waste generated in economy sectors may be envisaged. Stabilisation of waste generated in 2011-2022 on the level of 2008, i.e. 25.7 million Mg is assumed.

However, it is noteworthy that the power sector applies for registration of waste it generates so far as the substances under the REACH Regulation and that will result in change in the waste status of at least a part of the current wastes from the power sector. A mechanism is also possible that fractions of these wastes are considered the bypass products.

CHAPTER 4. THE TARGET OBJECTIVES ASSUMED IN THE FIELD OF WASTE MANAGEMENT

The long-term objective of the National Waste Management Plan is to achieve the waste management scheme compliant with the principle of sustainable development, which provides for complete implementation of waste management rules, particularly the principle of conduct of waste in accordance with waste hierarchy, i.e., prevention of waste, followed by

preparation thereof to reuse, recycling, and others waste recovery and utilisation methods, and once utilised to the farthest possible extent, waste may be finally disposed of. Landfilling waste is the least desired method for disposal thereof. Conformity to waste hierarchy makes it possible to achieve also other related objectives, including the reduction of landfilling waste, in particular biodegradable one, the mitigation of climate change resulting from waste management, or the increase in energy use from renewable resources in the total national energy balance through substitution of fossil fuels by waste in combustion processes.

Having the above in mind and with regard to the National Environmental Policy, the following overall objectives of waste management are to be pursued:

- maintain the tendencies to decouple increasing quantities of generated waste from economic growth expressed as the GDP;
- increase the share of recovery, including particularly energy recovery from waste, in accordance with environmental requirements;
- reduce the quantities of all waste deposited on waste landfills.
- eliminate illegal landfilling of waste,
- establish and set up the National Database on Products, Packaging and Waste Management (NDB).

The changes in legal provisions will be also introduced that result from the need to transpose the Community legal provisions into the Polish legal framework, as indicated in this National Plan.

For specific categories of waste (i.e. municipal waste, hazardous waste and other waste) the following detailed targets were formulated.

4.1. Municipal waste, including biodegradable waste

The following targets in the scope of municipal waste management:

- cover 100% inhabitants by organised reception scheme of municipal waste by 2013, at the latest,
- provide by 2015, at the latest, that all populations are covered by selective waste collection scheme,
- reduce the quantities of municipal biodegradable waste deposited on landfills, so as not to exceed the masses landfilled:
 - o by 2013 - more than 50%,
 - o by 2020 - more than 35%of the mass of these wastes generated in 1995,
- by the end of 2014, reduce the mass of landfilled municipal waste to maximum 60% of waste generated,
- by 2020, prepare for reuse and recycling 50 %, at a minimum, by weight, the waste materials, such as paper, metals, plastics and glass from households, and where possible, also other waste the origination of which is similar to that of waste from households minimum.

4.2. Hazardous waste

4.2.1. PCB containing waste

From 2011, PCB containing waste with concentration below 50 ppm should be eliminated.

4.2.2. Waste oils

The 50% recovery level, at a minimum, and the 35% recycling level, at a minimum, should be maintained in terms of waste oils regenerated. The full use of the throughput capacity of installations for regeneration of waste oils has to be secured. The following measures provide for achievement of the aforementioned targets:

- expansion of the collection schemes for waste oils,
- lodging by the Chief Inspector of Environmental Protection objections against transboundary shipments of waste oils in order to secure compliance with legally binding duties in the scope of the recovery and recycling of waste.

4.2.3. Medical and veterinary wastes

By 2022, the objective assumed is to improve the effectiveness of selective collection of medical and veterinary waste (including segregation of waste at source), that results in reduction in the quantities of waste other than hazardous waste in the stream of hazardous wastes.

4.2.4. Waste batteries and accumulators

Expansion of a collection scheme for portable waste batteries and portable waste accumulators is required to enable achievement of the following collection levels thereof:

- 25% collection level of portable waste batteries and portable waste accumulators, by 2012;
- 45% collection level of portable waste batteries and portable waste accumulators, by 2016 and beyond.

The following recycling levels have to be achieved:

- waste acid-lead batteries and waste acid-lead accumulators - 65% by weight;
- waste nickel-cadmium batteries and waste nickel-cadmium accumulators -75% by weight;
- other waste batteries and waste accumulators - 50% by weight.

The full use of the throughput capacity of the treatment plants for waste batteries and waste accumulators has to be secured. Lodging by the Chief Inspector of Environmental Protection objections against transboundary shipments of this waste is one of the measures securing both the achievement of the above targets and the compliance with legally binding duties, as set out in the Community legal regulations in the scope of the recovery and recycling of waste batteries and accumulators.

4.2.5. Waste electrical and electronic equipment

The following targets are set forth for the period 2011-2022,:

- eliminate the grey zone,
- expand the recovery and disposal scheme of waste electrical and electronic equipment as focussed at the total elimination of landfilling thereof,
- keep the recovery and recycling levels for:
 - waste originated from large-size household appliances and Automatic dispensers:
 - recovery level accounting for 80 % mass of waste equipment,
 - recycling level of the component parts, materials and substances originated from waste equipment accounting for 75 % mass thereof;
 - waste equipment originated from Information and Communication Technology, telecommunication and audio-video equipment:
 - 75 % of mass of waste equipment recovery level,

- 65 % mass of waste equipment recycling level for the component parts, materials and substances originated from waste equipment;
- waste equipment from small-size household appliances, lighting equipment, electrical and electronic tools, except the large-size, stationary industrial tools, leisure and sports equipment and monitoring and control instruments:
 - 70 % recovery level of the mass of waste equipment,
 - 50 % recycling level of the mass of the component parts, materials and substances originated from this waste equipment;
- waste fluorescent tubes - 80 % recycling level of the mass of the component parts, materials and substances originated from waste fluorescent,
- achieve the 4 kg/end-user/year level of selective collection of waste electrical and electronic equipment originated from households.

4.2.6. End-of-life vehicles

The general objective is to provide for full operational effectiveness of the collection and disassembling and recovery scheme of end-of-life vehicles, including recycling of waste originated therefrom, and to eliminate the grey zone.

The following minimum recovery and recycling levels are set forth on the mass of vehicles to be received annually by dismantling stations, respectively:

- 85% and 80% by the end of 2014,
- 95% and 85% by 1 January 2015.

4.2.7. Asbestos containing waste

Achievement of the objectives set out in „*The 2009 - 2032 National Asbestos Elimination Scheme*” as approved by the Council of Ministers on 15 March 2010 is the targets for the period 2011-2022.

4.2.8. Waste explosives

The target assumed in between 2011 and 2022, is to achieve successive utilisation of waste explosive materials.

4.3. Other waste

4.3.1. End-of-life tyres

The basic target by 2022 is to maintain the 75% current recovery level, at a minimum, and 15% recycling level, at a minimum.

4.3.2. Wastes from the construction, repair and demolition works, including that from the road infrastructure

By 2022 the principal objective is to expand the system of selective collection of wastes from the construction, repair and demolition works, including that from the road infrastructure. By 2020, the level of preparation for reuse, recycling and other forms of recovery of the construction and demolition materials should reach 70% by weight, at a minimum.

4.3.3. Sludges from urban waste water treatment plants

In 2022, perspective the principal objectives in managements of sludges from urban waste water treatment plants are following:

- generally reduce landfilling these sludges,

- increase the quantity of sludges from urban waste water treatment plants treated prior to their introduction into the environment and of sludges treated by thermal methods,
- provide for the maximum degree of utilisation of biogenic substances contained in sludges, while complying with all the requirements on the sanitary and chemical safety,
- increase the quantity of sludges from urban waste water treatment plants utilised in biogas plants for energy purpose,
- increase the mass of sludges from urban waste water treatment plants treated by thermal methods in cement plants, energy boilers and incineration plants for sludges from urban waste water treatment plants.

