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SOLID WASTE MANAGEMENT IN TRANSITION

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ABSTRACT

While constructing market economies on the ruins of the central planning systems from the eastern part of Germany to the Pacific coast of Russia, many countries have faced a number of similar problems in the field of the solid waste management. But in the so called 'economies in transition' these problems were treated in different ways.

The group of the countries of Central and Eastern Europe on their way to the EU membership adopted the European principles of the SWM. They were to find an adequate solution to the essential waste problems earlier and in the very limited time period. On the other hand, the countries that now belong to the CIS, had somewhat put the problems of the SWM aside, therefore the process is in the most cases yet in its primary stage still. On their way to the effective SWM, these countries often orient towards the European model as well, though having more freedom in adapting it to the national circumstances.

The objective of the paper presented is to analyze the common problems of the countries in transition, evaluate the effectiveness of the European shaped solutions for the EU new member states and highlight the positive and negative points to be aware of when reforming SWM in the CIS countries.

KEYWORDS

Solid waste management; Economies in transition

1 INTRODUCTION

Economies in transition have faced a number of problems in the field of the solid waste management (SWM) when the administrative tools of the plan economy have proved to be unable to keep the sector in effective operation. After breakdown of the planning economy, a number of countries in Central and Eastern Europe (CEE), as well as countries of the Commonwealth of Independent States (CIS) had to find a better way to manage solid municipal waste in the new circumstances brought by the market economy.

The CEE countries on their way to the EU membership adopted the European principles of the SWM as a prerequisite of accession. They were to find adequate solutions to the essential problems of the waste management in the very limited time period due to the political pressure of the negotiations upon the accession.

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The objective of the paper presented is to analyze the common problems of the countries in transition, evaluate the effectiveness of the European shaped solutions for the EU new member states and highlight the positive and negative points to be aware of when reforming SWM sector in the CIS countries.

2 SWM ISSUES IN THE TRANSITION ECONOMIES

The problems of the solid municipal management in the EU new member countries were treated as part of the environmental complex. This is determined by the negotiations, which were oriented towards agreement upon the negotiation issues in blocks. In the CIS countries, on the contrary, the SWM is perceived as a part of the complex for the municipal services, strongly regulated by the state. Nevertheless, the problems of the SWM were to be solved by all of these countries in the circumstances of 'six challenges' – financial, administrative, ecological, democratic, energetic and political deficits [1]. In reality this results into situation, when common problems of the SWM, such as:

- tendency of the municipal solid waste generation growth in absolute figures, as well as per capita;
- international tendency of the composition of the solid municipal waste (SMW) getting more complicated;
- difficulty to solve the SWM issue within the limited urban territory;
- complicated and sometimes conflicting interests of the stakeholders;
- lack of the responsible attitude from the part of citizens and companies, which results in adopting the SWM methods of the lowest time and material costs and other problems are to be dealt with in the circumstances of the very limited city budget; underdeveloped system of the economic and administrative regulation; lack of the personal of the necessary quality and quantity on all of the SWM levels; public apathy in regard of the environmental and SWM issues; lack of the systematic environmental education in the schools as well as in the institutions of the higher education, etc.

The sector of the SMW is characterized with high social and environmental importance, and is one of the strategic sectors for each country. Therefore it became often a subject for the political manipulations. The decisions taken in regard of this sector involve higher responsibility and political risks for the sometimes unpopular but necessary decisions to be taken. These decisions were often put aside due to complexity and large number of the so called 'urgent' issues, bringing short-term benefits to the politicians.

The countries preparing for the EU accession had no possibility to postpone their problems. They had to accept European rules and regulations as soon as possible, when gaining even the so called transition period was a big success. In the field of the solid municipal waste, such transition periods of at least five years were granted to the most of the candidate countries in order to meet the requirements in question.

2.1 Environmental issues of the SWM in transition

The shortcomings in dealing with environmental problems that are common throughout the countries of the economies in transition include:

- a tradition of government secrecy in dealing with negative developments;
- populations that are preoccupied with economic survival at the expense of environmental improvement;
- substantial environmental legislation on the books but inadequate compliance and enforcement;
- a dearth of revenues to fund the high cost of environmental cleanup [2].

