

The Polish National Waste Management Plan 2014

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1. Introduction

Act of 27 April, 2001 on waste (Journal of Laws of 2010, No. 185, item 1243 with later amendments) introduced an obligation to develop waste management plans, which are to be updated at least every four years.

The National Waste Management Plan 2014 (Official Journal *Polish Monitor* of 2010 No. 101, item 1183) is an update of the National Waste Management Plan 2010, taking into account requirements of directives, for example Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22.11.2008, p. 3), containing a waste prevention programme, and the recommendations contained in *Report on the implementation of the National Waste Management Plan 2010 for the period from 1 January 2007 to 31 December 2008*.

National Waste Management Plan covers full range of tasks required to ensure an integrated waste management in the country in a way that protects the environment, including current and future opportunities, economic conditions and technological level of existing infrastructure. The plan includes both waste prevention programme in relation to different types of waste and the disposal strategy for the reduction of biodegradable waste.

The waste management plan relates to waste generated in Poland, particularly municipal waste, hazardous waste, packaging waste, municipal sewage sludge, and waste imported into the country.

National Waste Management Plan covers:

- description of the current state of waste management,
- projected changes in waste generation and management,
- targets for waste management and providing deadlines for their achievement,
- waste management system,
- tasks, implementation of which will improve the situation of waste management,

- the type of projects and the timetable of their implementation,
- financial instruments for implementing the objectives of waste management,
- monitoring system and method for estimating the implementation of the objectives of waste management.

2. Identification of problems in waste management

Analysing the state of waste management in Poland, stress was laid on identification of existing problems. Quality of statistical data, level of ecological awareness of the Polish society and the state of infrastructure of waste management belong to the main problems. Moreover specific problems in particular area were identified.

Concerning municipal waste, including biodegradable, the following problems are being identified:

- insufficient number and processing capacity of facilities for the management of waste, including thermal and mechanical-biological treatment of mixed municipal waste,
- management of municipal waste during the so-called transitional period, i.e. during the period from the closing of landfills not complying with legal and technical requirements to the opening of the waste management plants,
- too slow progress in the development of separate collection of municipal waste, including hazardous waste occurring in a stream of mixed municipal waste,
- lack of legally defined requirements for mechanical-biological treatment of mixed municipal waste,
- lack of systems for collecting expired medicines from households, particularly in the areas not covered by thermal disposal of municipal waste.

The analysis of hazardous waste management showed problems in a few area. In terms of waste oils the following problems are being identified:

- lack of sufficiently developed system of collecting waste oils from small and medium enterprises and households,
- lack of adequate separate collection of these wastes from place of their generation, making it impossible in many cases to direct them to regenerating process,
- under-utilization of national capacity of installations,
- low quality of waste oils (including share of ingredients of vegetative origin), which is closely linked with the possibilities of waste oils processing in the process of recovery,
- requirements not covering recovery and recycling of semi-synthetic and synthetic lubricating oil.

With regard to the management of waste batteries and accumulators the following problems were indicated:

- absence of facilities in the country for the management of the used alkaline batteries, securing the recycling efficiency at a minimum of 50 %,
- existing installations in the country, performing recovery processes of lead-acid batteries and accumulators, have significant spare capacities,

and in case of waste electrical and electronic equipment:

- the collection target of 4 kg per person per year, from 1 January 2008, was not reached,
- part of electrical and electronic equipment waste, especially waste such as washing machines, refrigerators or freezers end up on scrap yards and are not properly managed and not subject to registration and notification,
- entrepreneurs not sending their reports to the Chief Inspector of Environment Protection or the making them in an unreliable way.

There are still following problems in management of waste containing asbestos:

- incomplete number of situational plans which include deployment of products containing asbestos and complete records of buildings containing asbestos and sites in communities across the country exposed to asbestos,
- lack of a full inventory of used products containing asbestos and insufficient number of checks of facilities and construction equipment by the majority of natural and legal persons who are owners, managers or users of the places where asbestos or asbestos-containing products were or are in use,
- incomplete information on the amount of removed asbestos-containing products,
- in the instance of acceleration of the process of removing asbestos, insufficient capacity of landfills.

In the management of used tires, the following problems are being identified:

- incineration of used tires in installations unsuitable for this purpose,
- mixing these waste with other wastes and their disposal in municipal waste landfills,
- managing difficulties of large-diameter tires,
- lack of an efficient network for collection of used oversized tires

and in case of management of the municipal sewage sludge:

- insufficient analysis of the management possibilities of municipal sewage sludge at wastewater treatment plant at design stage,
- water and sewerage companies are not predisposed to self-creation of complicated and expensive installations of municipal sewage sludge management systems,
- a high percentage of the landfilled sewage sludge,
- not all solutions for the management of municipal sewage sludge are comprehensive, i.e. do not take into account the subsequent management of sludge.