4.3.4. Biodegradable waste other than municipal waste

The target assumed for management of biodegradable waste other than municipal waste is to reduce by 2022 the mass of landfilled waste to no more than 40% of the total mass of waste generated.

4.3.5. Packaging waste

Elimination of the grey zone is the overall objective. The targets to be achieved in 2014 include achievement of the recovery and recycling levels as specified in Table 38. These targets have to be kept through also beyond 2014.

Table 38. The targets for management of packaging waste sector

No.	Waste originated from type of packaging	Target [%]	
		recovery	recycling
1	packaging total	60 ¹⁾	55 ¹⁾
2	plastic packaging	-	22.5 ¹⁾²⁾
3	aluminium packaging	-	50 ¹⁾
4	steel packaging. including steel sheet	-	50 ¹⁾
5	paper and cardboard packaging	-	60 ¹⁾
6	household glass packaging. excluding ampoules	-	60 ¹⁾
7	wooden packaging	-	15 ¹⁾

¹⁾ Not applicable to packaging being in direct contact with medical products set out in provisions under the Pharmacy Law,

²⁾ The recycling level means exclusively the recycling, in result of which product made from plastics is manufactured.

4.3.6. Waste from selected economy sectors, the utilisation of which is problematic

The following objectives are assumed for management of waste from selected economy sectors:

- increase the share of waste subject to recovery processes,
- increase the share of waste disposed of, excluding landfilling thereof,
- increase the utilisation degree of extraction waste from underground mine workings, and provide for recovery thereof.

CHAPTER 5. THE TARGETS FOR ACTIONS TO PREVENT WASTE AND DEVELOP WASTE MANAGEMENT SCHEME

Waste prevention is a priority objective laid down within the waste hierarchy under the Community law, being also the target, for implementation of which the Member States of the European Union are required to take appropriate actions. This objective depends upon many factors, which while concerning directly no waste management issues, relate however to e.g. the economic growth, the implementation rate of the best available techniques (BAT) of by the operators, and the wealth of the local communities. Waste prevention findings are made already at the early product design phase and cover its whole life cycle, including the manufacture and usage processes thereof, and are associated with its ultimate utilisation when having become waste. To this end, the following actions will be primarily taken at the national level:

- support introduction of low-waste manufacturing technology and that which secure the use of possibly all components of the materials used,
- promote environmental management,
- manage intensive environmental education promoting prevention of waste,
- increase the charge rates for landfilling of waste, particularly mixed municipal waste, biodegradable waste and waste not earlier treated,
- cover 100% of population with a scheme for selective reception of wastes,
- develop clean technology.

The following are the major activities planned in the sphere of developing waste management policy:

- intensify environmental education promoting suitable modes of conduct of waste and manage effective information and education campaigns in this scope,
- support implementation of economically and environmentally effective waste recovery and disposal technology, including technology which provides for energy recovery from waste through thermal and biochemical treatment processes thereof,
- strengthen supervision over the entities which manage activities in the scope of collection, transportation, recovery and disposal of waste,
- eliminate unsuitable practices in the field of operation and reclamation of waste landfills.

5.1. Municipal waste, including biodegradable waste

5.1.1. Collection and transportation of waste

According to the target objectives assumed in the scope of the recovery and recycling of municipal waste, an appropriate scheme of selective collection and reception thereof is required. According to the Voivodship Waste Management Plans, in urban areas, or in regions with more than 300 thousand inhabitants, where thermal treatment is the method preferred for utilisation of municipal waste, the following types of waste should be collected and received in a selective manner:

- green waste from gardens and parks (tending urban greenery),
- unpolluted paper and cardboard (packaging waste, newspapers etc.),

- glass packaging waste made from colourless and multi-colour glass,
- plastics and metals,
- waste batteries and accumulators,
- waste electrical and electronic equipment,
- furniture and other large-size waste,
- waste from construction and repair sites.

Other fractions of waste i.e. outdated medicaments, chemicals, polluted paper and cardboard, may be collected as mixed municipal waste.

In regions with less than 300 thousand inhabitants, according to the Voivodship Waste Management Plans, where mechanical and biological treatment is the method preferred for utilisation of municipal waste, the following fractions of waste should be collected and received in a selective manner:

- green waste from gardens and parks,
- paper and cardboard (including packaging, newspapers, magazines, etc.),
- glass packaging waste made from colourless and multi-colour glass,
- plastics and metals,
- waste batteries and accumulators,
- waste electrical and electronic equipment,
- outdated medicaments,
- chemicals (paints, solvents, waste oils, etc.),
- furniture and other large-size waste,
- waste from construction and repair sites.

In rural areas, selective collection and reception of the following fractions of municipal waste is recommended:

- paper and cardboard (including packaging, newspapers, magazines, etc.),
- glass packaging waste made from colourless and multi-colour glass,
- plastics and metals,
- waste batteries and accumulators,
- waste electrical and electronic equipment,
- outdated medicaments,
- chemicals (paints, solvents, waste oils, etc.),
- furniture and other large-size waste,
- waste from construction and repair sites.

In rural areas, green waste may be utilised by inhabitants individually on their own household composting sites.

In each Municipality, collection of municipal waste should be carried out in a selective manner. According to municipal waste management scheme, the Municipal Regulation on cleanliness and order should be in place, as approved by the Municipal Board that sets forth regular rules and solutions, including the obligation to collect in the aforementioned types of waste in a selective manner.

Other fractions municipal waste may be collected in total as a mix of municipal waste.

Waste collected by selective manner should be so collected and transported that mixing thereof is prevented.

5.1.2. Recovery and disposal of waste

The following steps are required in order to secure the maximum recovery levels of waste:

- Secure, through adequate monitoring of investments carried out and planned that sufficient throughput capacity of installations is available to treat all waste collected by selective manner,
- Stimulate, by means of promoting cooperation with the recovery organisations, industries and self-governmental entities, and by consistent enforcement of duties in the scope of recovery and recycling of waste, the development of market for reusable materials and recyclable products containing the reusable materials,
- Promote, through appropriate promotional and educational activities, and public procurements, the products manufactured from waste materials,
- Grant permits for the construction of these installations only which conform to the assumptions included in Waste Management Plans at an appropriate level, the purposefulness of which is acknowledged by means of their costs and benefits analysis,
- Encourage public and private investors to participate in the implementation of strategic investments compliant with Waste Management Plans,
- Support and promote research activities in the field of recovery and disposal of waste.

Increasing intensity of application of biological and thermal treatment methods of mixed municipal waste is one of the main directions of activities. In order to reduce landfilling of biodegradable waste involves construction of the following technological lines for treatment thereof is required:

- composting plants for organic waste,
- installations for fermentation of (organic) waste,
- mechanical and biological treatment lines for mixed municipal waste,
- thermal treatment plants for mixed municipal waste.

The primary objective of municipal waste management in Poland is to afford such system of regional solutions which include all the managerial elements necessary for given local circumstances (e.g. include thermal treatment). It is important that the installations planned, particularly thermal treatment plants, be compliant with the BAT criteria, and the technology to be applied has proved good through the years of abundant experience.

Municipal biodegradable waste

In order to achieve the target objectives assumed, implementation of the following actions is required in the field of management of municipal biodegradable waste:

- promote and support selective collection of waste and also composting of kitchen waste, as well as green waste in rural, suburban and peripheral areas of cities, through environmental education, financing or co-financing purchase of household composting equipment,
- construct composting plants for green waste from parks and gardens,
- implement regional installations for thermal and mechanical and biological treatment of mixed municipal waste.

5.1.3. Implementation of regular and comprehensive solutions in municipal waste management sector

Waste treatment plant with throughput sufficient enough to receive and treat waste from residential area with minimum 150 thousand population that comply with the BAT criteria should become the basis for municipal waste management sector in Poland.