This is also fair for the SWM issues and reflects in the following developments: the real state of the sector is rarely discussed; the data in question is hardly existing; the pressure from the side of the population is minimal; the responsible behaviour is not developed; the legislation is often incomplete and unstable; the authorities are often not capable to enforce already existing legislation due to the corruption and lack of the corresponding administrative and economic mechanisms; the clean up costs are usually not calculated in time, responsibility is not split between the polluters, therefore the costs needed become often too immense to be covered from the local budget; the losses from ineffective waste management are also rarely taken into account.

Undervaluation of the effective SWM, including recovery of the materials, as criteria for urban development leads to the distorted estimation of the territorial indicators for economic development. Common practice of postponing the waste problems causes additional costs for the next generations to carry and contradicts the main principle of the sustainable development approach.

2.2 Infrastructure

All the countries in transition have faced a problem of the poor level of the infrastructure in all the stages of the waste management process. The auto parks for waste collection and waste containers had to be new equipped and the capacities for the waste mechanical treatment developed. Most of the waste in countries in transition is disposed at the landfills; however these landfills often represent a legal dump area due to their wrong location, poor design and operation. Lack of the monitoring systems resulted in poor control after the waste flows and landfill operation which led to the air, soil and groundwater contamination. Remediation of the contaminated areas and landfills closure are seldom calculated which leads to the situation when the costs are postponed to the future.

2.3 Privatization

The shift from plan to market put in question the effectiveness of the state monopolies. The privatization of the solid municipal waste sector together with the other municipal property became an option to be considered in all of the economies in transition. Privatization brings significant resources to the sector and can represent an important element in the sound practice. When the process is managed by the private operators, the competition provides delivery a cost-effective service of a higher level, than the state could provide using its own workers. However, it should not be seen as a panacea for all of the problems of the municipal SWM. Possible monopoly of one contractor belongs to the disadvantages of this option,

which gives also a chance for corruption. A large number of contractors, on the other hand, is not likely to provide an effective waste management due to the unfavourable scale effects.

2.4 Tariffs

Solid municipal waste services can be covered by the three principle alternatives available: property tax revenues, flat fees, and variable fee rates. In the most economies in transition the flat fees, known as user tariffs are used. However, appropriate tariffs are difficult to establish and collect, because historically residents were not charged the full cost of the services provided. In addition, tariffs rarely cover the full cost of collecting and transferring waste and operating the disposal facilities, let alone closing old sites. For example, in Albania tariffs would, on average, need to be increased 400 percent per household to cover the full costs of SMW services, not including closure costs [3]. On the other hand, although the raising of tariffs is generally a politically and socially sensitive issue, the fees are inevitable to grow in line with increase in purchase power of citizens for both environmental and economic reasons.

2.5 Economic instruments

Economic instruments development is a great challenge in the economies in transition. Aimed to regulate the process of SWM, the system of economic instruments is at the moment yet developing there. In this field international experience should be widely used. Environmental taxes, tradable permits and deposit refund systems will hopefully play a larger role in the economies in transition, having proved both environmental effectiveness and economic efficiency. Key factors for achieving positive results in this issue is careful and proper design of the instruments, formulation of clear objectives and gradual implementation [4].

2.6 Legislative base

Legislative base in the countries in transition belongs to the most serious problems preventing the SWM from effective operation. Although in many countries the environmental legislation exists, the authorities lack capacities and effective mechanisms for its implementation. The legislation in the field of the waste management is significantly underdeveloped. All the countries in question have established general laws on waste management; however the issues on producer's responsibility, recycling, hazardous and other special waste are not specified. The legislation is often incomplete, includes overlapping responsibilities and inconsistencies. Federal policy in the field of the waste management lacks long term oriented strategy, if exists at all.

Therefore it is seen, that most of the problematic issues of the solid waste management in economies in transition have economic-organizational, infrastructural and legislative nature.

3. SWOT-ANALYSIS OF THE SWM IN EU NEW MEMBER STATES

The SWOT-analysis presented in the Table 1 illustrates the strengths, weaknesses, opportunities and threats of the solid waste management in EU new member states providing state-of-the-art general view.