3. Adopted aims in waste management

Far-reaching aim of establishing process of national waste management plan is reaching waste management system consistent with the principle of sustainable development, in which the principles of waste management are fully implemented. In particular the principle of dealing with waste in accordance with the waste hierarchy, first to prevent waste, and then successively preparing for reuse, recycling, other recovery methods (i.e. use of waste), disposal, the least desirable way to manage them is landfilling. Implementation of this objective will enable the achievement of other goals such as reducing landfilled waste,

particularly biodegradable waste, reduce climate change caused by waste management or to increase participation of energy from renewable sources in the energy balance of the country, by replacing fossil fuel burning by energy recovery methods of waste containing biodegradable fractions.

Accordingly, with regard to the national environmental policy, the following main objectives were adopted:

- maintaining the trend of decoupling growth in waste generation from economic growth of the country expressed in the GDP;
- increasing the share of the recovery, particularly recycling in relation to glass, metal, plastic, paper and paperboard, as well as energy recovery from waste in accordance with the requirements of environmental protection;
- reducing amount of waste going to landfills,
- eliminating practices of illegal waste landfilling,
- creation and launch of a database of products, packaging and waste management.

There will be further changes in the law, arising from the need to transpose the EU law and from the need for changes identified in this plan.

For each group of waste (i.e. municipal waste, hazardous wastes and other wastes), more specific objectives were formulated.

Following objectives were adopted in municipal waste management:

- organising the system of collection of municipal waste covering all residents by 2015 at the latest,
- organising the system of separate collection of waste covering all residents by 2015 at the latest,
- reducing the amount of biodegradable municipal waste going to landfills, i.e. the following amount of these waste should not be landfilled:
 - * more than 50 % in 2013,
 - * more than 35 % in 2020

mass of these waste produced in 1995,

- reducing the mass of municipal waste landfilled to the max. 60 % of waste generated by the end of 2014,
- preparation for reuse and recycling of waste materials, such as at least paper, metal, plastic and glass from households and possibly from other sources similar to households, at a minimum level of 50 % of their mass by 2020.

In case of waste oil specific goals are maintaining the level of recovery of at least 50 %, and recycling understood as regeneration at a level of at least 35 % and also striving to make full use of installations capacity for regeneration of waste oils.

With regard to the waste batteries and accumulators and waste electrical and electronic equipment the aim is to achieve targets indicated in directives, i.e. Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC (OJ L 266, 26.09.2006, p. 1) and Directive 2002/96/EC of the European Parliament and of

the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE) (OJ L 37, 13.02.2003, p. 24), and striving to make full use of capacity of treatment facilities for waste batteries and accumulators.

In the period from 2011 to 2022, progressive achievement of the objectives set out in adopted on 15 March 2010 by the Council of Ministers, *National Programme for Elimination of Asbestos for years 2009 – 2032* is presumed.

In case of used tires in the prospect to 2022, the primary objective is to maintain the current level of recovery of at least 75 %), and recycling of at least 15 %.

In the prospect to 2022, the basic objectives of the management of municipal sewage sludge are:

- limiting the landfilling of sewage sludge,
- increasing the amount of treated municipal sewage sludge, before the introduction into the environment and sludge treated by thermal methods,
- maximizing the utilization of biogenic substances, contained in the sludge, while meeting all requirements for sanitary, chemical and environmental safety.

4. Lines of action for waste prevention and shaping of waste management system

Waste prevention is a priority in Community law as laid down in the waste hierarchy and EU member states are obliged to take appropriate actions to achieve that aim. Achieving this objective is dependent on many factors, which are not directly related to waste management, but are linked with e.g. economic growth, the degree of implementation by entrepreneurs of best available techniques (BAT), or wealth of society. Decisions on waste prevention are being made at the product design phase, and also at the phase of its manufacture, use, and are associated with the final waste management arising from these products after the completion of their life cycle. Therefore, at the national level mainly the following activities will be undertaken:

- supporting the introduction of low-waste production technologies and ensuring the use of all possible components of the raw materials used,
- promotion of environmental management,
- intensive environmental education to promote waste prevention,
- raising the fees for waste landfilling, particularly of mixed municipal waste, biodegradable waste and the waste previously untreated,
- development of clean technologies.