The waste treatment plants should provide the following services, at a minimum:

- mechanical and biological or thermal treatment of mixed municipal waste and the remnants from sorting plants,
- landfilling of treated mixed municipal waste,
- composting green waste,
- sorting specific fractions of municipal waste collected in a selective manner (optional),
- dismantling plant for large-size waste (optional),
- treatment plant for waste electrical and electronic equipment (optional).

For agglomerations or regions with more than 300 thousand inhabitants, thermal treatment at waste incineration plants should be the method preferred for utilisation of mixed municipal waste. Also infectious medical and veterinary waste, once initially deactivated, will be received in municipal waste incineration plants.

5.1.4. Completion of the improvements in waste landfills for waste other than hazardous and inert waste

A priority objective on landfills for waste other than hazardous waste and inert waste, on which municipal waste is deposited that the Voivodships gradually reduce the quantity of their small and inefficient local landfills and ensure operation of supra-Municipal so as between 5 and maximum 15 landfills are operated per Voivodship by the end of 2014.

For landfills other than those for hazardous waste and inert waste, on which municipal waste is deposited, building the sites which support area at least 150 thousand population is preferable. The total number of landfills per Voivodship (in terms of their volume capacity) should be absorptive enough to take-up waste for at least 15 years. Transport of waste to landfills at more than 30 km distance is deemed cost-effective with application of two stage transfer (reloading) system.

For landfills other than those for hazardous waste and inert waste that receive municipal waste, which were closed in 2009 and 2010, the progress of land reclamation processes on these landfills should be monitored by competent authorities.

5.2. Hazardous waste

5.2.1. PCB containing waste

Implementation of the following actions is required in the field of management of PCB containing waste in order to achieve the target objectives assumed:

- keep the PCBs database,
- organise a scheme for collection and disposal of PCB containing equipment which is not subject to an inventory,
- implement incentives for operators in order to speed up phasing out PCB containing equipment from use for which the phasing out obligation was not directed in 2010.

5.2.2. Waste oils

Implementation of the following actions is required in the field of management of municipal biodegradable waste in order to achieve the target objectives assumed:

- develop existing waste oils collection scheme, including from diffuse sources and provide for standardisation of the equipment,
- monitor adequate conduct of waste oils (primarily carry out recovery through regeneration thereof, and where that is unfeasible because of the high degree of contamination, provide for other recovery processes of waste oils),
- utilise waste from oil spills.

5.2.3. Medical and veterinary waste

Implementation of the following actions is required in the field of management of medical and veterinary waste in order to achieve the target objectives assumed:

- develop disposal scheme for infectious medical and veterinary waste including ultimately (1) incineration of this wastes in the incinerators specifically fit for reception thereof or (2) incineration in the general purpose incineration plants after prior autoclaving, thermal or microwave disinfection thereof (an ultimate goal should call for desisting of operation of small waste incineration plants designated exclusively for treatment of infectious of medical and veterinary waste),
- intensify supervision over performance of waste management by the minor operators who generate insignificant quantities of this type of waste (diffuse sources),
- carry out review of medical waste incineration plants once a year, at a minimum.

5.2.4. Waste batteries and accumulators

Development and implementation of innovative technology for treatment of waste batteries and accumulators, particularly alkaline ones, is required in order to achieve the target objectives for management of this type of waste.

5.2.5. Waste electrical and electronic equipment

Implementation of the following actions is required in the field of management of waste electrical and electronic equipment to achieve the target objectives assumed calls for expansion of technical infrastructure in the scope of collection and treatment of waste electrical and electronic equipment and legislative and inspection activities to reduce the grey zone.

5.2.6. End-of-life vehicles

Implementation of the following actions is required in the field of management of end-of-life vehicles in order to achieve the target objectives assumed:

- carry out legislative and inspection activities to reduce the grey zone,
- maintain the end-of-life vehicles national collection network ensuring the opportunity to leave vehicles with the dismantling station or collection point thereof,
- improve both the performance of the CRV database and the updating and verification of data therein,
- carry out periodical inspection at specific entities (placing vehicles on the market, vehicle collection points and dismantling stations, shredder operators) in the scope of the compliance with the provisions on recycling of end-of-life vehicles.

5.2.7. Asbestos containing waste

Implementation of the activities set out in „The National Asbestos Elimination Scheme for 2009-2032” is required to achieve the target objectives assumed for this type of waste.

5.2.8. Waste explosives

The current methods applied in the National Defence Sector should be upheld for utilisation of outdated military resources by the Military Property Agency to achieve the target objectives assumed for this type of waste.

5.3. Other waste

5.3.1. End-of-life tyres

Expansion technical infrastructure for collection end-of-life tyres, especially in the scope of their reception of Small and Medium-sized Enterprises is required to achieve the target objectives assumed for this type of waste.

The following methods and technologies are recommended for utilisation of end-of-life tyres:

- recapping of tyres,
- manufacture of rubber granulate therefrom,
- energy recovery by means of co-incineration thereof in cement plants, power plants or heating and power plants conforming to the requirements in the scope of co-incineration of waste.

5.3.2. Wastes from the construction, repair and demolition works, including that from the road infrastructure

Expansion of technical infrastructure for selective collection of wastes, and also treatment, reuse and recovery, including recycling of this wastes is required in order to achieve the target objectives assumed for wastes from the construction, repair and demolition works and road infrastructure.

5.3.3. Sludges from urban waste water treatment plants

Integration of the issues concerning adequate utilisation of Sludges from urban waste water treatment plants with design and implementation of investments in the scope of construction or modernisation of waste water treatment plants is required in order to achieve the target objectives assumed for this type of waste. Solutions in the field of utilisation of effluent sludge for smaller agglomerations should be also implemented. In this regard, definite regions of utilisation Sludges from urban waste water treatment plants will be specified in the Voivodship Waste Management Plans.

5.3.4. Biodegradable waste other than municipal waste

In order to achieve the target objectives assumed for biodegradable waste other than municipal waste implementation of the following actions is required: expansion of technical infrastructure, re-use, recovery, including recycling of this waste, by means of carrying out the tasks contained in "Development Programme for Agricultural Biogas Plants" and "The National Action Plan for Energy from Renewable Sources".

5.3.5. Packaging waste

Implementation of the following actions is required in the field of management of packaging waste in order to achieve the target objectives assumed:

- carry out legislative work and inspections with to eliminate grey zone,
- expand technical infrastructure for selective collection of packaging waste originated from households,
- expand technical infrastructure for packaging waste sorting and recycling,
- introduce instruments for monitoring both the packaging waste streams and the operation of the scheme as a whole, including establishment of the national recycling register covering the operators who place on the market products in packaging, operators placing packaging on the market, operators authorised to grant recycling-

acknowledgement statements, and documents which confirm completion of recovery of waste by methods other than recycling ones, and a register of the aforementioned documents and of the recovery organisations.

5.3.6. Waste from selected economy sectors, utilisation of that is problematic

Implementation of the following actions is required in the field of management of waste from services and industry sectors in order to achieve the target objectives assumed:

- promote consideration, at in the early project design phase, the methods for waste utilisation and use, e.g. utilisation of ash and slag originated as by-products from combustion processes to produce aggregate substituting natural materials,
- design new processes and products in such a way that those minimally affect the environment in the production, use and after-use phases thereof.

CHAPTER 6. THE TASK IMPLEMENTATION TIME-FRAMES AND FINANCING

Given the problems identified (in Chapter 2 of this National Plan) and the changes anticipated in the field of waste management (Chapter 3) and the objectives established hereunder (Chapter 4) and also the targets for action (Chapter 5), in this Chapter, the tasks to be implemented under the 2014 National Plan are set forth. The relevant tasks are listed in Table 39 together with the entities to perform them. Table 40 shows the task implementation costs and their potential funding sources.