Table 1. SWOT-analysis of the SWM in EU new member states

Strengths	Weaknesses
• Adoption of the EU environmental legislation; • Financial support from EU; • Economic mechanisms development in the field of the SWM.	• Burdens of the past practices; • Lack of the capacities for the ever growing amount of the MSW; • Implementation gap; • Lack of experience; • Limited time for transition to be achieved.
Opportunities	**Threats**
• New member states are provided with the experience of the Western countries and clear guidelines for transformation; • Stimulation of the sound practices by EU; • Transition periods granted allow gradual development of the sector.	• Significance of the investments needed; • Shortage of the means to fulfil the adopted requirements; • Foreign invasion of the market • Dependence on EU.

4 ANALYSES OF THE SOLUTIONS IN EU NEW MEMBER STATES

Environmental issues and SWM problem have acquired a great importance already on the way of the countries in transition to the European Union. The costs of meeting the environmental requirements of EU accession were estimated by the Commission as 120 billion Euros only in the air, water and waste sectors and amount to two-four percent of the accession countries' GDP over 10-20 years [5].

A big concern raised also anticipated growth of the SMW generation amount. Solid municipal waste generation in the economies in the new member states was significantly lower than EU average. However, the calculations showed, if the quantities generated reach the average amount per capita for the EU, the total amount of municipal waste in the new member states will increase by 50% from 34 million tones in 1995 to 53 million tones in 2010 (See Figure 1). An increase of this order would cause enormous problems for waste management and demand efficient measures for collection and recycling.

The environmental challenge faced by these countries was immense; however economic restructuring in advanced economies in transition and the gradual introduction of market-based reforms have brought certain benefits. A great development have acquired also practices contributing to the environmentally sound management of municipal solid waste such as: waste reduction, recycling, safe treatment and disposal, management and planning, training, public education, etc.

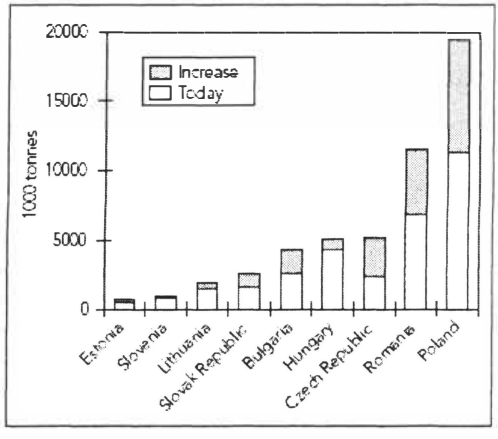

Figure 1. The figure shows the increase in the amount of waste in the Accession Countries if economic growth leads to just the EU average amount of municipal waste per capita. Latvia is not included in the table because data on municipal waste for Latvia is probably not comparable with that from the other countries.
Source: EEA, 1998

4.1 Environmental issues in the EU new member states

Enlargement of the EU meant also the necessity for the new member states to apply the environmental requirements – ecological acquis. Environmental standards is one of the areas where a lot should be done in order to catch up with the rest of the EU. In the worked out guidelines – Ecological Strategies for Integration – special attention is given to the waste management issues [6].

The challenge for the new member lies in:

- implementing the environmental requirements;
- financing the implementation process.

Implementation of the environmental standards of the higher level plays a big role also for the companies, operating in the countries in question. They have to deal now with significant changes in environmental protection legislation and significant investments in order to comply with it which, of course, reflects in the products' competitiveness.

4.2 Infrastructure

Solid waste collection and treatment infrastructure in the new member states exists based on the previous amounts and composition of the waste generated. The lack of capacities was ceased with new or used equipment bought from the Western countries, often using credits. Recycling sector developed on its own and is operated mainly by the small private companies specializing on concrete waste fraction. The selective waste collection is being introduced in

all the new member states. The tendency of putting into operation more incineration plants based on the European technology is seen.

An important tendency for the projects aiming to develop infrastructure to be aware of is a common practice 'to think big'n build a new landfill, buy a fleet of compaction and/or collection trucks, etc. SWM projects therefore suffer from the problem of past practices neglecting. For instance, old dumpsites often pose a risk to public health and/or the environment, and must be cleaned up to avoid the risk of additional exposure. Abandoning existing sites for the 'correct' ones without proper closure may pose a greater risk than their continued operation [3]n

4.3 Privatization

The privatization of the SWM sector as well as redundant systems of smaller firms that are likely to become the target of corporate takeover can lead to an unmanaged monopoly situation. Three worldwide largest companies specialized in municipal services – French Suez Group, Vivendi Environment and German RWE – are developing quite aggressively their business in the transition economies of Central and Eastern Europe. Waste management systems in Poland and Czech Republic, for instance, are controlled nowadays by a French operator. As an instrument for the takeover, credit projects of the World Bank where privatization belongs to the participation indispensable condition, were often used.