In terms of shaping policy for waste management, the main lines of action are:

- intensification of environmental education to promote proper waste management, and conduct effective information and education campaign in this area,
- supporting the implementation of economically and environmentally efficient technologies of waste recovery and disposal, including technologies for recycling and recovery of energy contained in waste in the thermal and biochemical processes of their treatment,

- strengthen the control of entities engaged in the collection, transport, recovery and disposal of waste to ensure the effective law enforcement,
- elimination of improper practices in operating and reclamation of landfills.

In accordance with the principles of sustainable production and consumption, very important role play eco-innovations, based on the principle of *from cradle to cradle*, which is the base for so called *recirculation economy*. Therefore, an entrepreneur engaged in activities involving the generation of waste at any stage of a product's life, should consider this aspect. Consequently, entrepreneurs, both before starting a new business, expansion or alteration of existing, as well as periodically – for example, not less frequently than every 5 years – in terms of activities already carried out, should perform an analysis of possible waste prevention and the recommended handling of waste.

Analysis, starting from the design stage of the production process, should include an analysis of technological processes used by businesses, which could result in switching to processes that increase resource efficiency, thereby reducing the formation of waste. It should cover inter alia changes in raw materials used in production. Important in this regard is to identify both the potential to switch to alternative materials, as well as originating from other processes, including the remains of their processing. It is also necessary to examine the possibility of waste usage in the manufacturing process. Moreover, whereas the goal of waste prevention, the entrepreneur should carry out an analysis of possible changes in type of energy used for manufacturing process.

Particularly important are the changes related to the design, which could contribute to the production of goods that will generate as little waste as possible during their use by consumers. Therefore, the entrepreneur should perform analysis, effect of which will be the design and manufacture of the product, which on the one hand, does not cause the formation of excessive amounts of waste during the use, on the other hand, product should be solid, durable with longer lifecycle. Bearing in mind the need to raise environmental awareness of producers and consumers, the entrepreneur should consider the possibility of such an impact on the consumers, to make them aware that they had purchased a durable product, even with a possible higher purchase price for such product.

In the proposed analysis, the entrepreneur should also identify opportunities for change in the distribution process, to such, that will contribute to waste prevention.

Above guidelines and actions, arising from them should be applied, while taking into account the specificity of activity, also to the processes other than manufacturing, e.g. services.

Life Cycle Assessment (LCA), should be useful for the analysis. This environmental management technique, which main objective is to seek to take into account all factors that could potentially have an impact on the environment, and are associated with given product. Item in LCA, can either be a specific product, or the entire process of production or use of the product, as well as the service specified. When conducting a research using LCA technique, a structure is being created, within which it is easy to see and assess the relations between waste generated in each phase of production or use and their impact on the environment. Such prepared base is a basis to determine the impact of factors analyzed (compiled in the various categories of impact) on the environment and to indicate in which phase of the process they carry the greatest risk.

At the same time entrepreneurs who implement the above guidelines concerning waste generation and the recommended method of their management, shall be entitled to cite on them in all documents and publications (including, for example, the entrepreneur's website).

In accordance with the objectives set for the recovery and recycling, there is a need to maintain an appropriate system of separate collection and receiving at least the following fractions of municipal waste:

- green waste from gardens and parks,
- paper and paperboard (including packaging, newspapers, magazines, etc..),
- glass packaging waste, divided into clear and colored glass,
- plastics and metals,
- waste batteries and accumulators,
- waste electrical and electronic equipment,
- expired pharmaceuticals,
- chemicals (paints, solvents, waste oils, etc.),
- furniture and other large size waste,
- construction and demolition waste.

In urban areas or regions, which are defined in regional waste management plans, as areas operated by the installations for thermal treatment of waste, expired pharmaceuticals, chemicals, contaminated paper and cardboard, can be collected as mixed municipal waste.

In rural areas, green waste can be handled in-house, including composting or in agricultural biogas installations, whereas in family housing areas, in the backyard composting.

According to the adopted system of waste management in the given municipality, the municipal council shall adopt rules of cleanliness and orderliness in the municipality, which will include the adopted system solutions, inter alia obligation for separate collection of the above fractions. Other fractions of municipal waste can be collected together as mixed municipal waste.

Separately collected waste must be gathered and transported in such a manner as to avoid mixing.

The basis for waste management should be the waste management facilities (WMF), which include regional treatment plants for municipal waste with a capacity sufficient to receive and process waste from an area inhabited by a minimum 150 thousand residents that meet the technical criteria for best available technique, serving respective regions of waste management.