The Tables include no routine tasks usually implemented by the public administration authorities that result by virtue of law (e.g. decision making, monitoring and control), as well as the tasks which are set forth in the National Programmes, e.g. „The National Asbestos Elimination Scheme for 2009-2032”, „Updating the National Scheme for Urban Waste Water Treatment”, „The National Action Plan for Renewable Energy Sources”, or „Agricultural Biogas Plants Development Programme”.

Table 39. Organisational and legislative tasks for waste management sector

No.	Year	Type of action	Performers
Tasks in the scope of overall waste management			
1.	2011-2013	Establish and set up the National Database on Products, Packaging and Waste Management (NDB) (<i>Continuation of task indicated under the 2010 National Waste Management Plan</i>)	Authority appointed by Minister of the Environment, Provincial Marshalls
2.	2011-2012	Prepare and publish the guidelines in the scope of waste prevention and recommended conduct of waste for specific economy sectors (<i>agriculture, forestry, food processing industry, timber processing industry, mineral extraction industry, leather and fur industry, textile industry, petroleum refining industry, chemical industry, photographic industry, cement industry, power generation, iron and steel and non-ferrous metallurgy, manufacture of glass and glass products, shipbuilding, automotive industry, industry manufacture of batteries and accumulators, manufacture of electrical and electronic equipment, building and construction industry, health care services, veterinary services, drinking water</i>)	Ministers responsible for specific sectors of the Governmental Administration in agreement with Minister responsible for the environment

		<i>treatment, waste water treatment plants, waste treatment, municipal management, trade, services, education, national defence - Continuation of task indicated under the 2010 National Waste Management Plan)</i>	
3.	2011-2012	Determine the material consumption and waste generation factors for specific economy sectors (<i>the scope - see Item 2, above - Continuation of task indicated under the 2010 National Waste Management Plan)</i>	Ministers responsible for specific sectors of the Governmental Administration in agreement with Minister responsible for the environment
4.	2011-2014	Provide human resources and technical support to organisational entities of Ministry of the Environment, the Chief and the Voivodship Inspectorates for Environmental Protection, and the Voivodship Marshall Offices that are, concerned with waste management (<i>Continuation of task indicated under the 2010 National Waste Management Plan)</i>	Minister of the Environment, Chief Inspector of Environmental Protection, the Voivodes, Provincial Marshalls
5.	2011-2022	Integrate into the public tenders, through introduction of the provisions into Specification of the Essential Terms of the Contract, purchase of products manufactured with use of recycled substances or materials; introduce into the public procurement procedures the environmental criteria, including those on the prevention of waste (<i>Continuation of task indicated in the 2010 National Waste Management Plan)</i>	Public administration authorities, companies
6.	2011-2022	Coordinate and support implementation of research and development activities in the scope of waste management (<i>technology o reduced waste generation factor, products with reduced environmental impact in both use and after-use thereof, waste recycling technology, conditions for separation of certain substances and materials from waste that are likely to be considered products - Continuation of task indicated under the 2010 National Waste Management Plan)</i>	Minister of Science and Higher Education
7.	2011-2013	Implement legislative processes for making Regulations under statutory delegations set forth in new Act on Wastes	Minister responsible for the environment, Chief Inspector of Environmental Protection
8.	2011-2013	Implement legislative processes for making Regulations under statutory delegations set forth in new Act on Wastes	Minister responsible for economy
9.	2011-2013	Implement legislative processes for making Regulations under statutory delegations set forth in new Act on Wastes	Minister responsible for health care
10.	2011	Complete the legislative processes on the Act on Management of Packaging and Packaging Waste as aimed at full transposition of Directive 94/62/EC of 20 December 1994 on Packaging and Packaging Waste (<i>implement the restrictions on the grey zone and eliminate the opportunities to so called „trading in recycling certificates” and clearing the recycling commitment on the annual basis, excluding settlement of any surplus of waste)</i>	Minister responsible for the environment
11.	2011-2012	Implement legislative processes for making Regulations under statutory delegations set forth in the Act on Management of Packaging and Packaging Waste	Minister responsible for the environment
12.	2011-2014	Implement legislative processes for amending the Act on Waste Electrical and Electronic Equipment (<i>once amendment to Directive 2002/96/EC is in force, and also implement the restrictions on the grey zone and eliminate the opportunities</i>	Minister responsible for the environment

		<i>to so called „trading in recycling certificates” and clearing the recycling commitment on the annual basis, excluding settlement of any surplus of waste)</i>	
Tasks in the scope of municipal waste management			
13.	2011	Implement the national information and education campaign on the proper conduct of hazardous waste from households	Minister responsible for the environment
14.	2011-2022	Introduce into the priority project lists of the Voivodship Funds for Environmental Protection and Water Management the tasks concerning construction and modification of the treatment installations of waste, and the tasks on the closure of and land reclamation after municipal waste landfills	The Voivodship Funds for Environmental Protection and Water Management
15.	2011-2012	Develop the register of data on distribution of operated and closed waste landfills, including on storage of asbestos containing waste on landfills designated exclusively to landfilling of asbestos, or the separate parts of other landfills designated thereto (<i>Article 54e the Act of 27 April 2001r. on Wastes, as amended under the Act of 22 January 2010 on the Amendment to the Act on Wastes and certain other Acts</i>)	Chief Inspector of Environmental Protection
16.	2011-2013	Establish the Regional Municipal Waste Management Schemes (aimed at meeting the requirements under the relevant <i>Directives - Continuation of task indicated under the 2010 National Waste Management Plan</i>)	Municipal Boards, Municipal Utilities and Private Companies
17.	2011-2012	Develop programme for and carry out inspections to verify bringing other municipal waste landfills to comply with all requirements under Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste (<i>assessment of implementation by the Republic of Poland its commitments under the Accession Treaty</i>)	Chief Inspector of Environmental Protection, the Voivodship Inspectors of Environmental Protection
Tasks in the scope of hazardous waste management			
18.	2011-2012	Develop inspection scheme and carry out inspections of the operators compliance with their commitment under <i>the 2010 National Waste Management Plan</i> to be complete in 2007-2010, as titled „Cessation of the use of PCB containing installations and equipment; decontamination thereof and disposal of PCBs”	Chief Inspector of Environmental Protection, the Voivodship Inspectors of Environmental Protection
19.	2011-2012	Develop inspection scheme and carry out inspections of the operators compliance with their commitments under <i>the 2010 National Waste Management Plan</i> to be complete by 2010, as titled „Elimination of warehouses and burial sites of chemical plant protection products”	Chief Inspector of Environmental Protection, the Voivodship Inspectors of Environmental Protection
20.	2011-2012	Put in the priority project lists of the National Fund for Environmental Protection and Water Management implementation of the tasks titled „Manage reclamation of the areas polluted and degraded by industrial waste deposited there”	The National Fund for Environmental Protection and Water Management

