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Editorial

Municipal Waste Management Challenges: the Current Situation in Lithuania

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During the twenty year period of regained Lithuanian independence, Lithuanian society took over the process of European traditions and experiences and attempted to pursue a sustainable social-economic policy. An integral component of this process is development of a municipal solid waste (MSW) management system. However, it is evident that MSW management is a complex socio-economic-political process, which involves much wider areas than public utilities and environmental protection. Any MSW management system faces various significant challenges, which are also characteristic of many East-European countries, and they deserve a detailed evaluation.

Let us try to consider cardinal achievements of the Lithuanian MSW management system during the period after the entry to the EU in 2004. First of all, 10 waste management regions (whose frontiers practically coincide with those of the counties), with so-called regional waste management centers for presumable coordination of MSW system development, have been established. Hereby, the beginning of MSW development in Lithuania started from setting up new bureaucratic institutions.

Further, new regional landfills for each waste management region with developed leachate treatment, landfill gas collection, protection, and waste flow control system have been constructed, while old small landfills and dumps in Lithuanian districts and wards have been closed.

In fact, the establishment of regional landfills is considered as the most important step for practical-technical modernization of Lithuanian municipal waste system. Other observable technical measures to be implemented include an augmentative separate collection of yard waste and its composting on special sites in each municipality, whereas separate collection of recyclable fractions (glass, metal, plastic, paper) and their preparation for recycling are significantly growing. However, despite this, MSW recycling and composting quantities constitute just about 4.8 percent of the total municipal solid waste.

The other steps of Lithuanian MSW system development are mostly bureaucratic actions: implementation of the EU Directives, creation of the corresponding national law and other legislative activities (including the Lithuanian State Strategic Waste Management Plan, which has already come into effect), arrangements of various technical feasibility studies, mostly known of which are:

- 10 regional feasibility studies for MSW system development;
- national feasibility study for MSW incineration;
- technical feasibility studies for municipal waste incineration in Vilnius, Kaunas and Klaipėda cities;
- technical feasibility study for energetic use of high-calorific fractions in Lithuanian cement industry (Naujoji Akmenė, North Lithuania).

One of the points of the Lithuanian State Strategic Waste Management Plan (LSSWMP) declares that until 2013 no less than 50 % of municipal waste is to be recycled or otherwise used. Further, this plan sets the particular percentage for separate collection and recycling for packaging materials, i.e. paper and cardboard - 60 %, plastics and composites – 25 %, glass – 60 %, metals – 50 %.

According to the recommendations of EU specialists, the percentage of separate collection of biodegradable waste (i.e. food waste and yard waste) should achieve 22 % of the total biowaste amount.

Finally, according to the same LSSWMP, landfilled part of municipal biodegradable waste (compared to the situation of 2000 year) may be reduced

- - until 2010: no more than 75%;
- - until 2013: no more than 50%;
- - until 2020: no more than 35%.

Nevertheless, today the actual waste disposal situation in Lithuania is rather critical. Regrettably, the shares of separated collected fractions do not exceed 5 percent of the total MSW amount. We must also have in the mind that this share contains mainly yard waste, which now is collected separately and aerobically composted on specially constructed sites in each municipality, mainly in the period from April to November. The share of separately collected and recycled plastics, metals, paper, and glass is even lower despite that each parish has special bins, which are always jam-packed. It testifies actual irresponsibility of Lithuanian Ministry of Environment and Lithuanian municipalities regarding the implementation of the LSSWMP requirements for MSW recycling and other use, also for biodegradable waste landfilling.

What is more, many political groups often take populist steps to provoke people against the enterprise structures, which try to put into practice some strategically important waste management system modernization projects, including energy production from waste.

Forces opposed to waste incineration often deny separate collection and recycling as a mostly environment friendly waste management process and criticize developers of the above mentioned feasibility studies for apparent obliteration of this innovative way. Such criticism is usually done without plugging into the content of prepared studies. After all, feasibilities have been assessed considering that separate collection and recycling of waste will be performed in full compliance with the requirements of LSSWMP and only the rest of waste would be used for energy generation.

Waste incineration opponents still try to set this waste treatment method against mechanical-biological pretreatment (MBP), keeping in the mind, that MBP is a full process of waste sorting and recycling and the fulfilment of LSSWMP is absolutely possible applying this method. They forget that when MBP obtains high calorific fraction (HCF), waste nonetheless needs to be incinerated, and biologic stabilized low calorific fraction (LCF) could be not used for compost and could be landfilled.

These intrigues have resulted in rejections of some waste incineration projects, fortunately, MSW incinerators in Klaipėda and HCF incinerators in JSC “Akmenės cementas” have not been closed. Recently, these intrigues and debates have slackened off, but the existing problems have not disappeared.

According to the waste management rules functioning in Lithuania, we must have in the mind that waste incineration connected with energy generation is one of the means of using waste but not disposing of it. Besides, mechanical-biological pre-treatment (MBP) is not recycling, because treatment residues (high- and low calorific fractions) are also waste, not the products. Both waste incineration and MBP are waste stabilizing process before its disposal in landfill.

The survey of the differences of waste and/or waste treatment residue flows to the landfills for each of these alternatives shows that due to MBP and following HCF incineration the landfilled residues are reduced 3 times and due to MSW incineration - 17 times.

Biodegradable waste landfilled with MSW and/or its treatment residues make environmental impact problems because during anaerobic biowaste digestion the main amount of greenhouse gas (methane CH_4) is emitted together with landfill gas. The emissions of greenhouse gas during waste incineration are significantly lower – about 10 times**.** The same concerns the emissions of toxic compounds which are emitted from landfills together with landfill gas and leachate. Waste incineration reduces these emissions for about 20-200 times.

The activity of KUT research teams could be characterized by their active participation in the decision making process concerning the above mentioned problems. Regrettably again, the course of action taken for the development of Lithuanian MSW management system is not always appreciated by governmental structures.