WMFs are obliged to ensure at least the following range of services:

- mechanical-biological or thermal treatment of mixed municipal waste and residues from the sorting,
- landfilling of treated mixed municipal waste,
- composting of green waste,
- sorting of the various fractions of municipal waste collected separately (optional),
- dismantling facility of bulk waste (optional),
- waste electrical and electronic equipment treatment plant (optional).

In the case of agglomerations or regions covering more than 300 thousand residents, the preferred method of management of mixed municipal waste is their thermal treatment. Infectious medical and veterinary waste will be accepted in municipal waste incineration plants, after their initial deactivation. Within the frames of the regions designated in the voivodship waste management plans, municipalities have to jointly conduct the municipal waste management and ensure the construction and maintenance of waste management infrastructure, in particular waste management plants.

Voivodship plans indicate locations for the recovery and disposal of mixed municipal waste for the certain period, until the construction of regional waste management facilities is completed.

Achieving assumed goals in the area of management of waste oils, requires undertaking the following actions:

- development of an existing waste oil collection system, including multiple sources and standardization of equipment,
- monitoring the proper handling of waste oils (primarily recovery by regeneration, and if it is not possible due to the degree of contamination of waste oils, performing another process of recovery),
- proper management of waste from oil spills.

One of the measures allowing achievement of the objectives may also be bringing by the Chief Inspector of Environmental Protection opposition to a transboundary movements of waste oils, to ensure the implementation of legally binding obligations on the recovery and recycling.

To achieve assumed goals in the area of waste batteries and accumulators, innovative technologies should be developed and implemented for treatment of waste batteries and accumulators, particularly alkaline, which ensures the recycling efficiency. One of the measures to achieve the objectives may also be bringing by the Chief Inspector of Environmental Protection opposition to transboundary movements of such waste, to ensure the implementation of legally binding obligations on the recovery and recycling targets set out in Community legislation.

Achieving assumed goals in the area of management of waste electrical and electronic equipment, requires:

- expanding or upgrading the technical infrastructure for the collection and processing of waste electrical and electronic equipment,
- reduction of the existence of the *grey market* in the economy, by legislative action and control.

Achieving assumed goals in the area of management of waste containing asbestos requires undertaking actions described in the *National Programme for Elimination of Asbestos for years 2009 – 2032*.

In the area of management of used tires achieving assumed goals requires expanding technical infrastructure to collect used tires, especially in the area of collecting from small and medium-sized enterprises.

It is recommended using the following methods and technologies for the management of used tires:

- retreading,

- manufacture of rubber granules,
- energy recovery through co-incineration in cement kilns, power plants or power plants that comply with requirements for the co-incineration.

Achieving assumed goals in the area of management of municipal sewage sludge requires:

- taking into account issues of proper management of municipal sewage sludge in the course of investments in the construction or upgrading of wastewater treatment plants,
- introduction of the arrangements for the management of sewage sludge for the smaller agglomerations,
- increase the amount of municipal sewage sludge used in biogas installations for energy purposes,
- growth in the mass of the municipal sewage sludge converted in cement kilns, power boilers and incineration installations of municipal sewage sludge.

Taking into account the existing potential in the cement sector for the thermal treatment of dried sewage sludge, construction of installations for dewatering and drying of sewage sludge should be promoted in order to prepare them for energy recovery in cement kilns.

In the National Waste Management Plan 2014 detailed tasks were also defined, which apart from legislative actions, include:

- creation and launch of a database of products, packaging and waste management,
- broadening of green public procurement,
- coordination and support of the implementation of scientific research in the field of waste management (*technologies with a reduced rate of waste generation, products with less environmental impact during their use and after its completion, the waste recycling technologies, the conditions of isolation of certain substances and materials, possible to consider them as a products*),
- conducting a nationwide information and education campaign on waste management in households.

Based on the reports on the implementation of voivodship waste management plans, and information obtained from various ministries, assessment will be conducted regarding implementation of different tasks specified in the National Waste Management Plan 2014. Moreover aims defined in the plan will be monitored. The source of data in the initial phase, will be data stored in existing databases, collected in the within administrative system and statistical surveys. After creation of database of products, packaging and waste management, it will become the main source of information. To determine the values of some indicators, data from the reports on the implementation of voivodship waste management plans will be used as well.

5. Recapitulation

Realization of tasks indicated in the National Waste Management Plan 2014 should contribute to solution problems identified during preparation of this plan and also to achievement of targets resulting among others from European law.



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