21.	2012-2013	Develop inspection scheme and carry out inspections of the operators compliance with their commitments under <i>the 2010 National Waste Management Plan</i> to be complete in 2009-2010, as titled „Manage reclamation of the areas polluted and degraded by industrial waste deposited there”	Chief Inspector of Environmental Protection, the Voivodship Inspectors of Environmental Protection
22.	2012-2016	Develop inspection scheme and carry out inspections at the recovery organisations, the waste collection entities, the treatment plants for waste electrical and electronic equipment, and the treatment plants for batteries and accumulators (<i>in order to assess compliance with the relevant legal provisions</i>)	Environmental Protection Inspectorate, Police Departments, Fiscal Authorities
23.	2011-2012	Supplement and verify information contained in the CRV database on vehicles placed on the market, as a tool required to reduce the grey zone and obtain reliable data on end-of-life vehicles (<i>data correlation between the GUS, Customs and Police is required</i>)	Minister competent for the interior and administration
24.	2014-2016	Develop inspection scheme and carry out inspections at the end-of-life vehicles dismantling stations, with regard to the set out in the Act of 22 January 2010 on Amendment to the Act on Wastes and certain Other Acts (<i>in order to assess compliance with the relevant legal provisions</i>)	Chief Inspector of Environmental Protection, Police Departments, the Voivodship Inspectors of Environmental Protection
25.	2011-2012	Develop plan for utilisation of waste from oil spills resultant of marine accidents (<i>Continuation of task indicated under the 2010 National Waste Management Plan</i>)	Minister competent for infrastructure in agreement with Minister responsible for the environment
Tasks in the scope of management of other types of waste			
26.	2011-2012	Develop guidelines for qualification of animal carcasses and their parts as animal waste or by-products depending upon the methods to kill animals, and set forth the competence of the authorities committed to perform supervision in this field (<i>since intense competence disputes take place which delay undertaking actions, specifically as regards dead fish or carcasses of wild animals</i>)	Minister competent for agriculture in agreement with Minister responsible for the environment
27.	2011-2012	Draw-up the first list of waste disposal sites closed and abandoned in mineral extraction industries	Chief Inspector of Environmental Protection, the Voivodship Inspectors of Environmental Protection
28.	2011-2012	Complete the legislative process, i.e. make administrative Regulations to the Act on Mineral Extraction Waste	Minister of the Environment
29.	2013-2014	Develop inspection scheme and carry out inspections of waste disposal sites in mineral extraction industry (<i>in order to assess compliance with the relevant legal provisions</i>)	Environmental Protection Inspectorate, Provincial Marshalls, State Fire Service
30.	2013-2022	Update the list of waste disposal sites closed and abandoned in mineral extraction industries	Chief Inspector of Environmental Protection, the

			Voivodship Inspectors of Environmental Protection
31.	2015-2016	Develop inspection scheme and carry out inspections in order to assess implementation of the commitment to reach 60% of recovery and 55% of recycling of packaging waste (<i>in order to assess compliance with the relevant legal provisions</i>)	Chief Inspector of Environmental Protection, the Voivodship Inspectors of Environmental Protection
32.	2016-2017	Develop inspection scheme and carry out inspections in to assess implementation of the tasks set forth in <i>Updating the National Scheme for Urban Waste Water Treatment</i> with regard to utilisation of effluent sewage sludges in agglomerations $\geq 100\ 000$ pe	Chief Inspector of Environmental Protection, the Voivodship Inspectors of Environmental Protection

Table 40. The implementation time frames and the task financing methods in waste management sector

No.	Activity	Total cost [million PLN]	Public financial resources [million PLN]				Private financial resources [million PLN]
			Domestic		Foreign		Companies - private investors
			Total	including from Environme ntal Protection and Water Managem ent Funds	Total	including from the European Union Funds	
Investment projects							
2011 - 2013							
IA-1	Establish regional municipal waste management schemes	12390.00	3660.00	2060.00	6550.00	3400.00	2180.00
2014 - 2016							
IB-1	Establish regional municipal waste management schemes	4790.00	1740.00	1140.00	2250.00	1820.00	800.00
2017 - 2022							
IC-1	Establish regional municipal waste management schemes	2520.00	890.00	825.00	730.00	-	900
Non-investment projects							
2011 - 2013							
IIA-1	Establish and set up National Database on Products. Packaging and Waste Management (NDB)	7.00	7.00	7.00	-	-	-
IIA-2	Preparation and publication of guidelines in the scope of waste prevention and recommended conduct of waste for specific economy sectors	5.00	5.00	-	-	-	-
IIA-3	Determine the material consumption and waste generation factors for specific economy sectors	5.00	5.00	-	-	-	-

IIA-4	Provide human resources and technical support to organisational entities of Ministry of the Environment, the Chief and the Voivodship Inspectorates for Environmental Protection, and the Voivodship Marshall Offices that are concerned with waste management	20.00	20.00	-	-	-	-
IIA-5	Coordinate and support implementation of research and development activities in the scope of waste management	150.00	150.00	50.00	-	-	-
IIA-6	Implement legislative processes for making Regulations under statutory delegations set forth in new Act on Wastes	0.50	0.50	-	-	-	-
IIA-7	Complete the legislative processes on the Act on Management of Packaging and Packaging Waste	0.20	0.20	-	-	-	-
IIA-8	Implement legislative processes for making Regulations under statutory delegations set forth in the Act on Management of Packaging and Packaging Waste	0.20	0.20	-	-	-	-
IIA-9	Implement legislative processes for amending the Act on Waste Electrical and Electronic Equipment	0.10	0.10	-	-	-	-
IIA-10	Develop plan for utilisation of waste from oil spills resultant of marine accidents	0.60	0.60	-	-	-	-
IIA-11	Develop guidelines for qualification of animal carcasses and their parts as animal waste or by-products depending upon the methods to kill animals, and set forth the competence of the authorities committed to perform supervision in this field	0.50	0.50	-	-	-	-
IIA-12	Implement legislative processes for making Regulations under statutory delegations set forth in the Act on Mineral Extraction Waste	0.40	0.40	-	-	-	-
IIA-13	Implement the national information and education campaign on the proper conduct of hazardous waste from households	6.00	-	-	-	-	-
	The total in 2011-2013	195.5	189.5	57.0	-	-	-
2014-2016							
IIB-1	Provide human resources and technical support to organisational entities of Ministry of the Environment, the Chief and the Voivodship Inspectorates for Environmental Protection, and the Voivodship Marshall Offices that are, concerned with waste management	20.00	20.00	-	-	-	-
IIB-2	Coordinate and support implementation of research and development activities in the scope of waste management	150.00	150.00	50.00	-	-	-

IIB-3	Implement legislative processes for amending the Act on Waste Electrical and Electronic Equipment	0.10	0.10	-	-	-	-
	The total for 2014-2016	170.1	170.1	50.0	-	-	-
2017-2022							
IIC-1	Coordinate and support implementation of research and development activities in the scope of waste management	150.00	150.00	50.00	-	-	-
	The total for 2017-2022	150.0	150.0	50.0	-	-	-
	The total investment activities in 2011-2022	19700	6290	4025	9530	5220	3880
	The total non-investment activities in 2011-2022	515.6	509.6	157	-	-	-

CHAPTER 7. CONCLUSIONS ON THE ENVIRONMENTAL EFFECTS ANTICIPATED FROM IMPLEMENTATION OF THIS PLAN

In 2006, Environmental Impact Assessment of the 2010 National Plan was prepared, since according to Article 40 in the Act of 27 April 2001 on Environmental Protection Law (Official Journal No. 62, Item 627, further amended) that was binding in 2006, and nowadays, according to Article 46, paragraph 2 the Act of 3 October 2008 on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments (Official Journal No. 199, Item 1227, further amended), preparation of a waste management plans requires prior Strategic Environmental Impact Assessment.

However, under Article 48 in the Act on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments, desisting from preparation of the Strategic Environmental Impact Assessment is possible if the competent authority set out in Articles 57 and 58 in this Act recognised that implementation of the provisions included in the document will cause no significant environmental effect.

Having the above in mind, the Authors propose hereby, while recalling Article 48, paragraph 1 in the Act on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments, that the preparation of the Strategic Environmental Impact Assessment for this updated version of the 2010 National Waste Management Plan be excluded.