4.4 Tariffs

As the MSW projects tend to be costly, the residents and companies believe they are not getting much for their investment if a large portion of it is allocated toward correcting past practices. This reality makes the flat fees and their raising politically unattractive to local authorities, responsible for the solid municipal waste management in the community. Therefore the flat fees as the main source for the revenue rising has proved to be ineffective and was substituted in many cases by other economic instruments.

4.5 Economic instruments

In order to stabilize the situation in the sector and raise revenues for its development, most of the countries of the Central and Eastern Europe have introduced along with the charges on air emissions and waster effluents, waste disposal fees. These fees were generally introduced in conjunction with a permit system: a base fee rate is applied for permitted emissions and a penalty rate compliance with the permitted standard. Product charges, which were introduced extensively in Hungary and Latvia are getting into a common practice also throughout the region. It is difficult to assess the incentive effect of these charge systems, but available evidence does suggest that they do provide positive environmental and economic effects. Experience in Poland shows that environmental charges – even if set at high rates – have contributed to acceleration of the economic restructuring, which has also lead to improved economic performance [4].

The system of introduced charges and fees although meant with an incentive effect for pollution reduction, allowed raising revenues for environmental investments. With the exception of Albania, Croatia, Romania and Slovenia, the revenue from environmental charges is earmarked for environmental funds in the new member states [4]. Environmental funds have proved to be an effective mechanism for catalysing priority environmental investments that may otherwise have been not completed due to the inherited debt burdens

and national financial markets underdevelopment. Despite debates on the issue, if efficiently and transparently managed, environmental funds are playing increasingly important role in undertaking the necessary improvements.

4.6 Legislative base

According to the Commission's 2003 Comprehensive Report, in the field of environmental policy the acceding countries are for the most part well on track to be able to implement acquis, in particular as regards waste management, among horizontal environmental legislation, air quality, water quality, and other. Some countries, for instance, Czech Republic, have agreed upon the transition periods for the full compliance with legislation on waste management. The Commission estimated, that by year 2003 the prospective members have transposed around 80 percent of the EU's 149 environmental laws, among which the legislation on SWM.

5 CONCLUSIONS AND RECOMMENDATIONS

The EU new member states as well as CIS countries, were challenged with the objective of achieving transition in the field of the solid waste management. In the complicated circumstances of the transition period, they had to reform their national waste management sector, bringing it from an activity of landfilling undertaken by municipalities to a wider industrial activity, with private and public waste management companies specializing in waste collection, treatment and recycling and the institutionalization of waste prevention and management in companies, in a changing economic and policy environment.

Having adopted during the accession negotiations main European principles, the CEE countries undertook a 15 year transformation of the waste management sector. As seen from the study presented, the achievements have proved to be significant. The CIS countries, having put the reforms of their SWM systems somewhat aside, have received a chance to learn from the transformation experience of other economies in transition.

In general positive development of the SWM in the CEE countries was catalysed by their will to join the EU as well as by the financial aid of the European Union. However, based on the experience of the EU new member states, the following recommendations can be drawn in order to help the CIS countries on their way to the effective SWM:

- adopting of the environmental legislation can not solve the problem alone, therefore the corresponding implementation mechanisms should be given special attention;
- practice of the flat tariffs as the main source for the environmental investment has not prove its efficiency and therefore should be revised;
- greater use of economic instruments allow more efficient fund raising and necessary environmental investments;
- privatization of the sector can not be remedy for raising effectiveness of the SWM and can lead to the unmanaged monopoly situation;
- clear policy in the field of the SWM aiming long-term objectives, provide benefits in gradual transformation of the sector;
- practices contributing to the environmentally sound management of municipal solid waste such as: waste reduction, recycling, safe treatment and disposal, management and planning, training, public education and other should be given more attention;

- ever growing amounts of the solid municipal waste and its composition complexity should be taken into account;
- perfomance-based improvement of the existing facilities operation tends to be more cost and risk effective than significant investment into building totally new infrastructure;
- international collaboration provide effective knowledge transfer and stimulate development of the sound practice.

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