In the 2014 National Waste Management Plan, data is updated as regards the current status of waste management throughout Poland, as of 31 December 2008 (including on the quantities of waste collected, generated and the management methods thereof). This updating covered also the changes anticipated in the field of waste management under this Plan. The objectives included in the 2010 National Plan (that result from both the Community and the National laws) have been repeated. Since these objectives have not been so far achieved completely, continuation of the tasks included in the 2010 National Plan will be required. Since no new directions for action are set forth in the field of both the waste management scheme and the related investments, no change was made in recitals concerning thereof, and thus no change is expected in environmental effects from implementation of this Updated Plan.

So, this document assumes continued implementation of waste management projects throughout the national territory, as indicated in the currently binding the 2010 National Plan, however it does not identify any location thereof.

This document follows the 2009-2012 National Environmental Policy and its 2016 Outlook and points out the targets for developing the Voivodship Waste Management Plans, being continuation of the provisions in the currently binding the 2010 National Plan.

This document indicates also the objectives and direction for activities in waste management sector according to both the principle of sustainable development and the waste hierarchy. Waste prevention, followed by preparation thereof to reuse, recycling, and others waste recovery methods, and finally disposal of waste. Waste landfill is the least desired method for disposal of waste.

The aim of the objectives and directions for actions as set forth in this document is to contribute to conformity with the provisions under the Community law, including in the scope of waste prevention, reduction of its deposition on landfills and achieving its relevant recovery and recycling levels.

Neither specific waste utilisation technology, nor location of investments in the scope of waste treatment installations is recommended in this document. This Plan includes however

specification of the tasks, the implementation of which is required for reaching the objectives being continuation of those provided in „The 2010 National Waste Management Plan”. As it was stated before, the Environmental Impact Assessment was developed for the currently mandatory the 2010 National Plan and the effect thereof on the environment were thus determined. No change is anticipated in environmental effect from proposed Draft Proposal for the 2014 National Waste Management Plan being an updated version of the 2010 National Plan.

This updated National Waste Management Plan provides description of the plans which are aimed at environmental improvements pertaining to hazards posed by wastes, thus this Plan is environmentally sound in its character.

Implementation of the provisions included in this Plan will have no negative effects on the areas with outstanding natural values or those of significance to cultural heritage and the areas under legal protection.

CHAPTER 8. MONITORING OF AND FEEDBACK FROM IMPLEMENTATION OF THIS PLAN

Based upon the Implementation Reports on the Voivodship Waste Management Plans and the information provided by specific sectors the implementation status of individual tasks, as set out in Chapter 5 of the 2014 National Waste Management Plan, will be assessed, and in order to monitor realisation of the objectives set out in Chapter 4 of this National Plan, the factors provided for in Table 42 will be estimated. In the initial phase, the information sources will be data stored in existing databases, as collected within the administrative system, including statistical surveys. Once the National Database on Products, Packaging and Waste Management (NDB) is established it will become the major information source. The values of specific factors will be set out also upon data provided in the individual Voivodship Implementation Reports on the 2014 Voivodship Waste Management Plans.

The Implementation Reports on the Voivodship Waste Management Plans will be structured for each Voivodship into annual data for the reporting period, following information specified in Table 42. For waste covered by individual specific legal provisions only the mass of products placed on the market by manufacturers active in given Voivodship and the mass of waste generated and utilised in this Voivodship and information on the implementation status of the tasks as specified in the Voivodship Implementation Reports on their Waste Management Plans will be provided.

The Implementation Reports on the Voivodship Waste Management Plans will contain also the lists of treatment installations of municipal waste, as of the last day of the reporting period, including:

- composting plants for organic waste collected in a selective manner,
- waste fermentation plants,
- mechanical and biological waste treatment plants for mixed municipal waste,
- sorting plants for municipal waste collected in a selective manner, and sorting plants mixed waste and collected in a selective manner,
- incineration plants for mixed municipal waste,
- legal waste landfills for waste other than hazardous waste and inert waste, on which municipal waste is deposited,

and also the relevant data on the installation type and name, its address data and throughput capacity, at a minimum.

The Implementation Reports on the Voivodship Waste Management Plans will include also the lists of treatment installations hazardous waste, including:

- dismantling station end-of-life vehicles,
- treatment plants for waste electrical and electronic equipment,
- installations for regeneration of waste oils,
- installations for disposal of PCBs,
- inert waste landfills,
- hazardous waste landfills,
- landfills for waste other than hazardous waste and inert waste, on which municipal waste are not deposited,
- hazardous waste landfills, on which asbestos containing waste are deposited, and landfills other than those for hazardous waste and inert waste, the parts of which are separated for landfilling of asbestos containing waste,
- waste incineration plants designated exclusively for incineration of medical and veterinary waste,
- other waste incineration plants,

and data on the installation's type, number of treatment units thereof, and name, address data and the throughput capacity, at a minimum.

An analysis will be included stating whether the installations' throughput capacity is sufficient enough to utilise all wastes originated in the Voivodship, i.e. whether the Voivodship is self-sufficient enough to satisfy waste management requirements. The surplus of and deficiency in throughput capacities for specific types of waste will be also set out. Overall assessment of waste management status per Voivodship will be provided.

The Implementation Report on the National Waste Management Plan will include data specified in Table 42 and factors specified in Table 41 per each year of the reporting period. The total combined throughput capacities of all types of installations and analysis will be performed to find whether the throughput capacities of specific installation types are sufficient enough to secure utilisation of all waste volumes originated throughout Poland. Overall assessment of the state of waste management sector in Poland will be also included.

Table 41. General indicators for monitoring implementation of the target objectives

No.	Factor	Unit	Base year or year setting out the current status	The year in which the objective has to be achieved	
			Factor's value	The value to be achieved in the target year	
1.	Number of municipal waste landfills		2008	2014	
		pieces	711	200	
2.	The share of municipal waste deposited in waste generated		2008	2014	
		%	86,6	60	
3.	Reduction rate of municipal biodegradable landfilled waste, or the maximum deposited mass of this waste, in relation to the total mass thereof generated in 1995		1995	2013	2020
		%	100	50	35
		Million Mg	4,38		
4.	The share of portable waste batteries and accumulators collected in a selective manner in those placed on the market			2012	2016
		%		25	45

Table 42. The data-set on waste generated and managed in Poland over reporting period

No.	Information on waste managed and generated	Unit
	General	
1.	The total mass of waste generated	Mg
2.	The mass percentage of waste generated and recycled (excluding organic recycling)	%
3.	The mass percentage of waste generated and recycled by organic methods	%
4.	The mass percentage of waste generated and treated thermally with energy recovery	%
5.	The mass percentage of waste generated and applied directly onto land surface for activities set out in Regulation of Minister of the Environment of 21 March 2006 on the recovery or disposal of waste excluding in installations and equipment (Official Journal No. 49, Item 356)	%
6.	The mass percentage of waste generated and disposed of by biological methods	%
7.	The mass percentage of waste generated and disposed of by thermal methods	%
8.	The mass percentage of waste generated deposited without treatment	%
9.	The GDP value	Billion PLN
10.	Percentage of the Voivodship Waste Management Plans updated	%
11.	Percentage of decisions made by the Voivodship Marshalls in the scope of waste management, in response to the appeals	%
12.	Percentage of decisions made by the Regional Directors of Environmental Protection in the scope of waste management, in response to the appeals	%
13.	Percentage of decisions made by the Environmental Protection Inspectorates in the scope of waste management, in response to the appeals	%
14.	Percentage of decisions made by the Voivodship Marshalls in the scope of waste management, as upheld in the appeal proceedings	%
15.	Percentage of decisions made by the Regional Directors of Environmental Protection in the scope of waste management, as upheld in the appeal proceedings	%
16.	Percentage of decisions made by the Environmental Protection Inspectorates in the scope of waste management, upheld in the appeal proceedings	%
17.	Financial resources spent to construct or modify waste management installations-total	million PLN
18.	Financial resources spent to construct or modify waste management installations-as originated from the European Union Funds	million PLN
19.	Financial resources spent for research and development activities in the scope of waste management	million PLN
20.	Number of posts in central administration authorities servicing waste management	pieces
21.	Number of posts in the Voivodship administration authorities servicing waste management	pieces
22.	Number of the Environmental Management and Audit Schemes (EMAS) implemented in waste management institutions and companies	pieces
	Municipal waste	
23.	Percentage of the populations covered by organised municipal waste collection/reception scheme	%
24.	The total mass of municipal waste collected/received	million Mg
25.	Mass of municipal waste collected/received by selective manner	million Mg
26.	Mass of municipal waste received as mixed municipal waste	million Mg
27.	Percentage of municipal waste mass collected as mixed waste and treated by mechanical and biological methods	%
28.	Percentage of municipal waste mass collected/received as mixed municipal waste and treated by thermal methods in waste incineration plants	%
29.	Percentage of municipal waste mass received as mixed municipal waste deposited without treatment	%
30.	Percentage of municipal waste mass collected/received by selective manner and recycled (excluding organic recycling)	%
31.	Percentage of municipal waste mass collected/received by selective manner and recycled by organic methods	%
32.	Percentage of municipal waste mass collected/received by selective manner and treated thermally in waste incineration plants (with energy recovery)	%
33.	Percentage of municipal waste collected/received by selective manner and treated thermally in waste co-incineration plants (with energy recovery)	%
34.	Percentage of municipal waste mass collected by selective manner and/or received and	%

	disposed of (excluding deposition)	
35.	Percentage of municipal waste mass collected/received by selective manner and deposited	%
36.	Mass of municipal biodegradable waste deposited on waste landfills	million Mg
37.	The quotient of mass of municipal biodegradable waste deposited on waste landfills and mass of this typo of waste generated in 1995	%
38.	Number of operated waste landfills on which municipal waste is deposited	pieces
39.	The remaining empty volume of waste landfills in which municipal waste is deposited	m ³
40.	Number of installations for biological and mechanical treatment of mixed municipal waste	pieces
41.	Treatment capacity of installations for biological and mechanical treatment of mixed municipal waste	million Mg
42.	Number of incineration plants for mixed municipal waste	pieces
43.	Treatment capacity of incineration plants for mixed municipal waste	million Mg
	Hazardous waste	
44.	Mass of hazardous waste generated	thousand Mg
45.	Percentage of the mass of hazardous waste generated and recycled	%
46.	Percentage of the mass of hazardous waste generated and thermally treated	%
47.	Percentage of the mass of hazardous waste generated and deposited without treatment	%
48.	Mass of municipal hazardous waste collected and/or received in a selective manner	thousand Mg
49.	Percentage of the mass of municipal hazardous waste collected and/or received in a selective manner and recycled	%
50.	Percentage of the mass of municipal hazardous waste collected and/or received in a selective manner and thermally treated	%
51.	Percentage of the mass of municipal hazardous waste collected and/or received in a selective manner and deposited without treatment	%
52.	Mass of remaining PCBs-containing equipment	thousand Mg
53.	Recovery level of waste oils	%
54.	Recycling (regeneration) level of waste oils	%
55.	Mass portable batteries and accumulators ¹⁾	thousand Mg
56.	Mass of portable batteries and accumulators placed on the market and collected in a selective manner ¹⁾	thousand Mg
57.	Mass of acid-lead waste batteries and accumulators collected ²⁾	Mg
58.	Mass of recycled acid-lead waste batteries and accumulators ¹⁾	Mg
59.	Mass of nickel-cadmium waste batteries and accumulators collected ²⁾	Mg
60.	Mass of recycled waste nickel-cadmium batteries and accumulators ¹⁾	Mg
61.	Mass of other waste batteries and accumulators collected ²⁾	Mg
62.	Mass of other recycled waste batteries and accumulators ¹⁾	Mg
63.	Achieved recycling level of acid-lead waste batteries and waste accumulators	%
64.	Achieved recycling level of nickel-cadmium waste batteries and waste accumulators	%
65.	Achieved recycling level of other waste batteries and waste accumulators	%
66.	Mass of remaining registered asbestos containing products to be eliminated and disposed of	million Mg
67.	Mass of electrical and electronic equipment placed on the market	thousand Mg
68.	Mass of waste electrical and electronic equipment collected-total	thousand Mg
69.	Mass of waste electrical and electronic equipment collected from households	thousand Mg
70.	Mass of waste electrical and electronic equipment collected from households, as calculated per statistical end-user	kg/end-user
71.	Recovery level of categories 1 and 10 waste equipment ³⁾	%
72.	Recycling level of categories 1 and 10 waste equipment ³⁾	%
73.	Recovery level of categories 3 and 4 waste equipment ²⁾	%
74.	Recycling level of categories 3 and 4 waste equipment ³⁾	%
75.	Recovery level of categories 2, 5-7 and 9 waste equipment ³⁾	%
76.	Recycling level of categories 2, 5-7 and 9 waste equipment ³⁾	%
77.	Recycling level of waste fluorescent tubes	%
78.	Number of dismantling stations ⁴⁾	pieces
79.	Number of vehicle collection points ⁴⁾	pieces
80.	Mass of end-of-life vehicles collected ⁴⁾	thousand Mg
81.	Recovery level of waste originated from dismantled end-of-life-vehicles ⁸⁾	%
82.	Recycling level of waste originated from dismantled end-of-life-vehicles ⁸⁾	%

Sludges from urban waste water treatment plants			
83.	Mass of sludge generated from urban waste water treatment plants	thous. Mg	thous. Mg d.m.
84.	Percentage of the sludge mass generated from urban waste water treatment plants treated by biological methods	%	
85.	Percentage of the sludge mass generated from urban waste water treatment plants treated by thermal methods	%	
86.	Percentage of the sludge mass generated from urban waste water treatment plants directly utilised in agriculture	%	
87.	Percentage of the sludge mass generated from urban waste water treatment plants directly utilised for other purposes	%	
88.	Percentage of the sludge mass generated from urban waste water treatment plants deposited without treatment on waste landfills	%	
89.	Percentage of sludge generated from urban waste water treatment plants disposed of by methods other than those mentioned above	%	
Packaging waste			
90.	Mass of packaging placed on the market with products	thousand Mg	
91.	Mass of glass packaging placed on the market with products	thousand Mg	
92.	Mass of plastic packaging placed on the market with products	thousand Mg	
93.	Mass of paper and cardboard packaging placed on the market with products	thousand Mg	
94.	Mass steel packaging placed on the market with products	thousand Mg	
95.	Mass of aluminium packaging placed on the market with products	thousand Mg	
96.	Mass of wooden packaging placed on the market with products	thousand Mg	
97.	Recovery level of waste packaging-total	%	
98.	Recycling level of waste packaging-total	%	
99.	Recycling level of waste glass packaging	%	
100.	Recycling level of waste plastic packaging	%	
101.	Recycling level of waste paper and cardboard packaging	%	
102.	Recycling level of waste steel packaging	%	
103.	Recycling level of waste aluminium packaging	%	
104.	Recycling level of waste wooden packaging	%	
End-of-life tyres			
105.	Mass of tyres placed on the market	Mg	
106.	Mass of tyres recovered by methods other than recycling processes	Mg	
107.	Mass of tyres recycled	Mg	
108.	Recovery level of waste originated from tyres	%	
109.	Recycling level of waste originated from tyres	%	
<p>1) according to the Act of 24 April 2009 on Batteries and Accumulators (Official Journal No. 79, Item 666)</p> <p>2) according to the Act of 27 April 2001 on Wastes (Official Journal of 2007, No. 39, Item 251, further amended)</p> <p>3) according to Annex No. 1 to the Act of 29 July 2005 on Waste Electrical and Electronic Equipment (Official Journal No. 180, Item 1495, further amended),</p> <p>4) as set out in the Act of 20 January 2005 on Recycling of End-of-Life Vehicles (Official Journal No. 25, Item 202, further amended)</p>			

CHAPTER 9. SUMMARY

The 2014 National Waste Management Plan is an updated version of the 2010 National Waste Management Plan (the 2010 National Plan), approved in 2006, and takes due regard of the recommendations included in „Implementation Report on the 2010 National Waste Management Plan for 1 January 2007 - December 2008”.

In the implementation period of the 2010 National Plan, certain improvements in some waste management fields were noted and specific objectives achieved, e.g. in the scope of management of packaging waste. Mass of municipal waste collected retains at a steady level about 10 million Mg annually. An increase in mass of municipal waste collected in a selective manner is noted.

However, a lot of problem still remains those have to be gradually solved.

There are difficulties in monitoring the status of waste management due to the very dispersed waste management information collecting system (based on a series of Acts, involving many institutions, and using both the administrative channels, and statistical surveys based on various methodologies). That is the reason why the forecasts for changes in the scope of managing certain categories of waste are difficult to predict.

Due to numerous legal changes the difficulties appear in understanding and appropriate application of the legal provisions in the scope of waste management by both businesses and the public administrations. The following legal Acts were passed in the period when the 2010 National Plan was in force, including: the Act of 10 July 2008 on the Excavation Waste (Official Journal No. 138, Item 865, further amended) and the Act of 24 April 2009 on Batteries and Accumulators (Official Journal No. 79, Item 666). Besides, in 2007 the Act on the Recycling End-of-Life Vehicles and in 2008 the Act on the Waste Electrical and Electronic Equipment were amended. Also, the Act on Wastes was amended in 2010 that involved amendments in certain provisions in the Act on Recycling End-of-Life Vehicles.

Although the awareness of the general public is growing, however the "old" habits still prevail in certain fields (concerning e.g. the high adverse impacts on the environment and human health from installations for thermal waste treatment) that impede founding new investments. Inconsistent guidance on the collection of municipal waste in a selective manner (often complicated and thus environmentally unfriendly and those cannot be understood by the general public) are one of obstacles hampering development of selective collection of waste. Deposition of the high proportion of municipal biodegradable waste and other biodegradable waste on landfills, as well as application of interbedding layers of sludge there all cause considerable methane emissions therefrom that is one of the most dangerous components of greenhouse gas.

Failure to use plant and animal waste as the sources of renewable energy, especially to substitute fossil fuels, has slowed down the process of achieving the limits of renewable energy use in Poland.

Moreover, many recovery, including recycling, methods are based upon technology, the environmental quality of which is doubtful the application of which is aimed exclusively at the issuance of documents to companies only the completion of the recovery or recycling procedures.

Existence of a grey zone has been noted in the field of management of end-of-life vehicles, waste electrical and electronic equipment, and packaging waste.

The long-term objective of development of the National Waste Management Plan is to achieve such waste management system which conforms to the principle of sustainable

development, in which adequate rules of waste management are fully implemented. This includes, in particular, the principles of waste treatment in accordance with the hierarchy of waste management, i.e. firstly the origination of waste should be prevented and the unavoidable quantities thereof minimised and the dangerous properties reduced. Then, the material and other properties of waste should be utilised for energy purpose. Finally, the last step in the waste hierarchy is that the materials are disposed of when there is no other economically viable way of dealing with them. Usually disposal is either through landfilling or incineration by methods safe for humans and the environment

Such way of conduct enables achievement of also other objectives such as: reduction of climate change caused by waste management by minimizing greenhouse gas emissions from waste technology utilisation or increase in participation to the energy balance of energy from renewable sources country by replacing combustion of fossil-fuels by waste of plant and animal origins in waste incineration plants.

Thus, pursuant to the National Environmental Policy, the following principal objectives are assumed in the 2014 National Plan:

- maintain the tendencies to decouple increasing quantities of generated waste from economic growth expressed as the GDP;
- increase the share of recovery, including particularly energy recovery from waste, in accordance with environmental requirements;
- reduce the quantities of all waste deposited on waste landfills.
- eliminate illegal landfilling of waste,
- establish and set up the National Database on Products, Packaging and Waste Management (NDB).

The changes in legal provisions will be also introduced that result from the need to transpose the Community legal provisions into the Polish legal framework.

Due to the fact that trends in environment law are currently determined primarily at the European Union level, active Poland's participation in the European Union activities, particularly as concerns that on new legislation, is also one of the major objectives in the scope of waste management

Completion of the work on adoption of new Draft Act on Management of Packaging and Packaging Waste and to amend the Act on Waste Electrical and Electronic Equipment is planned. Adoption of the Regulations under new and amended Act is necessary, including those to new Act on Waste that provides for transposition of the Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives (Official Journal EC L 312 of 22.11.2008, p. 3). Pursuant to the above plans amendments in the systems currently in force are also likely.

The following activities will be undertaken in order to prevent and minimise generation of wastes:

- support introduction of low-waste manufacturing technology and that which secure the use of possibly all components of the materials used,
- promote environmental management,
- manage intensive environmental education promoting prevention of waste,
- increase the charge rates for landfilling of waste, particularly mixed municipal waste, biodegradable waste and waste not earlier treated,
- cover 100% of population with a scheme for selective reception of wastes,
- develop clean technology.

The following are the major activities planned in the sphere of developing waste management policy:

- intensify environmental education promoting suitable modes of conduct of waste and manage effective information and education campaigns in this scope,
- support implementation of economically and environmentally effective waste recovery and disposal technology, including technology which provides for energy recovery from waste through thermal and biochemical treatment processes thereof,
- strengthen supervision over the entities which manage activities in the scope of collection, transportation, recovery and disposal of waste,
- eliminate unsuitable practices in the field of operation and reclamation of waste landfills.

Given the problems identified (in Chapter 2) and changes anticipated in the field of waste management (Chapter 3) and the objectives established hereunder (Chapter 4) and also the targets for action (Chapter 5), the tasks to be implemented under the 2014 National Plan have been set forth(Chapter 6).

Implementation of specific tasks set out in the 2014 National Plan is due to assessment based upon the implementation reports of the lower-level Waste Management Plans and also upon information obtained from individual administration sectors. Monitoring of the objectives achieved as set out in Chapter 4 of the 2014 National Plan will be assessed upon factors determined in Chapter 8. In the initial phase, the information sources will be data stored in existing databases, as collected within the administrative system, including statistical surveys. Once the National Database on Products, Packaging and Waste Management (NDB) is established it will become the major information source.

List of abbreviations

- BAT-Best Available Technique
- NDB-The National Database on Products Packaging and Waste Management
- CRV-Polish Central Register of Vehicles
- GIOŚ-Chief Inspectorate for Environmental Protection
- GUS-Polish Central Statistical Office
- National Plan-National Waste Management Plan
- The 2010 National Plan-The 2010 National Waste Management Plan
- The 2014 National Plan-The 2014 National Waste Management Plan
- MBP-mechanical and biological treatment of municipal waste
- PCBs-polychlorinated biphenyls, polychlorinated terphenyls, monomethyl-tetrachlorodiphenyl methane, monomethyl-dichloro-diphenyl methane, monomethyl-dibromo-diphenyl methane, and any mixture containing any of the abovementioned substances in a total of more than 0.005 %, by weight
- GDP-Gross Domestic Product
- pe-population equivalent, or unit per statistical end-user loading, is the number expressing the ratio of the sum of the pollution load produced during 24 hours by industrial and/or municipal facilities and services to the individual pollution load in household sewage produced by one person in the same time
- d.m.- dry mass

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